220TH MEETING OF THE
AMERICAN ASTRONOMICAL SOCIETY

10-14 June 2012

ANCHORAGE, ALASKA

All scientific sessions will be held at the:

Dena'ina Civic and Convention Center
600 W. Seventh Avenue
Anchorage, AK 99501

and

William A. Egan Civic and Convention Center
555 W. Fifth Avenue
Anchorage, AK 99501

AAS and SPD Paper Sorters

Brian Dennis
Shantanu Desai
Rick Fienberg
Eric Gawiser
Shadia Habbal
Nimish Hathi
Bethany Johns
Sebastien Lepine
Kevin Marvel
Joan Schmelz
Edward Schmidt
David Syphers
Lee Anne Willson

Session Numbering Key

100's Monday

200's Solar Physics Division and Laboratory Astrophysics Division Posters

300's Tuesday

400's Wednesday

500's Thursday

Sessions are numbered in the Program Book by day and time.

Changes after 4 May 2012 are included only in the online program materials.

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AAS Officers & Councilors

*** New AAS Officers and Councilors begin their terms after the Anchorage AAS Members' Meeting on 13 June 2012.**

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elmegreen@aas.org

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Anne P. Cowley *Arizona State Univ.*
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Councilors

Richard G. French *Wellesley College* (2009-2012) french@aas.org

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Nancy S. Brickhouse *Harvard-Smithsonian, CfA* (2012-2015*) brickhouse@aas.org

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Steven D. Kawaler *Iowa State Univ.* (2012-2015*) kawaler@aas.org

Press officers

Press Officer (2010-Present)
Rick Fienberg *AAS*
rick.fienberg@aas.org

Deputy Press Officer
Inge Heyer *Univ. of Wyoming*

Deputy Press Officer
Larry Marschall *Gettysburg College*

Sponsors

UNDERGRADUATE ORIENTATION SPONSORS

AAS/Solar Physics Division
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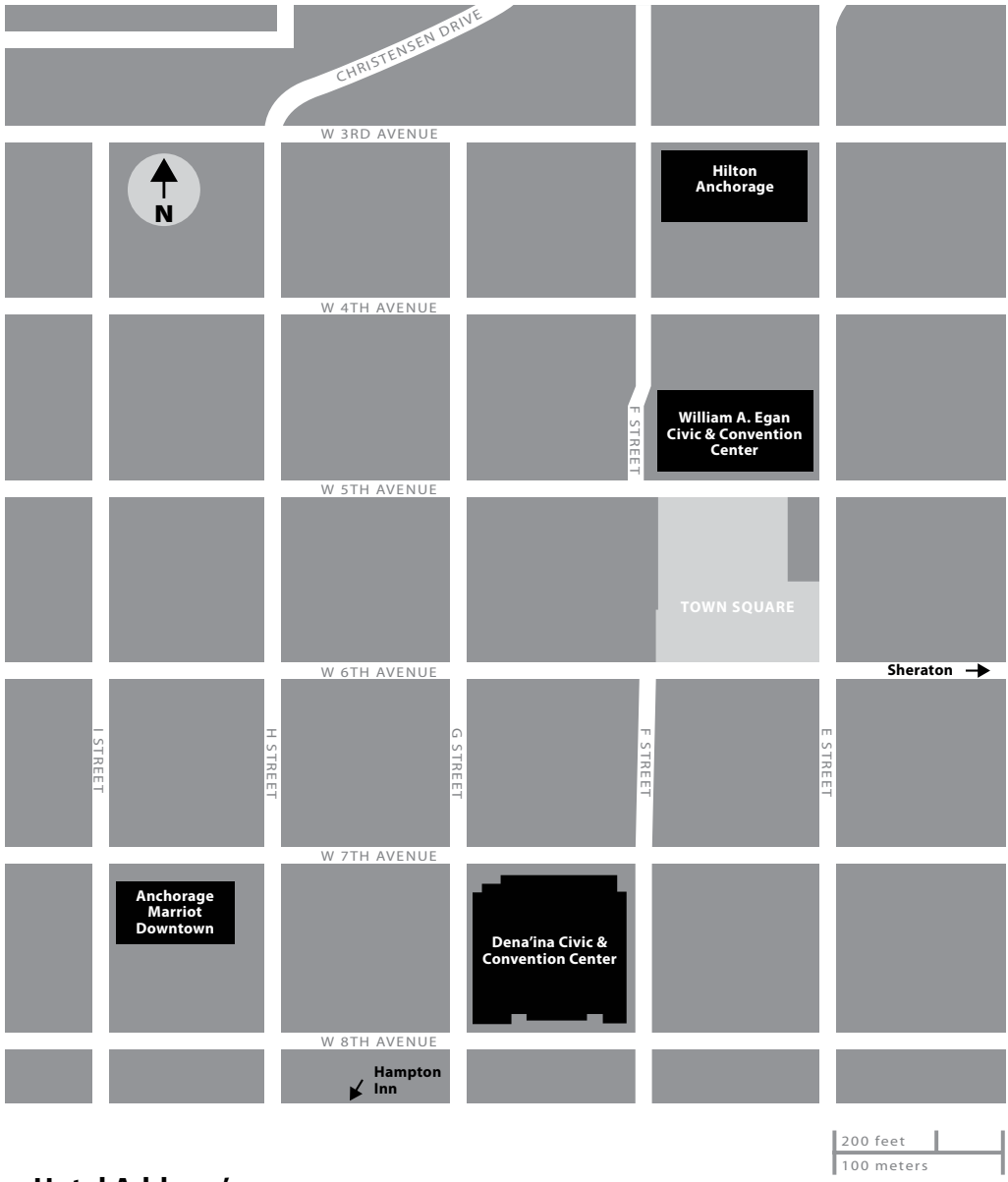
Massachusetts Institute of Technology
National Radio Astronomy Observatory
Rice University
Steward Observatory, University of Arizona
University of California, San Diego
University of Michigan
University of Virginia
Wesleyan University/Keck Northeast Astronomy Consortium
Yale University
As of May 9, 2012

Area Map



Hotel Address':

Anchorage Marriott Downtown - 820 W. 7th Avenue

Hampton Inn - 4301 Credit Union Drive

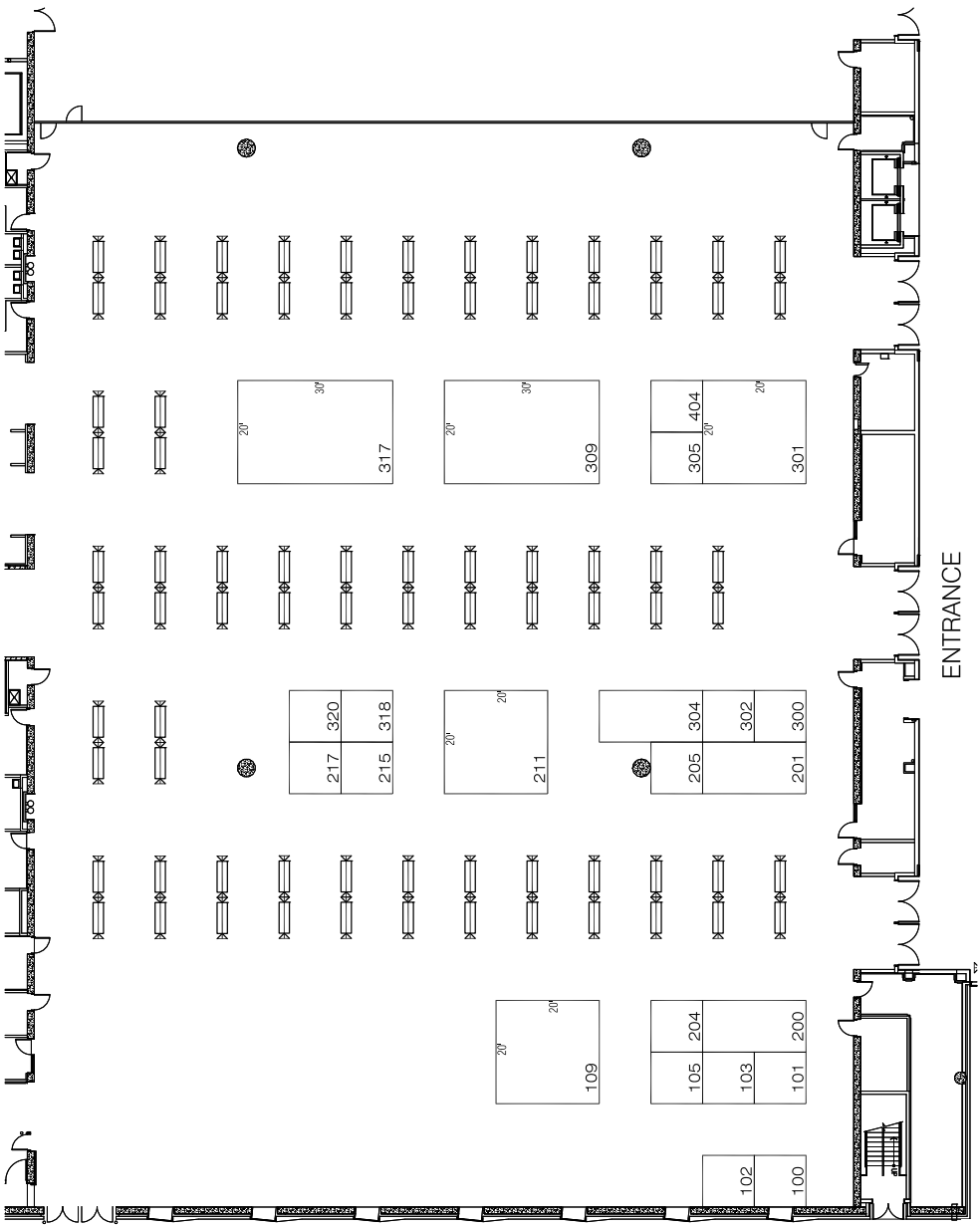
Hilton Anchorage - 500 W. 3rd Avenue

Sheraton Anchorage Hotel & Spa - 401 E. 6th Avenue

EXHIBITORS

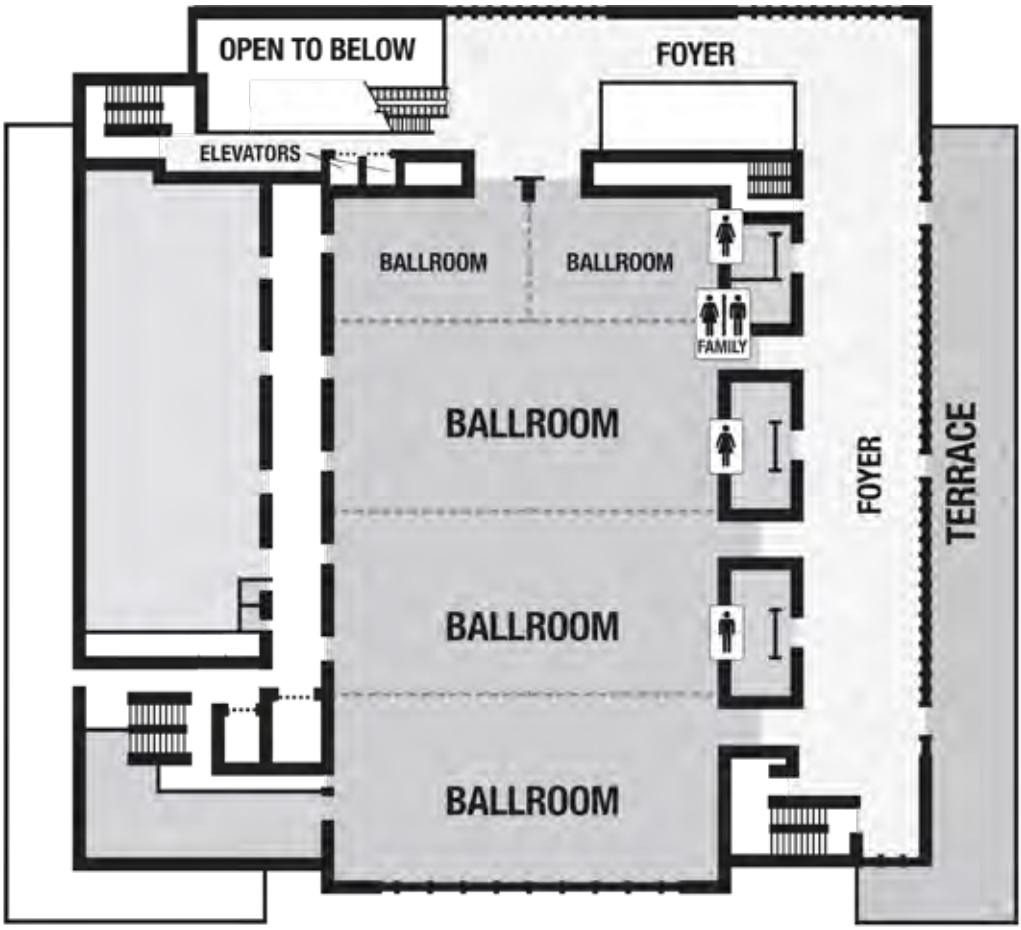
109	American Astronomical Society Executive Office
	AAS Communicating with Washington
	AAS Laboratory Astrophysics Division
	AAS Solar Physics Division
302	Apogee Imaging Systems
103	Arecibo Observatory – NAIC and technology Corp.
404	AURA/ National Solar Observatory
101	Ball Aerospace
215	Cambridge University Press
200	Chandra X-Ray Center
102	IAU XXVIII General Assembly, Beijing, China
317	IPAC
309	NASA Exoplanet Program
301	NASA Lunar Science Institute
300	Northrop Grumman
304	NRAO
217	Pearson
201	Physics of the Cosmos/Cosmic Origins
105	S.O.F.I.A.
100	Solar Information Processing
211	Space Telescope Science Institute
205	Springer Science & Business Media
305	The National Optical Astronomy Observatory
320	TMT Observatory Corporation
318	UC Berkeley Space Sciences Laboratory WISE Mission
204	University of Hawaii Institute for Astronomy PanSTARRS

Dena'ina Center
Exhibit Hall

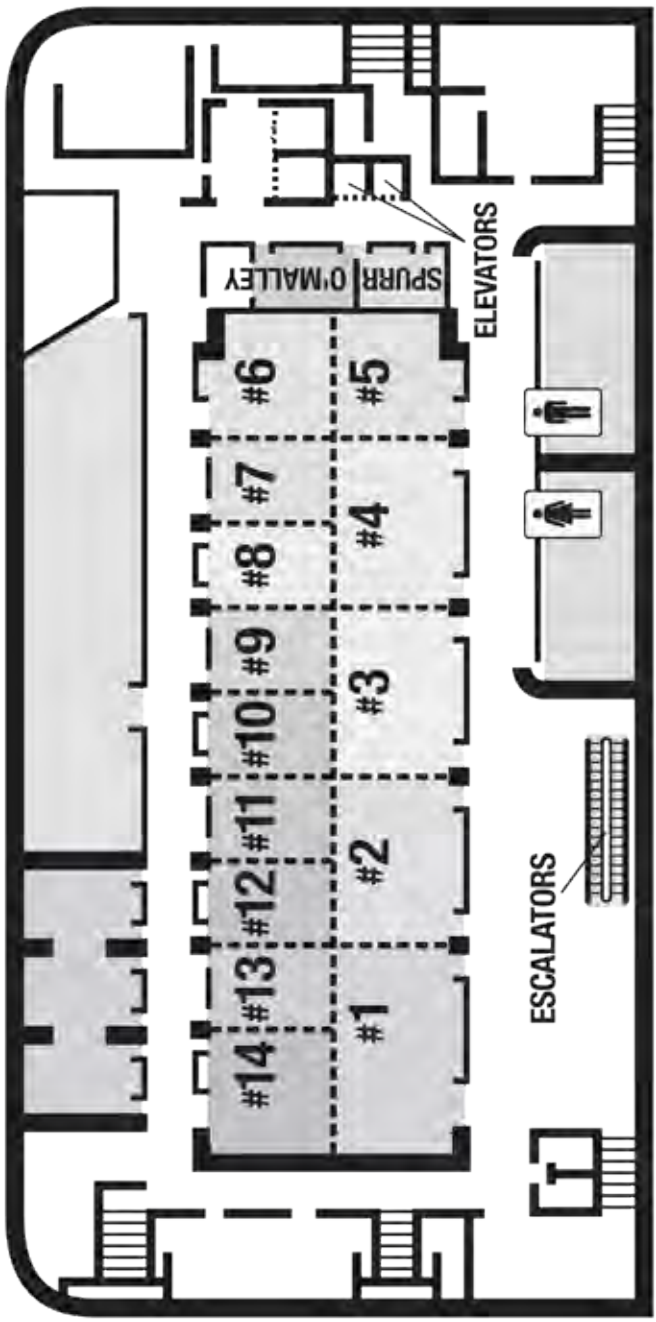


Dena'ina Center
Second Floor

Dena'ina Center
Third Floor



William A. Egan Center
Lower Level



For everyone's protection, please wear your badge at all times during the meeting.

Registration

Dena'ina Center Lobby
Sunday: 3:00pm-8:00pm
Monday: 7:30am-5:00pm
Tuesday-Wednesday: 8:00am-5:00pm
Thursday: 8:00am-4:00pm

Exhibit Hall

You must have your badge to enter the Exhibit Hall.

Monday-Tuesday: 9:00am-6:30pm
Wednesday: 9:00am-7:30pm
Thursday: 9:00am-2:00pm

Please do not leave personal items unattended. The AAS is not responsible for lost or stolen property.

Posters not removed by closing times will be discarded.

Exhibit Hall Events

Morning Coffee Break
Monday-Thursday, 9:30am-10:00am

Concession Stand
Monday-Wednesday: 10:30am-2:30pm

Evening Poster Session with cash bar
Monday-Tuesday, 5:30pm-6:30pm
Wednesday 6:30pm-7:30pm

Poster Session
Thursday, 1:00pm-2:00pm

Student Outreach Program
Tuesday, 12:30pm-3:00pm

Speaker Ready Room

Executive Board Room, Dena'ina Center
Sunday: 3:00-5:00pm
Monday-Wednesday: 7:30am-4:00pm
Thursday: 7:30am-2:00pm

Press Office

Ballroom D, Dena'ina Center
Sunday: 2:00pm-6:00pm
Monday-Wednesday 8:00am-6:00pm
Thursday: 8:00am-2:00pm

Press Conference Room:
Ballroom E, Dena'ina Center

Press Interview Room:
Spurr Room, Egan Center

Cyber Café - Sponsored by Northrop Grumman

Ballroom D Lobby, Dena'ina Center
Monday-Wednesday: 8:00am-6:30pm
Thursday: 8:00am-4:00pm

If there is a line for computers, please limit your time to 15 minutes.
Absolutely no food or drink is permitted in the Cyber Café.

Using Your Own Laptop While At The Meeting

- Wired access available in Exhibit Hall at specified locations.
- All devices are required to be running the most up-to-date virus and spyware protection.
- No device should be running as a server for off site clients.
- Absolutely no routers can be attached to the network without prior authorization from the AAS IT Staff.
- The network will be monitored throughout the Meeting and the AAS Staff reserves the right to disconnect any device that is causing network problems.
- Wireless will be available throughout the entire meeting space although some areas may experience limited connectivity. To access the Internet through the AAS wireless network, users will need to connect to any of the AAS access points and log in with the username and password printed on the back of your badge. Please note that the wireless is not encrypted.

A GUIDE TO AAS MEETING ETIQUETTE

AAS meetings are the largest and most logistically complex astronomy meetings in the world. We ask all attendees to work together to enhance the value of the meetings by keeping in mind the following points.

Executive Summary

- Do obey the "golden rule": Treat others as you would like them to treat you.
- Do silence all cell phones and other electronic devices with audible alerts.
- Do not hog wireless bandwidth; use the AAS wireless service sparingly.
- Do be quiet during presentations; if you use a computer, do so discreetly.
- Do not panic if reporters attend your talk on results under journal embargo.
- Do pick up after yourself by depositing trash in the appropriate receptacles.
- Do not blog or tweet or otherwise post private conversations online.

General Considerations

It is AAS policy that all participants in Society activities will enjoy an environment free from all forms of discrimination, harassment, and retaliation. As a professional society, the AAS is committed to providing an atmosphere that encourages the free expression and exchange of scientific ideas. The AAS is dedicated to the philosophy of equality of opportunity and treatment for all members and other meeting attendees, regardless of gender, race, ethnic origin, religion, age, marital status, sexual orientation, disabilities, or any other reason not related to scientific merit. Harassment, sexual or otherwise, is a form of misconduct that undermines the integrity of Society meetings. Violators will be subject to discipline. (Full AAS anti-harassment policy: http://aas.org/governance/Anti-Harassment_Policy)

AAS-meeting staff are trained professionals, expert at organizing and conducting scientific meetings. They work with professional contractors who specialize in providing audio-visual, security, and other services, and with professional hotel and convention center staff as well. Meeting attendees are professional scientists, expert at carrying out scientific research and presenting that research at meetings. Accordingly, please be respectful of all meeting staff and contractors, just as they respect you as an attendee and scientist. Attendees who are notably disrespectful or who act in an unprofessional manner toward meeting staff, contractors, other attendees, or hotel or convention center staff will be required to leave the meeting.

Please note that all sessions except those marked "private" by the AAS are open to all registered attendees, including scientists, students, and journalists. All are due the same level of professional respect and courtesy.

Mobile Phones & Related Devices

Cell phones, pagers, and similar electronic devices should be silenced. Before each session begins and before you enter an active session, please silence your cell phone and any other devices that have audible alerts. Switching phones to vibrate rather than ring is not sufficient, as the vibrations can be heard or felt by those nearby.

Do not dial or take a phone call during a session. Please exit the session room before beginning or answering a call. All modern mobile phones have caller-ID and call-back features – please make use of them.

Computers & Internet Service

The AAS provides wireless Internet service throughout each meeting, but we cannot guarantee full coverage in all locations. We provide priority access in the common areas. This means you may experience limited connectivity in the session rooms.

If you do make use of wireless Internet access during a presentation, or even if you are just taking notes on your computer, please keep your activities as quiet as possible so as to minimize distractions to other attendees and the speaker. If you must use a computer during a session, please consider sitting near the back of the room so as not to distract the speaker or session chair. These same guidelines apply to mobile phones, tablets, and other electronic devices.

One of the cost drivers for meeting registration is provision of adequate bandwidth, which – believe it or not – costs *tens of thousands* of dollars per meeting. Excessive downloading or uploading of files, software updates, streaming video, and other bandwidth-hungry activities (e.g., gaming, exploring virtual worlds) increases the costs for all attendees. The AAS reserves the right to ban excessive users from its meeting network and to use site blocking, port blocking, and traffic shaping to ensure adequate bandwidth for all.

Sessions & Questions

If you are giving a presentation, please be sure you have read the speaker and AV instructions on the AAS website (http://aas.org/meetings/av_information.php). All oral presentations must be uploaded to the internal network in the Speaker Ready Room. Personal laptops and USB member drives will not be permitted for presentations in session rooms. We ask that you upload your presentation at least 24 hours in advance. Be sure to show up at your session on time.

The session chair is in charge of the session. He or she is empowered to stop questioning and to rearrange or otherwise adjust time slots (or not) based on tardiness or non-attendance of a scheduled speaker. The chair cannot extend talk times beyond the common limits of 10 minutes for regular contributions and 20 minutes for dissertation contributions (including time allotted for Q&A).

When asking questions of speakers please be professional, courteous, and polite. This is especially important when questioning students presenting their dissertation research.

Be considerate of other people wishing to ask questions. If you have multiple or detailed questions, speak with the presenter after the session.

Journalists & Embargoes

If your presentation covers results that have been, or will be, submitted to *Nature* or *Science* or any other journal with a strict embargo policy, be sure you understand how that policy applies to scientific meetings. No journal wishes to hinder communication between scientists. For example, both *Science* and *Nature* state explicitly that conference presentations do not violate their embargo policies.

But both journals also state that if your presentation covers work that has been, or will be, submitted to them, you should limit your interaction with reporters to clarifying the specifics of your presentation. As *Science* puts it, "We ask that you do not expand beyond the content of your talk or give copies of the paper, data, overheads, or slides to reporters." That does not mean you should be rude if a reporter asks you for such materials or poses a question that you do not want to answer – just explain that your results are under embargo at *Science* or *Nature*, and the reporter will understand why you cannot be more forthcoming.

Photography & Video

Many events and presentations at AAS meetings are recorded for posterity by a Society photographer. Some sessions, and all press conferences, are videotaped and eventually posted on the AAS members website as a member benefit. Your attendance at an AAS meeting signifies your agreement to be photographed or videotaped in the course of normal meeting business. Invited and prize lecturers will be asked to sign a form for legal clarity.

If you take pictures during the meeting, please be considerate of others. Do not use a flash when taking pictures during sessions.

Eating, Drinking & Smoking

Because our meetings are so full of great content, it can be hard to find time to eat breakfast or lunch. If you must eat or drink while attending a session, please do so quietly and be sure to deposit your trash properly after the session ends. Additional cleaning services costs the AAS money and increases registration costs.

Some venues have strict policies against eating or drinking in particular areas. Meeting attendees are expected to follow these policies. Attendees may not bring their own alcoholic beverages or drink them at the meeting venue outside of areas or times when they are sold. Obviously, this does not apply to bars, restaurants, or other facilities co-located with our meeting venues.

AAS meetings are strictly non-smoking, consistent with laws in the localities where we hold our conferences. When possible, smoking areas will be clearly identified.

Blogging & Tweeting

If you blog, tweet, or otherwise post near-real-time material from the meeting online, you must follow the guidelines above concerning the use of computers, tablets, mobile phones, and AAS wireless bandwidth.

Please do not publicly report private conversations – only scheduled presentations and public comments are fair game for blogging, tweeting, etc.

Remember that many presentations at AAS meetings concern work that has not yet been peer-reviewed. So think twice before posting a blog entry or tweet that is critical of such work. It is helpful to receive constructive criticism during the Q&A after your talk or while standing next to your poster, but it is hurtful to be raked over the coals online before your session is even over and with no easy way to respond.

New York Times editor Bill Keller said it well. When it comes to meetings among colleagues, he explained, "We need a zone of trust, where people can say what's on their minds without fear of having an unscripted remark or a partially baked idea zapped into cyberspace. Think of it as common courtesy."

Saturday, 9 June 2012	
8:00am	CAE/CATS Astro 101 Tier I Teaching Excellence, Workshop, 8:00am-5:30pm, Denali Room, Marriott Downtown
12:00pm	AstroZone: Anchorage, 12:00pm-4:00pm, Anchorage Public Library

Sunday, 10 June 2012	
8:00am	CAE/CATS Astro 101 Tier I Teaching Excellence, Workshop, 8:00am-5:30pm, Denali Room, Marriott Downtown
	CAE/CATS Tier II Technology Special Topic, Workshop, 8:00am-5:30pm, Kenai Room, Marriott Downtown
	AAS Council Meeting, 8:00am-5:00pm, Juneau/Haines Room, Marriott Downtown
10:00am	Volunteer Orientation, 10:00am-11:00am, Room 1, Dena'ina Center
3:00pm	Speaker Ready Room, 3:00pm-5:00pm, Executive Boardroom, Dena'ina Center
	Registration, 3:00pm-8:00pm, Dena'ina Center Lobby
5:00pm	K-12 Educators Reception, 5:00pm-7:00pm, Anchorage Room, Marriott Downtown
6:00pm	Undergraduate Orientation, 6:00pm-7:00pm, Fairbanks Room, Marriott Downtown
	Emeritus Member Reception, 6:00pm-7:00pm, Summit Room, 15th Floor, Sheraton Anchorage
7:00pm	Opening Reception, 7:00pm-9:30pm, Howard Rock Ballroom, Sheraton Anchorage

<table>
<tr><td colspan="5">Monday, 11 June 2012</td></tr>
<tr><td>7:30am</td><td colspan="4">Speaker Ready Room, 7:30am-4:00pm, Executive Boardroom, Dena'ina Center</td></tr>
<tr><td></td><td colspan="4">Registration, 7:30am-5:00pm, Dena'ina Center Lobby</td></tr>
<tr><td></td><td colspan="4">Session Chair Breakfast, 7:30am-8:00am, Summit Hall 14, Egan Center</td></tr>
<tr><td>8:00am</td><td colspan="4">100 Invited Session: Welcoming Address by UAA Chancellor Tom Case AAS Welcomes New Division , 8:00am-8:30am, Ballroom B, Dena'ina Center</td></tr>
<tr><td></td><td colspan="4">Cyber Café, 8:00am-6:30pm, Ballroom D Foyer, Dena'ina Center</td></tr>
<tr><td>8:30am</td><td colspan="4">101 Invited Session: Kavli Prize: Laboratory Astrophysics as Key to Understanding the Universe, Ewine F. van Dishoeck (Sterrewacht Leiden, Netherlands), 8:30am-9:20am, Ballroom B, Dena'ina Center</td></tr>
<tr><td>9:00am</td><td colspan="4">Exhibit Hall, 9:00am-6:30pm</td></tr>
<tr><td></td><td colspan="4">Posters, 9:00am-6:30pm, Exhibit Hall, Dena'ina Center</td></tr>
<tr><td></td><td colspan="2">128 Solar System
129 Extrasikar Planets
130 Massive Stars, Stellar Atmospheres, and Stellar Winds
131 New Horizons for Science From the Moon
132 Sunyaev-Zel'dovich Effect Observations
133 Catalogs and Surveys
134 Molecular Clouds, HII Regions, Dust and the ISM
135 Instrumentation, Computation and Data Handling
136 Space Telescopes & Instrumentation</td><td colspan="2">200 CME
201 Solar & Stellar
202 Coronal Magnetic Fields
203 Chromosphere & Transition Region
204 Solar Energetic Events & Flares
205 Interior
206 Solar Magnetism & the Activity Cycle
207 Solar Dynamics Observatory
208 Laboratory & Astrophysics: Atoms
209 Laboratory & Astrophysics: Molecules
210 Laboratory & Astrophysics: Dust & Ice
211 Laboratory & Astrophysics: Plasma
212 Laboratory & Astrophysics: Planetary</td></tr>
<tr><td>9:30am</td><td colspan="4">Morning Coffee Break, 9:30am-10:00am, Exhibit Hall, Dena'ina Center</td></tr>
<tr><td>10:00am</td><td colspan="4">Special, Oral, and Meetings-in-a-Meeting Sessions 102-111, 10:00am-11:30am</td></tr>
<tr><td></td><td>102 Multiple Populations in Globular Clusters: Basic Data & Consequences
Ballroom C, Dena'ina Center</td><td>103 Extragalactic Gamma-ray Background (EGB): The Isotropic Gamma-Ray Background Measurement and the Contribution From Jet-Dominated Sources
Summit Hall 4, Egan Center</td><td>104 New Horizons for Science From the Moon: Cosmic Dawn, Reionization, & Low Frequency Astrophysics
Ballroom A, Dena'ina Center</td><td>105 The Deepest View of the X-ray Universe: 4 Ms Chandra Deep Field Results I
Summit Hall 3, Egan Center</td></tr>
<tr><td></td><td>106 Clouds, Dust, and HII Regions
Room 3, Dena'ina Center</td><td>107 Laboratory Astronomy and Pan-STARRS
Room 1, Dena'ina Center</td><td>108 Student Ideas, Teacher Training, and Public Outreach
Room 2, Dena'ina Center</td><td>109 Interior
Room 4, Dena'ina Center</td></tr>
</table>

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Monday, 11 June 2012 - Continued				
10:00am	**110** Solar Magnetism & the Activity Cycle I Room 5, Dena'ina Center	**111** High Angular Resolution Sunyaev-Zel'dovich Effect Summit Hall 2, Egan Center		
11:40am	**112 Invited Session**: SPD Hale Prize: The Two Sources of Solar Energetic Particles, Donald V. Reames (University of Maryland), 11:40am-12:30pm, Ballroom B, Dena'ina Center			
12:45pm	**113 Town Hall:** NSF Town Hall, 12:45pm-1:45pm, Ballroom A, Dena'ina Center			
	137 Town Hall: CSWA: Introduction to Astronomical Bullying, 12:45pm-1:45pm, Ballroom C, Dena'ina Center			
2:00pm	**Special, Oral, and Meetings-in-a-Meeting Sessions 114-124, 2:00pm-3:30pm**			
	114 Bridging Laboratory & Astrophysics: Atoms Summit Hall 1, Egan Center	**115** Multiple Populations in Globular Clusters: Evidence & Latest Results Ballroom C, Dena'ina Center	**116** Extragalactic Gamma-ray Background (EGB): Contribution From Unbeamed Sources and Dark Matter Constraints Summit Hall 4, Egan Center	**117** New Horizons for Science From the Moon: Precision Measurements in Gravitational Physics Ballroom A, Dena'ina Center
	118 Galaxy Mergers from the Largest to the Smallest Scales: Large-Scale Structure and Merger Rates Room 2, Dena'ina Center	**119** The Deepest View of the X-ray Universe: 4 Ms Chandra Deep Field Results II Summit Hall 2, Egan Center	**120** Solar Systems I Ballroom B, Dena'ina Center	**121** Binaries and Interacting Systems Room 3, Dena'ina Center
	122 Instrumentation: Ground, Air & Space Summit Hall 3, Egan Center	**123** Solar Magnetism & the Activity Cycle II Room 5, Dena'ina Center	**124** Chromosphere & Transition Region Room 4, Dena'ina Center	
3:40pm	**125 Invited Session**: Is the Magnetosphere of Jupiter a Colossal Comet? What will NASA's Juno Reveal?, Fran Bagenal (University of Colorado), 3:40pm-4:30pm, Ballroom B, Dena'ina Center			
4:30pm	**126 Invited Session:** Exploring the Planet Mercury: One Year of MESSENGER Orbital Observations, Sean C. Solomon (Carnegie Inst. of Washington), 4:30pm-5:20pm, Ballroom B, Dena'ina Center			
5:30pm	**Evening Poster Session, 5:30pm-6:30pm, Exhibit Hall, Dena'ina Center**			
6:30pm	**138 Town Hall:** The NASA Kepler Mission Town Hall: 2012 and Beyond, 6:30pm-8:30pm, Ballroom A, Dena'ina Center			
	"New Horizons For Science From the Moon" Reception, 6:30pm-8:30pm, Anchorage Room, Marriott Downtown			
	LGBTIQ Networking Dinner, 6:30pm-8:30pm, Meet at the Registration Desk, Dena'ina Center Lobby			
8:00pm	**127 Invited Session:** Public Talk: Transits of Venus and Mercury: Exoplanet Analogs in Our Solar System, Jay M. Pasachoff (Williams College), 8:00pm-9:00pm, Ballroom B, Dena'ina Center			

Tuesday, 12 June 2012				
7:30am	Speaker Ready Room, 7:30am-4:00pm, Executive Boardroom, Dena'ina Center			
8:00am	Registration, 8:00am-5:00pm, Dena'ina Center Lobby			
	Cyber Café, 8:00am-6:30pm, Ballroom D Lobby, Dena'ina Center			
8:30am	**300 Invited Session:** SPD Harvey Prize: The Solar Cycle: From Understanding to Forecasting, Dibyendu Nandy (Indian Institute of Science Education and Research), 8:30am-9:20am, Ballroom B, Dena'ina Center			
9:00am	Exhibit Hall, 9:00am-6:30pm			
	Posters, 9:00am-6:30pm, Exhibit Hall, Dena'ina Center			
	328 Nearby Stars and Brown Dwarfs **329** Binary Stellar Systems, X-ray Binaries **330** Kepler Mission **331** Circumstellar Disks **332** Large Scale Structure, Cosmic Distance Scale **333** Variable Stars and Star Formation **334** Young Stellar Objects, Very Young Stars, T-Tauri Stars, H-H Objects **335** AGN, QSO, Blazars **336** Evolution of Galaxies		**200** CME **201** Solar & Stellar **202** Coronal Magnetic Fields **203** Chromosphere & Transition Region **204** Solar Energetic Events & Flares **205** Interior **206** Solar Magnetism & the Activity Cycle **207** Solar Dynamics Observatory **208** Laboratory & Astrophysics: Atoms **209** Laboratory & Astrophysics: Molecules **210** Laboratory & Astrophysics: Dust & Ice **211** Laboratory & Astrophysics: Plasma **212** Laboratory & Astrophysics: Planetary	
9:30am	Morning Coffee Break, 9:30am-10:00am, Exhibit Hall, Dena'ina Center			
10:00am	**Special, Oral, and Meetings-in-a-Meeting Sessions 301-310, 337, 10:00am-11:30am**			
	301 Bridging Laboratory and Astrophysics: Molecules Summit Hall 1, Egan Center	**302** Multiple Populations in Globular Clusters: Abundances & Stellar Models Room 3, Dena'ina Center	**303** Wide-Field IR Space Telescope Science: Introduction and Survey Science New Horizons for Science Summit Hall 3, Egan Center	**304** New Horizons for Science From the Moon: Heliophysics, Coronal Mass Ejections & Space Weather Summit Hall 2, Egan Center
	305 Galaxy Mergers from the Largest to the Smallest Scales: Early to Late Stages of Galaxy Mergers Room 2, Dena'ina Center	**306** Exoplanet Census from Kepler Ballroom C, Dena'ina Center	**307** Black Holes, Accretion Disks and Gravitational Waves Ballroom B, Dena'ina Center	**308** Starbursts & Spirals Room 1, Dena'ina Center
	309 Solar Dynamics Observatory I Room 5, Dena'ina Center	**310** Coronal B Fields I Room 4, Dena'ina Center	**337** AAS Sustainability Committee Summit Hall 4, Egan Center	
11:40am	**311 Invited Session**: Russell Prize: The Cold Dark Matter Theory of Galaxy Formation: A Status Report, Sandra M. Faber (University of California, Santa Cruz) 11:40am-12:30pm, Ballroom B, Dena'ina Center			

Continued Tuesday, 12 June 2012

<table>
<tr><td colspan="5">Tuesday, 12 June 2012 - Continued</td></tr>
<tr><td>12:45pm</td><td colspan="4">Straight Talk about an Astronomical Career: A Professional Development Session, 12:45pm-2:00pm, Summit Hall 14, Egan Center</td></tr>
<tr><td rowspan="2">12:45pm</td><td colspan="4">312 Town Hall: NASA Town Hall, 12:45pm-1:45pm, Ballroom A, Dena'ina Center</td></tr>
<tr><td colspan="4">313 Town Hall: Informal Science Education Engages the Public and Science Careers, 12:45pm-1:45pm, Ballroom C, Dena'ina Center</td></tr>
<tr><td rowspan="4">2:00pm</td><td colspan="4">Special, Oral, and Meetings-in-a-Meeting Sessions 314-323, 2:00pm-3:30pm</td></tr>
<tr><td>314 Bridging Laboratory and Astrophysics: Dust and Ice
Summit Hall 1, Egan Center</td><td>315 Multiple Populations in Globular Clusters: Dynamical Evolution
Room 3, Dena'ina Center</td><td>316 Wide-Field IR Space Telescope Science: Dark Energy Science
Summit Hall 3, Egan Center</td><td>317 Galaxy Mergers from the Largest to the Smallest Scales: Active SMBHs
Room 2, Dena'ina Center</td></tr>
<tr><td>318 Kepler's Future: the Road to Eta-Earth
Ballroom A, Dena'ina Center</td><td>319 Novae, Pulsars, Neutron Stars, and GRBs
Ballroom C, Dena'ina Center</td><td>320 AGN, QSO, Blazars I
Room 1, Dena'ina Center</td><td>321 Dark Matter, Dark Energy, and Large Scale Structure
Ballroom B, Dena'ina Center</td></tr>
<tr><td>322 Solar Dynamics Observatory II
Room 5, Dena'ina Center</td><td>323 Solar Information Processing and Distribution in the Petabyte Era
Room 4, Dena'ina Center</td><td colspan="2"></td></tr>
<tr><td>3:40pm</td><td colspan="4">324 Invited Session: Measuring Cosmic Rays at 1 PeV and Above, Katherine Rawlins (University of Alaska Anchorage), 3:40pm-4:30pm, Ballroom B, Dena'ina Center</td></tr>
<tr><td>4:30pm</td><td colspan="4">325 Invited Session: The Plasma Physics of Cosmic Rays, Ellen Gould Zweibel (University of Wisconsin), 4:30pm-5:20pm, Ballroom B, Dena'ina Center</td></tr>
<tr><td rowspan="2">5:30pm</td><td colspan="4">Evening Poster Session, 5:30pm - 6:30pm, Exhibit Hall, Dena'ina Center</td></tr>
<tr><td colspan="4">SOFIA Science Highlights and Cycle 1 Observing, 5:30pm - 7:30 pm, Ballroom C, Dena'ina Center</td></tr>
<tr><td>6:00pm</td><td colspan="4">326 Town Hall: SPD Members' Meeting, 6:00pm - 8:00pm, Room 5, Dena'ina Center</td></tr>
<tr><td>8:00pm</td><td colspan="4">327 Invited Session: Public Talk: The Accelerating Universe, Brian P. Schmidt (RSAA, ANU, Australia), 8:00pm - 9:00pm, Ballroom B, Dena'ina Center</td></tr>
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<table>
<tr><td colspan="5">Wednesday, 13 June 2012</td></tr>
<tr><td>7:30am</td><td colspan="4">Speaker Ready Room, 7:30am - 4:00pm, Executive Boardroom, Dena'ina Center</td></tr>
<tr><td></td><td colspan="4">Session Chair Breakfast, 7:30am-8:00am, Summit Hall 14, Egan Center</td></tr>
<tr><td>8:00am</td><td colspan="4">Registration, 8:00am - 5:00pm, Dena'ina Center Lobby</td></tr>
<tr><td></td><td colspan="4">Cyber Café, 8:00am - 6:30pm, Ballroom D Lobby, Dena'ina Center</td></tr>
<tr><td>8:30am</td><td colspan="4">400 Invited Session: SPD Parker Lecture: How to Observe (Rather Than Model) The Interiors of Stars, Yvonne Elsworth (University of Birmingham, United Kingdom), 8:30am-9:20am, Ballroom B, Dena'ina Center</td></tr>
<tr><td>9:00am</td><td colspan="4">Exhibit Hall, 9:00am - 7:30pm</td></tr>
<tr><td></td><td colspan="4">Posters, 9:00am-7:30pm, Exhibit Hall, Dena'ina Center</td></tr>
<tr><td></td><td colspan="2">428 Dwarf and Irregular Galaxies
429 Lyman Alpha Emitters as Probes of Galaxy Formation and Cosmology
430 Relativistic Astrophysics, Black Holes, Neutron Stars, White Dwarfs, Gravitational Waves
431 Planetary Nebulae, Supernova Remnants
432 Supernovae
433 Spiral Galaxies and the Milky Way
434 Starburst Galaxies
435 Galaxy Clusters
436 Cosmology & Cosmic Microwave Background
437 Astronomy Education & Public Outreach
438 Star Clusters</td><td colspan="2">200 CME
201 Solar & Stellar
202 Coronal Magnetic Fields
203 Chromosphere & Transition Region
204 Solar Energetic Events & Flares
205 Interior
206 Solar Magnetism & the Activity Cycle
207 Solar Dynamics Observatory
208 Laboratory & Astrophysics: Atoms
209 Laboratory & Astrophysics: Molecules
210 Laboratory & Astrophysics: Dust & Ice
211 Laboratory & Astrophysics: Plasma
212 Laboratory & Astrophysics: Planetary</td></tr>
<tr><td>9:30am</td><td colspan="4">Morning Coffee Break, 9:30am-10:00am, Exhibit Hall, Dena'ina Center</td></tr>
<tr><td>10:00am</td><td colspan="4">Special, Oral, and Meetings-in-a-Meeting Sessions 401-411, 10:00am - 11:30pm</td></tr>
<tr><td></td><td>401 Bridging Laboratory and Astrophysics: Plasmas
Summit Hall 1, Egan Center</td><td>402 Wide-Field IR Space Telescope Science: Exoplanet Science
Summit Hall 3, Egan Center</td><td>403 Galaxy Mergers from the Largest to the Smallest Scales: Dual and Binary AGN
Room 2, Dena'ina Center</td><td>404 Lyman Alpha Emitters as Probes of Galaxy Formation and Cosmology: Observed Properties
Summit Hall 2, Egan Center</td></tr>
<tr><td></td><td>405 Einstein vs Schwinger: Who is Right about Gravity? I
Summit Hall 4, Egan Center</td><td>406 Astrophysics with Kepler - Binary Stars
Ballroom C, Dena'ina Center</td><td>407 Evolved Stars and Supernova Remnants
Room 1, Dena'ina Center</td><td>408 AGN, QSO, Blazars II
Ballroom B, Dena'ina Center</td></tr>
<tr><td></td><td>409 Evolution of Galaxies I
Room 3, Dena'ina Center</td><td>410 Solar Energetic Events I
Room 4, Dena'ina Center</td><td>411 Coronal B Fields II
Room 5, Dena'ina Center</td><td></td></tr>
<tr><td>11:40am</td><td colspan="4">412 Invited Session: Warner Prize: Bubble, Bubble, Toil, And Trouble: A Theorist's Romp Through The Cosmic Dawn, Steven R. Furlanetto (UCLA), 11:40am-12:30pm, Ballroom B, Dena'ina Center</td></tr>
</table>

Continued Wednesday, 13 June 2012

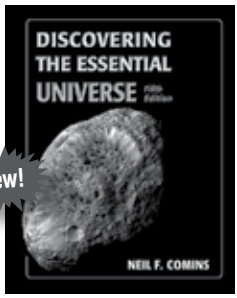
<table>
<tr><th colspan="5">Wednesday, 13 June 2012 - Continued</th></tr>
<tr><td>12:45pm</td><td colspan="4">413 Town Hall: WGLE Town Hall, 12:45pm - 1:45pm, Ballroom C, Dena'ina Center</td></tr>
<tr><td></td><td colspan="4">439 Town Hall: LAD Business Meeting, 12:45pm - 1:45pm, Summit Hall 1, Egan Center</td></tr>
<tr><td>1:00pm</td><td colspan="4">Characterization of Exoplanet Atmospheres, 1:00pm - 2:00pm, Summit Hall 7-10, Egan Center</td></tr>
<tr><td>2:00pm</td><td colspan="4">Special, Oral, and Meetings-in-a-Meeting Sessions 414-424, 2:00pm - 3:30pm</td></tr>
<tr><td></td><td>414 Bridging Laboratory and Astrophysics: Planetary
Summit Hall 1, Egan Center</td><td>415 Wide-Field IR Space Telescope Science: Mission Capabilities
Summit Hall 3, Egan Center</td><td>416 Galaxy Mergers from the Largest to the Smallest Scales: Binary SMBHs and SMBH Coalescence
Room 2, Dena'ina Center</td><td>417 Lyman Alpha Emitters as Probes of Galaxy Formation and Cosmology: Their Place in the High-redshift Galaxy Zoo
Summit Hall 2, Egan Center</td></tr>
<tr><td></td><td>418 Einstein vs Schwinger: Who is Right about Gravity? II
Summit Hall 4, Egan Center</td><td>419 Astrophysics with Kepler - Stellar Structure
Ballroom A, Dena'ina Center</td><td>420 AGN, QSO, Blazars III
Room 1, Dena'ina Center</td><td>421 Evolution of Galaxies II
Room 3, Dena'ina Center</td></tr>
<tr><td></td><td>422 Reionization, CMB, and the IGM
Ballroom C, Dena'ina Center</td><td>423 Corona & Heliosphere
Room 5, Dena'ina Center</td><td>424 Solar Energetic Events II
Room 4, Dena'ina Center</td><td></td></tr>
<tr><td>3:40pm</td><td colspan="4">425 Invited Session: Under the Radar: The First Woman in Radio Astronomy, Ruby Payne-Scott, W. Miller Goss (NRAO) 3:40pm-4:30pm, Ballroom B, Dena'ina Center</td></tr>
<tr><td>4:30pm</td><td colspan="4">426 Invited Session: SkyMapper: Surveying the Southern Sky, Brian P. Schmidt (RSAA, ANU, Australia) 4:30pm-5:20pm, Ballroom B, Dena'ina Center</td></tr>
<tr><td>5:30pm</td><td colspan="4">427 Town Hall: AAS Members' Meeting, 5:30pm-6:30pm, Ballroom C, Dena'ina Center</td></tr>
<tr><td>6:30pm</td><td colspan="4">Evening Poster Session, 6:30pm-7:30pm, Exhibit Hall, Dena'ina Center</td></tr>
<tr><td>7:00pm</td><td colspan="4">SPD Banquet, 7:00pm-9:00pm, Anchorage Museum at Rasmuson Center</td></tr>
<tr><td>7:15pm</td><td colspan="4">"Space Junk 3D" Film Screening, 8:00pm-10:00pm, Regal Tikahtnu Stadium 16 IMAX Theater (Sign-up Required),
Bus Transportation at 7:15pm, Dena'ina Center Lobby</td></tr>
</table>

Thursday, 14 June 2012				
7:30am	Speaker Ready Room, 7:30am-2:00pm, Executive Boardroom, Dena'ina Center			
8:00am	Registration, 8:00am-4:00pm, Dena'ina Center Lobby			
	Cyber Café, 8:00am-4:00pm, Ballroom D Lobby, Dena'ina Center			
8:30am	**500 Invited Session**: SPD Parker Lecture: Solar Twins and Stellar Maunder Minima, Jeffrey C. Hall (Lowell Obs.), 8:30am-9:20am, Ballroom B, Dena'ina Center			
9:00am	Exhibit Hall, 9:00am-2:00pm			
	Posters, 9:00am-2:00pm, Exhibit Hall, Dena'ina Center			
	521 The Sun & Solar Topics **522** Instrumentation, Computation and Laboratory Astrophysics **523** Stars, Star Formation, Supernovae, Etc. **524** Galaxies, Galaxy Clusters and Related Topics **525** Extrasolar Planets, the Solar System and Other Topics		**200** CME **201** Solar & Stellar **202** Coronal Magnetic Fields **203** Chromosphere & Transition Region **204** Solar Energetic Events & Flares **205** Interior **206** Solar Magnetism & the Activity Cycle **207** Solar Dynamics Observatory **208** Laboratory & Astrophysics: Atoms **209** Laboratory & Astrophysics: Molecules **210** Laboratory & Astrophysics: Dust & Ice **211** Laboratory & Astrophysics: Plasma **212** Laboratory & Astrophysics: Planetary	
9:30am	Morning Coffee Break, 9:30am-10:00am, Exhibit Hall, Dena'ina Center			
10:00am	**Special, Oral, and Meetings-in-a-Meeting Sessions 501-509, 10:00am-11:30am**			
	501 Bridging Laboratory and Astrophysics: Nuclear Summit Hall 1, Egan Center	**502** Galaxy Mergers from the Largest to the Smallest Scales: Post-Merger Signatures and Recoiling SMBHs Room 2, Dena'ina Center	**503** Lyman Alpha Emitters as Probes of Galaxy Formation and Cosmology: Measuring Large-Scale Structure Summit Hall 2, Egan Center	**504** Einstein vs Schwinger: Who is Right about Gravity? III Summit Hall 4, Egan Center
	505 Solar Systems II Ballroom C, Dena'ina Center	**506** Stars with Disks, Pre-Main Sequence and Main-Sequence Stars Room 1, Dena'ina Center	**507** Galaxy Clusters I Ballroom A, Dena'ina Center	**508** CMEs I Room 4, Dena'ina Center
	509 Flares I Room 5, Dena'ina Center			
11:40am	**510 Invited Session**: Yup'ik Understandings of the Environment: "The World is Changing Following Its People", Ann Fienup-Riordan (Arctic Studies Center), 11:40am-12:30pm, Ballroom B, Dena'ina Center			
1:00pm	Afternoon Poster Session, 1:00pm-2:00pm, Exhibit Hall, Dena'ina Center			

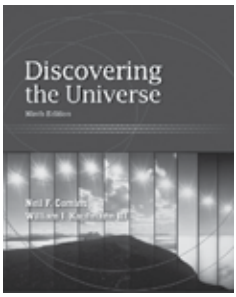
Continued Thursday, 14 June 2012

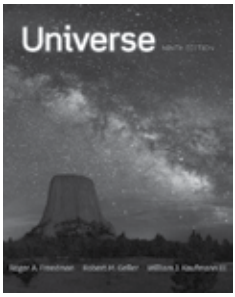
Thursday, 14 June 2012 - Continued				
2:00pm	**Special, Oral, and Meetings-in-a-Meeting Sessions 511-518, 2:00pm-3:30pm**			
	511 Bridging Laboratory and Astrophysics: Particles Summit Hall 1, Egan Center	**512** Lyman Alpha Emitters as Probes of Galaxy Formation and Cosmology: Studying Reionization Summit Hall 2, Egan Center	**513** Star Clusters and the Milky Way Room 1, Dena'ina Center	**514** Galaxy Clusters II Ballroom A, Dena'ina Center
	515 CMEs II Room 4, Dena'ina Center	**516** Flares II Room 5, Dena'ina Center	**517** ALMA Early Science Results & Opportunities Ballroom B, Dena'ina Center	**518** Polaris: Mysteries of the North Star Ballroom C, Dena'ina Center
3:40pm	**519 Invited Session**: Mix One-Part Astronomy Education Research with One-Part General Education Astronomy Course and You Get a Very Potent Science Literacy Transformation Cocktail, Edward E. Prather (University of Arizona), 3:40pm-4:30pm, Ballroom B, Dena'ina Center			
4:30pm	**520 Invited Session:** AIP Gemant Award: Tycho to Kepler: Four Centuries and More of Astronomy and the Media, Stephen P. Maran (American Astronomical Society), 4:30pm-5:20pm, Ballroom B, Dena'ina Center			
5:30pm	Closing Reception, 5:30pm-7:00pm, Ballroom B, Dena'ina Center			

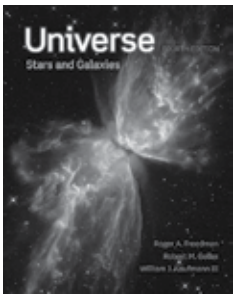
Destination: Universe
Itinerary: Yours

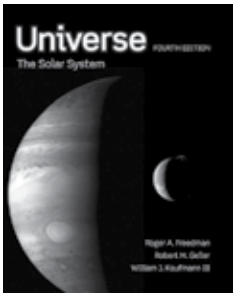


New!









Briefest

New! Discovering the Essential Universe, Fifth Edition
Neil F. Comins

Brief

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ASTRONOMY WEEK

Dena'ina Civic and Convention Center

Free Events - Open to the Public

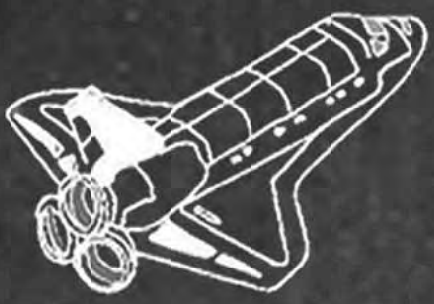
Saturday, 9 June
AstroZone, Anchorage Public Library

Monday, 11 June
Public Talk by Dr. Jay Pasachoff

Tuesday, 12 June
Student Outreach Program Featuring:
Dr. John Grunsfeld, NASA Astronaut*

Tuesday, 12 June
Public Talk by Dr. Brian Schmidt

Wednesday, 13 June
"Space Junk 3D" Screening & Panel
Regal Tikahtnu IMAX Theater*



American Astronomical Society
More Information
aas.org/astronomy_week

CAE/CATS Astro 101 Tier I Teaching Excellence Workshop

Saturday, 8:00 am - 5:30 pm, Denali Room, Marriott Downtown

The Center for Astronomy Education (CAE), directed by Ed Prather and Gina Brissenden (Univ. of Arizona), is devoted to improving teaching and learning in general education, college-level Astronomy and Space Science (Astro 101) conducting fundamental research on student beliefs and reasoning difficulties related to astronomy, and instructor implementation difficulties related to teaching astronomy. We use the results of our research to inform the development of research-validated curriculum and assessment materials for use in the Astro 101 classroom. These research-validated curricula & assessment materials frame our professional development CAE Teaching Excellence Workshops for Astronomy and Space Science instructors.

The overarching goal of this workshop is for participants to become familiar with research-validated active engagement teaching strategies and assessment materials, as well as how to implement them in their college astronomy courses, through role-playing, modeling, practice, and more!

To accomplish this goal, participants in our workshop will learn how to create productive learning environments beginning with a brief review of research on the nature of teaching and learning. Most workshop time will be spent with participants playing the roles of student, instructor, and critical friend to practice implementing active engagement strategies such as interactive lectures, Think-Pair-Share, interactive demonstrations and videos, collaborative groups, Lecture-Tutorials, and Ranking Tasks. The workshop will culminate with participants learning how to put these teaching strategies together into effective learning sequences for the learner-centered classroom.

Presented by Gina Brissenden (University of Arizona) and Paul Robinson (Westchester Community College).

(Day 1 of 2)

Organizer
Gina Brissenden[1]
[1]*Center for Astronomy Education (CAE)/University of Arizona.*

AstroZone: Anchorage

Saturday, 12:00 pm – 4:00 pm, Anchorage Public Library

AstroZone is an open house for everyone to learn about the cool science currently going on in earth and space science. At AstroZone, you will have a chance to meet scientists, do hands-on science and take home lots of cool resources collected during your visit. AstroZone provides a venue where the local community and American Astronomical Society (http://aas.org/) members can come together to share the excitement of science. AstroZone: Anchorage will be held at the Anchorage Public Library:
3600 Denali Street, Anchorage, AK 99503

Organizer
Jacob Noel-Storr[1]
[1]*Rochester Inst. Of Technology.*

Sunday, 10 June 2012

CAE/CATS Astro 101 Tier I Teaching Excellence Workshop

Sunday, 8:00 am - 5:30 pm, Denali Room, Marriott Downtown

The overarching goal of this workshop is for participants to become familiar with research-validated active engagement teaching strategies and assessment materials, as well as how to implement them in their college astronomy courses, through role-playing, modeling, practice, and more!

To accomplish this goal, participants in our workshop will learn how to create productive learning environments beginning with a brief review of research on the nature of teaching and learning. Most workshop time will be spent with participants playing the roles of student, instructor, and critical friend to practice implementing active engagement strategies such as interactive lectures, Think-Pair-Share, interactive demonstrations and videos, collaborative groups, Lecture-Tutorials, and Ranking Tasks. The workshop will culminate with participants learning how to put these teaching strategies together into effective learning sequences for the learner-centered classroom.

Presented by Gina Brissenden (University of Arizona)and Paul Robinson (Westchester Community College).

(Day 2 of 2)

Organizer
Gina Brissenden[1]
[1]Center for Astronomy Education (CAE)/University of Arizona.

CAE/CATS Tier II Technology Special Topic Workshop

Sunday, 8:00 am - 5:30 pm, Kenai Room, Marriott Downtown

The Center for Astronomy Education (CAE), directed by Ed Prather and Gina Brissenden (Univ. of Arizona), is devoted to improving teaching and learning in general education, college-level Astronomy and Space Science (Astro 101) conducting fundamental research on student beliefs and reasoning difficulties related to astronomy, and instructor implementation difficulties related to teaching astronomy. We use the results of our research to inform the development of research-validated curriculum and assessment materials for use in the Astro 101 classroom. These research-validated curricula & assessment materials frame our professional development CAE Teaching Excellence Workshops for Astronomy and Space Science instructors.

Educational research has clearly defined the characteristics of the optimal introductory astronomy classroom one where students are actively engaged in the learning process and frequently receiving timely feedback on their learning progress. This CAE/CATS Tier 2 workshop will explore a variety of technologies that enable instructors to engage students and efficiently provide feedback. Instructors will be trained and provided with curriculum materials from multiple NSF grants on computer simulations, computerized databases of Think-Pair-Share questions, and a library of animated ranking and sorting tasks. All materials will be disseminated through the web before the workshop and attendees will bring their own laptops with the software already installed.

Presented by Rica French (MiraCosta College) and Seth Hornstein (UC Boulder).

Organizer
Rica Sirbaugh French[1]
[1]MiraCosta College.

Co-Organizer
Seth D. Hornstein[1]
[1]*University of Colorado at Boulder.*

AAS Council Meeting

Sunday, 8:00 am - 5:00 pm, Juneau/Haines Room, Marriott Downtown

Chair
Debra M. Elmegreen[1]
[1]*Vassar College.*

K-12 Educators' Reception

Sunday, 5:00 pm - 7:00 pm, Anchorage Room, Marriott Downtown

This informal session is for local K-12 Educators. The purpose of this reception is to give teachers access to scientist and engineers in the fields of astronomy and heliophysics to support K-12 education in these fields. At the reception, teachers will have a chance to be exposed to background scientific content related the latest discoveries, mingle with astronomers and other education professionals, and will take home resources (and new connections) to use in their classrooms.

Organizer
Jacob Noel-Storr[1]
[1]*Rochester Inst. Of Technology.*

Undergraduate Orientation Reception

Sunday, 6:00 pm - 7:00 pm, Fairbanks Room, Marriott Downtown

Undergraduate students, their advisors and those interested in attracting undergraduate students to their graduate program, or undergraduate research opportunity are invited to attend this event. Members of the AAS Council and of the Astronomy Education Board will be there to meet and chat with students. For the benefit of those students attending an AAS meeting for the first time, we will explain how to get the most out of an AAS meeting and outline how the meeting works. Light snacks and refreshments will be provided.

Emeritus Member Reception

Sunday, 6:00pm - 7:00pm, Summit Room, 15th Floor, Sheraton Anchorage
Attendance by Invitation Only

The AAS values our Emeritus members, who have dedicated years to the pursuit of knowledge, have been active members in the Society for at least 10 years, and are no longer gainfully employed in our discipline. To provide an opportunity for camaraderie and communication, the AAS is inaugurating a new Emeritus member reception. Come gather with your fellow Emeritus members for this special reception held prior to the opening reception. Light snacks, conversation tables and a cash bar will be available.

Opening Reception

Sunday, 7:00 pm - 9:30 pm, Howard Rock Ballroom, Sheraton Anchorage

Open to all attendees, the Opening Reception kicks off the 220th meeting of the American Astronomical Society.

Monday, 11 June 2012

Invited Session 100 Welcome Address by UAA Chancellor Tom Case
AAS Welcomes New Division

Monday, 8:00 am - 8:30 AM, Ballroom B, Dena'ina Center

During the welcome remarks just prior to the Kavli Lecture, the AAS will welcome its newest specialist division, Laboratory Astrophysics Division, as a formal part of the Society. President Debra Elmegreen will present a certificate commemorating this historic occasion to members of the Working Group who helped motivate the formation of the division.

100.00C **Chair**
Debra M. Elmegreen[1]
[1]*Vassar College.*

Invited Session 101 Kavli Prize: Laboratory Astrophysics as Key to Understanding the Universe

Monday, 8:30 am - 9:20 am, Ballroom B, Dena'ina Center

About The Kavli Foundation
The Kavli Foundation is dedicated to advancing science for the benefit of humanity, promoting public understanding of scientific research, and supporting scientists and their work. The Foundation's mission is implemented through an international program of research institutes in the fields of astrophysics, nanoscience, neuroscience and theoretical physics, and through the support of conferences, symposia, endowed professorships and other activities. The Foundation is also a founding partner of the biennial Kavli Prizes, which recognize scientists for their seminal advances in three research areas: astrophysics, nanoscience and neuroscience. Based in Southern California, the Foundation was founded by its Chairman, philanthropist and entrepreneur Fred Kavli. Fred Kavli is the founder, former chairman and former chief executive officer of Kavlico Corp. He led the company to prominence to become one of the world's largest suppliers of sensors for aeronautics, automotive and industrial applications before he sold it in 2000 and established The Kavli Foundation.

101.00C **Chair**
Debra M. Elmegreen[1]
[1]*Vassar College.*

The Kavli Lecture Prize is awarded by the American Astronomical Society to Ewine F. van Dishoeck for her outstanding research in observational, laboratory, and theoretical astrochemistry, her unflagging efforts to raise awareness of the importance of astrochemistry in the astronomical, physical, and chemical communities, and her development of an outstanding department at the University of Leiden in the field of molecular astronomy.

101.01 **Laboratory Astrophysics as Key to Understanding the Universe**
Ewine F. van Dishoeck[1]
[1]*Sterrewacht Leiden, Netherlands.*

102 Multiple Populations in Globular Clusters: Basic Data & Consequences

Monday, 10:00 am - 11:30 am, Ballroom C, Dena'ina Center

This session focuses on an overview of multiple populations in globular clusters, including basic data and implications for the formation and evolution of the Galaxy.

102.00C **Chair**
William E. Harris[1]
[1]McMaster University, Canada.

102.01 **Multiple Populations in Galactic Globular Clusters: Overview and Context**
Ata Sarajedini[1]
[1]Univ. of Florida.

102.02 **What Is A Globular Cluster? Discovery Of An Old, Massive, Star Cluster With A Single Stellar Population**
Douglas Geisler[1], S. Villanova[1]
[1]Universidad de Concepcion, Chile.

102.03 **Multiple Populations in (Massive) Clusters**
Angela Bragaglia[1]
[1]INAF-Osservatorio Astronomico di Bologna, Italy.

102.04 **A Bayesian Technique to Recover Multiple Stellar Populations**
Ted von Hippel[1]
[1]Embry-Riddle Aeronautical University.

103 Extragalactic Gamma-ray Background (EGB): The Isotropic Gamma-Ray Background Measurement and the Contribution From Jet-Dominated Sources

Monday, 10:00 am - 11:30 am, Summit Hall 4, Egan Center

The origin of the Isotropic Gamma-ray Background (IGRB) is one of the fundamental unsolved problems in astrophysics. The intensity of this isotropic radiation has been measured with precision by Fermi and found to be compatible with a featureless power law up to 100 GeV. Its nature is however still enigmatic. Blazars, active galactic nuclei with a relativistic jet closely aligned to the line of sight, are the most numerous population detected at gamma-rays and represented for a long time the primary candidate to explain the IGRB emission. However, there are evidence that they do contribute ≤30% of the IGRB. Leaving the remaining ~70% unexplained. The first session of this meeting will focus on the most recent measurement of the IGRB with Fermi and on the refined estimates of the contribution of blazars and jet-dominated sources in general.

103.00C **Chair**
Marco Ajello[1]
[1]SLAC/KIPAC.

103.01 **Fermi LAT Results on the Intensity and Origin of the Diffuse Extragalactic Gamma-ray Background**
Markus Ackermann[1]
[1]DESY, Germany.

103.02 **Ultra-high Energy Source Contributions to the Extragalactic Gamma-Ray Background**
Charles D. Dermer[1]
[1]NRL.

103.03 **The Contribution of Millisecond Pulsars to the Isotropic Gamma-Ray Background**
Francesco Massaro[1], M. Ajello[1]
[1]Stanford University.

103.04 **Constraints on Blazar Population Models from the Anisotropy of the Diffuse Gamma-Ray Background**
Jennifer M. Siegal-Gaskins[1], A. Cuoco[2], E. Komatsu[3]
[1]California Institute of Technology, [2]The Oskar Klein Centre for Cosmo Particle Physics, Sweden, [3]The University of Texas at Austin.

103.05 **The Contribution of Radio Galaxies to the Extragalactic Gamma-ray Background**
Yoshiyuki Inoue[1]
[1]Kyoto University, Japan.

103.06 **Contribution of BL Lacertae Objects to the Extragalactic Gamma-ray Background**
Marco Ajello[1], M. Shaw[2], R. W. Romani[2], C. Dermer[3], F. Massaro[1], Fermi LAT collaboration
[1]SLAC/KIPAC, [2]Stanford University, [3]US Naval Research Laboratory.

104 New Horizons for Science From the Moon: Cosmic Dawn, Reionization, & Low Frequency Astrophysics

Monday, 10:00 am - 11:30 am, Ballroom A, Dena'ina Center

This session will discuss advances in theory, observations, and instrumentation for low frequency astrophysics and cosmology from the ground and from the Moon. As one example, the Astro2020 Decadal Report, "New Worlds, New Horizons in Astronomy & Astrophysics" singles out Cosmic Dawn as a top science objective for this decade. When and how did the first galaxies form out of cold clumps of hydrogen gas? What signatures did the first stars leave on their surroundings? When and how did reionization occur? The highly redshifted (z≈6-35) 21-cm hyperfine transition from neutral hydrogen at 40-200 MHz is a powerful probe of this epoch. Concepts for low frequency telescopes,including dipoles in lunar orbit and arrays on the radio- quiet lunar farside, will be presented in this session that will constrain Cosmic Dawn as COBE and WMAP did for the CMB.

104.00C **Chair**
Steven R. Furlanetto[1]
[1]UCLA.

104.01 **Dark Ages and Cosmic Dawn: Theoretical Expectations**
S. Peng Oh[1]
[1]UC, Santa Barbara.

104.02 **Recent Results from the Precision Array for Probing the Epoch of Reionization [PAPER]**
Jonathan Pober[1]
[1]UC Berkeley.

104.03 **HI at z ~ 20: The Large Aperture Experiment to Detect the Dark Ages**
Lincoln J. Greenhill[1], D. Werthimer[2], G. Taylor[3], S. Ellingson[4], LEDA Collaboration
[1]Harvard-Smithsonian, CfA, [2]University of California, Berkeley, [3]University of New Mexico, [4]Virginia Tech.

104.04 **From Ground to Space: A Roadmap with Robotic & Exploration Elements**
T. Joseph W. Lazio[1], J. Bowman[2], J. Burns[3], W. Farrell[4], D. Jones[1], J. Kasper[5] K. Stewart[6], K. Weiler[7]
[1]JPL, [2]ASU, [3]U. Colorado, Boulder, [4]NASA/GSFC, [5]CfA, [6]NRL, [7]CPI.

104.05 **The Dark Ages Radio Explorer: Constraining Cosmic Dawn from the Global 21-cm Signal**
Jack O. Burns[1]
[1]*Univ. of Colorado at Boulder.*

104.06 **Steep Spectrum Radio Sources in Galaxy Clusters**
Tracy E. Clarke[1]
[1]*Naval Research Lab..*

105 The Deepest View of the X-ray Universe: 4 Ms Chandra Deep Field Results I

Monday, 10:00 am - 11:30 am, Summit Hall 3, Egan Center

This session will cover recent results from the deepest X-ray survey of the Universe, the Chandra Deep Field 4 Ms survey. The two 90-minute sessions begin with an overview of X-ray surveys that have already taken place as well as a view of the future with new missions such as NuSTAR and eROSITA. Speakers from a variety of topics ranging from Galactic stars, high-redshift galaxies and galaxy groups will report on what this ultradeep view in the X-rays reveals. We envision a 30 minute overview talk on X-ray surveys, followed by a 15-minute description of the sources of the CDF-S (number counts and source types). The second session will begin with a talk on normal galaxies which are among the very faintest X-ray sources in the 4 Ms CDF-S.

105.00C **Chair**
C. Megan Urry[1]
[1]*Yale Univ..*

105.01 **An Overview of Deep X-ray Surveys: "Time Machines" for Investigating Supermassive Black Hole Accretion and Endpoints of Stellar Evolution**
W. Niel Brandt[1]
[1]*Penn State Univ..*

105.02 **The 4 Ms CDF-S Number Counts: Pervasive Active Galactic Nuclei and the Ascent of Normal Galaxies**
Bret Lehmer[1]
[1]*Johns Hopkins University.*

105.03 **Early-type Galaxies: Among the Faintest X-ray Sources in the CDF-S**
Ann E. Hornschemeier[1]
[1]*NASA GSFC.*

105.04 **The Catalog, Mass Calibration and Statistical Properties of X-ray Galaxy Groups in CDFS**
Alexis Finoguenov[1]
[1]*MPE, Germany.*

106 Clouds, Dust, and HII Regions

Monday, 10:00 am - 11:30 am, Room 3, Dena'ina Center

106.00C **Chair**
Charles E. Woodward[1]
[1]*Univ. of Minnesota.*

106.01 **Modeling Dust And Starlight In Galaxies Observed By Spitzer And Herschel: Ngc628 And Ngc6946**
Gonzalo J. Aniano Porcile[1], B. T. Draine[1], KINGFISH[1]
[1]*Princeton University.*

106.02 **An Hst Multi-band Mapping Of Dust Extinction In The Nuclear Region Of M31**
Zhiyuan Li[1], H. Dong[2], M. Morris[1], Q. D. Wang[3]
[1]University of California, Los Angeles, [2]NOAO, [3]University of Massachusetts.

106.03 **Ablation from High Velocity Clouds: A Source for Low Velocity Ionized Gas**
Robin L. Shelton[1], D. B. Henley[1], K. Kwak[1]
[1]Univ. of Georgia.

106.04 **A Close Look At The Relationship Between WMAP (ILC) Small-Scale Features And Galactic HI Structure**
Gerrit L. Verschuur[1]
[1]University of Memphis.

106.05 **Spitzer Observations of H II Regions in NGC 6822 and the Hot Star - H II Region Connection**
Robert H. Rubin[1], J. A. Kader[1], V. Sivaraja[1], J. P. Simpson[2], A. W. A. Pauldrach[3], R. J. Dufour[4], S. W. J. Colgan[1], I. A. McNabb[1], S. Y. Zhuge[1], V. Kalyanasundaram[1]
[1]NASA Ames Research Center, [2]SETI Institute, [3]University of Munich, Germany, [4]Rice University.

106.06 **Shocked and Scorched: Free-Floating Evaporating Gas Globules and Star Formation in Cygnus**
Raghvendra Sahai[1], M. J. Claussen[2], M. R. Morris[3]
[1]JPL, [2]NRAO, [3]UCLA.

107 Laboratory Astronomy and Pan-STARRS

Monday, 10:00 am - 11:30 am, Room 1, Dena'ina Center

107.00C **Chair**
Paula Szkody[1]
[1]Univ. of Washington.

107.01 **Measurements of the Astrophysically Important 40Ca(α,γ)44Ti Reaction**
Daniel Robertson[1], J. Gorres[1], P. Collon[1], H. Becker[2], M. Wiescher[1]
[1]University of Notre Dame, [2]Ruhr-Universitat Bochum, Germany.

107.02 **Reaction Rate Calculations in Dense Stellar Matter**
Mary Beard[1], E. Brown[2], L. Gasques[3], R. Lau[2], H. Schatz[2], M. Wiescher[1], D. Yakovlev[4]
[1]University of Notre Dame, [2]Michigan State University, [3]University of Sao Paulo, Brazil, [4]University of St. Petersburg, Russian Federation.

107.03 **St. George, a Recoil Separator for Nuclear Astrophysics at Notre Dame**
Manoel Couder[1], G. P. A. Berg[1], S. Devi[2], J. Görres[1], J. Hinnefeld[2], D. Robertson[1], E. Stech[1], M. Wiecher[1]
[1]University of Note Dame, [2]Indiana University South Bend.

107.04 **Pan-STARRS1 Science Mission, Status and Results**
Kenneth C. Chambers[1]
[1]Univ. of Hawaii.

107.05 **The Pan-STARRS-1 Outer Solar System Key Project**
Matthew J. Holman[1], P. Protopapas[1], Y. Chen[2], H. Lin[2], T. Grav[3], D. Ragozzine[1]
Pan-STARRS-1 Science Consortium
[1]Harvard-Smithsonian, CfA, [2]National Central University, Taiwan, [3]Planetary Sciences Institute.

108 Student Ideas, Teacher Training, and Public Outreach

Monday, 10:00 am - 11:30 am, Room 2, Dena'ina Center

108.00C **Chair**
Edward E. Prather[1]
[1]Center for Astronomy Education (CAE) Univ. of Arizona.

108.01 **Investigating Undergraduate Student Ideas about Cosmological Concepts**
Kimberly A. Coble[1], L. E. Trouille[2], J. M. Bailey[3], C. T. Camarillo[1], M. D. Nickerson[1], G. L. Cochran[4], V. L. Hayes[1], K. M. McLin[5], L. R. Cominsky[5]
[1]Chicago State University, [2]Northwestern University, [3]University of Nevada Las Vegas, [4]Florida International University, [5]Sonoma State University.

108.02 **Student Ideas about Cosmological Concepts: Structure and Distances**
Carmelita Camarillo[1], K. Coble[1], L. E. Trouille[2], J. M. Bailey[3], M. D. Nickerson[1], G. L. Cochran[4], V. L. Hayes[1], V. L. Hayes[1], K. M. McLin[5], L. R. Cominsky[5]
[1]Chicago State University, [2]Northwestern University, [3]University of Nevada Las Vegas, [4]Florida International University, [5]Sonoma State University.

108.03 **Student Ideas About Cosmological Concepts: Age, Expansion, and the Big Bang**
Laura Trouille[1], K. Coble[2], C. Camarillo[2], J. Bailey[3], M. Nickerson[2], G. Cochran[4], V. Hayes[2], K. McLin[5], L. Cominsky[5]
[1]Northwestern University CIERA Postdoctoral Fellow, [2]Chicago State University, [3]Univ. of Nevada Las Vegas, [4]Florida International University, [5]Sonoma State University.

108.04 **General Education Astronomy Students' Worldviews And Beliefs About The Role Of Science In Society: Initial Results**
Colin Scott Wallace[1], E. E. Prather[1], J. Teske[1], M. Meyers[1], B. Mendelsohn[2], Collaboration of Astronomy Teaching Scholars (CATS)
[1]University of Arizona, [2]University of Cape Town, South Africa.

108.05 **NASA Education Activity Training (NEAT): Professional Development for Montana K-12 Teachers**
Kathryn Williamson[1], D. McKenzie[1], A. Des Jardins[1], J. Key[1], C. Kanode[1], S. Willoughby[1]
[1]Montana State University.

108.06 **Encouraging A Culture Of Outreach In Astronomy Clubs: Findings From The Astronomical Society Of The Pacific, The Institute For Learning Innovation, And Inverness Research**
Jim Manning[1], E. Jones[2], M. St. John[3], M. Berendsen[1], G. Schultz[1], S. Gurton[1], V. Yocco[2], P. Castori[3], J. Santascoy[1], V. White[1], K. Frank[1]
[1]Astronomical Society of the Pacific, [2]Institute for Learning Innovation, [3]Inverness Research.

109 Interior

Monday, 10:00 am - 11:30 am, Room 4, Dena'ina Center

109.00C **Chair**
Jesper Schou[1]
[1]Stanford Univ..

109.01 **Subsurface Supergranular Vertical Flows as Measured Using Large Distance Separations in Time-Distance Helioseismology**
Thomas L. Duvall, Jr.[1], S. M. Hanasoge[2]
[1]NASA Goddard Space Flight Center, [2]Max-Planck-Institut fur Sonnensystemforschung, Germany.

109.02 **Helioseismic Measurements of Emerging Magnetic Flux in the Solar Convection Zone**
Stathis Ilonidis[1], J. Zhao[1], A. Kosovichev[1], T. Hartlep[1]
[1]Stanford University.

109.03 **Physics of Sunquakes Events Observed with SDO**
Alexander G. Kosovichev[1]
[1]Stanford Univ..

109.04 **Testing Helioseismic Measurements Of Subsurface Meridional And Large-scale Flows Using Artificial Data From Numerical Simulations**
Thomas Hartlep[1], J. Zhao[1], A. G. Kosovichev[1], N. N. Mansour[2]
[1]Stanford University, [2]NASA / Ames Research Center.

109.05 **Searching For Equator-ward Meridional Flows In The Solar Interior**
Junwei Zhao[1], R. S. Bogart[1], A. G. Kosovichev[1], T. L. Duvall, Jr.[2]
[1]Stanford Univ., [2]NASA Goddard Space Flight Center.

109.06 **Comparison of Numerical and Observational Scattering of the f-mode by Small Magnetic Elements**
Tobias Felipe[1], D. C. Braun[1], A. D. Crouch[1], A. C. Birch[2]
[1]NorthWest Research Associates, [2]Max Planck Institut fur Sonnensystemforschung, Germany.

110 Solar Magnetism & the Activity Cycle I

Monday, 10:00 am - 11:30 am, Room 5, Dena'ina Center

110.00C **Chair**
Jon Todd Hoeksema[1]
[1]Stanford Univ..

110.01 **Simulating the Rise of Low Twist Flux Ropes in the Convection Zone**
Mark Linton[1], J. Leake[2]
[1]NRL, [2]George Mason University.

110.02 **Observational Criteria For Small-scale Turbulent Dynamo In The Solar Photosphere**
Valentyna Abramenko[1], P. Goode[1], V. Yurchyshyn[1]
[1]Big Bear Solar Observatory.

110.03 **Solar Cycle Variations of Sunspot Magnetic Field Strengths from the Mount Wilson Observatory**
Alexei A. Pevtsov[1], L. Bertello[1], A. Tlatov[2], Y. Nagovitsyn[2], A. Kilcik[3]
[1]National Solar Observatory, [2]Pulkovo Observatory, Russian Federation, [3]Big Bear Solar Observatory.

110.04 **Decreasing Sunspot Magnetic Fields Explain Unique 10.7cm Radio Flux**
Matthew J. Penn[1], W. Livingston[1], L. Svalgaard[2]
[1]National Solar Obs., [2]HEPL.

110.05 **Circumfacular Regions in Ca II 854.2 nm**
Anna Pietarila[1], J. Harvey[1]
[1]National Solar Observatory.

110.06 **Photospheric Magnetic Flux Transport - Supergranules Rule**
David H. Hathaway[1], L. Rightmire-Upton[2]
[1]NASA/MSFC, [2]Univ. Alabama, Huntsville.

111 High Angular Resolution Sunyaev-Zel'dovich Effect

Monday, 10:00 am - 11:30 am, Summit Hall 2, Egan Center

A host of sensitive new millimeter and submillimeter telescopes are opening frontiers in the study of Galaxy Clusters by enabling unprecedentedly detailed measurements of the Sunyaev-Zel'dovich Efffect (SZE). These telescopes include the GBT, CARMA, ALMA, and soon SCUBA-2, the LMT, CSO+MUSIC, and CCAT. Fueled by these capabilities and the emergence of SZE-selected cluster samples from ACT, SPT and Planck, interest in this area has been rapidly increasing over the past few years. The focus of this session will be on detailed astrophysical studies of clusters using the SZE and on targeted studies of the SZE aiming to maximize the inferences we can make from cluster surveys. It will also include theoretical and multi-wavelength perspectives.

111.00C **Chair**
Brian S. Mason[1]
[1]NRAO.

111.01 **What We Have Learned About Clusters From a Decade of Arcsecond-resolution X-ray Observations**
Maxim L. Markevitch[1]
[1]Harvard CfA/NASA GSFC.

111.02 **From High Resolution Maps to Large Area Cluster Surveys: MUSTANG2 on the Green Bank Telescope and the Atacama Cosmology Telescope (ACT)**
Mark J. Devlin[1]
[1]Univ. of Pennsylvania.

111.03 **PLANCK+MUSTANG SZ**
Anna Scaife[1]
[1]University of Southampton, United Kingdom.

111.04 **Probing Cluster Physics with High-Resolution SZE Imaging and Simulations**
Daisuke Nagai[1]
[1]Yale University.

111.05 **Unveiling the Complex Physical Processes of the ICM with High-Res SZ Observations**
Nicholas Battaglia[1]
[1]Carnegie Mellon University.

111.06 **SLAM High Resolution Numerical Simulations of the SZ Signatures of Cluster Mergers**
Craig L. Sarazin[1], M. Chatzikos[1], B. W. O'Shea[2]
[1]Univ. of Virginia, [2]Michigan State Univ..

111.07 **Measuring the Sunyaev-Zel'dovich Effect with CARMA: Past, Present, and Future**
Thomas J. Plagge[1]
[1]University of Chicago.

111.08 **Measurement of the Sunyaev-Zeldovich Effect Increment with Large Aperture Sub-mm Telescopes**
Michael Zemcov[1]
[1]California Institute of Technology.

111.09 **Sunyaev-Zeldovich Effect Science with CCAT**
Sunil R. Golwala[1]
[1]California Institute of Technology.

Invited Session112 SPD Hale Prize: The Two Sources of Solar Energetic Particles

Monday, 11:40 am - 12:30 pm, Ballroom B, Dena'ina Center

112.00C **Chair**
David Alexander[1]
[1]Rice University.

Hale Prize Citation
The 2012 Hale Prize is awarded to Donald V Reames for his pioneering work on the composition and transport of Solar Energetic Particles, and for the key insights that firmly established the modern paradigm for SEP production.

112.01 **The Two Sources of Solar Energetic Particles**
Donald V. Reames[1]
[1]University of Maryland.

113 NSF Town Hall

Monday, 12:45 pm - 1:45 pm, Ballroom A, Dena'ina Center

Personnel from the NSF Division of Astronomical Sciences will discuss the implementation of the response to the Astro2010 decadal survey, implications of the FY12 budget and FY13 budget request, the status and completion plans for the NSF Portfolio Review, and other topical information on NSF grants and facilities that is of interest to the AAS community.

113.00C **Chair**
James S. Ulvestad[1]
[1]NSF.

137 CSWA: Introduction to Astronomical Bullying

Monday, 12:45 pm, - 1:45 pm, Ballroom C, Dena'ina Center

Unprofessional behavior is not limited to gender discrimination and sexual harassment. There are cases when "something is just not right" in the workplace, which may involve no sexual overtones whatsoever. One such example is Astronomical Bullying, which can have some characteristics in common with childhood bullying. It is not limited to women. It can involve teasing or taunting. It can be overt or covert. It can be physically or psychologically threatening. It can come from a supervisor or a collaborator. It can involve spreading rumors about your qualifications or abilities as a scientist. The stress associated with a bullying situation can affect your work and your health. You may even feel that your future career is in jeopardy. The CSWA Town Hall at the Anchorage AAS meeting will introduce the concept of Astronomical Bullying. The Town Hall will include at least 30 minutes for discussion and answering questions from the audience.

Organizer
Joan T. Schmelz[1]
[1]Univ. of Memphis.

114 Bridging Laboratory & Astrophysics: Atoms

Monday, 2:00 pm - 3:30 pm, Summit Hall 1, Egan Center

Laboratory astrophysics is the Rosetta Stone that enables astronomers to understand and interpret the cosmos. This session will focus on the interplay between astrophysics with theoretical and experimental studies into the underlying atomic processes which drive our cosmos.

114.00C **Chair**
Daniel Wolf Savin[1]
[1]Columbia Astrophysics Lab..

114.01 **X-ray Diagnostics of Astrophysical Plasmas**
Randall K. Smith[1]
[1]Smithsonian Astrophysical Observatory.

114.02 **Accurate Spectral Modeling of Fe II. A Long Standing Problem in Astrophysics**
Manuel Bautista[1]
[1]Western Michigan University.

114.03 **Laboratory Oscillator Strengths for Studies of Fe-group Abundances**
Elizabeth Den Hartog[1]
[1]University of Wisconsin.

115 Multiple Populations in Globular Clusters: Evidence & Latest Results

Monday, 2:00 pm - 3:30 pm, Ballroom C, Dena'ina Center

This session focuses on the spectroscopic and photometric evidence for multiple populations in globular clusters, including the range of population properties and how common this phenomenon might be.

115.00C **Chair**
Ata Sarajedini[1]
[1]Univ. of Florida.

115.01 **Multiple Populations in Globular Clusters: Spectroscopic Evidences and the Horizontal Branch Second Parameter Issue**
Raffaele Gratton[1]
[1]Osservatorio Astronomico di Padova, Italy.

115.02 **Metallicity Trends in Supermassive Clusters**
William E. Harris[1]
[1]McMaster University, Canada.

115.03 **High Precision Differential Chemical Abundance Measurements**
David Yong[1]
[1]Australian National University, Australia.

115.04 **The Chemistry of Multiple Populations in Old Stellar Clusters**
Eugenio Carretta[1]
[1]Osservatorio Astronomico di Bologna, Italy.

116 Extragalactic Gamma-ray Background (EGB): Contribution From Unbeamed Sources and Dark Matter Constraints

Monday, 2:00 pm - 3:30 pm, Summit Hall 4, Egan Center

The origin of the Isotropic Gamma-ray Background (IGRB) is one of the fundamental unsolved problems in astrophysics. The intensity of this isotropic radiation has been measured with precision by Fermi and found to be compatible with a featureless power law up to 100 GeV. Its nature is however still enigmatic. Blazars, active galactic nuclei with a relativistic jet closely aligned to the line of sight, are the most numerous population detected at gamma-rays and represented for a long time the primary candidate to explain the IGRB emission. However, there are evidence that they do contribute ≤30% of the IGRB. Leaving the remaining ~70% unexplained. The second session of this meeting will focus

on the contribution of un-beamed sources of gamma-ray like star-forming galaxies and on the use of the IGRB spectrum to constrain scenarios of dark matter annihilation into GeV gamma-rays.

116.00C **Chair**
Francesco Massaro[1]
[1]*Smithsonian Astrophysical Observatory.*

116.01 **The Impact of Electromagnetic Cascades of Very-high Energy Gamma Rays on the Extragalactic Gamma-ray Background**
Tonia M. Venters[1]
[1]*Goddard Space Flight Center.*

116.02 **The Gamma-Ray Background from Star-Forming Galaxies**
Brian D. Fields[1]
[1]*Univ. of Illinois.*

116.03 **Contribution of Unresolved Galaxies to the Extragalactic Diffuse Gamma-ray Background**
Keith Bechtol[1]
[1]*Stanford.*

116.04 **Extragalactic Gamma-ray Background (EGB): Contribution From Fermi-LAT Blazars and Dark Matter Constraints**
Vahe Petrosian[1]
[1]*Stanford Univ..*

116.05 **Dark matter constraints from the Fermi/LAT Extragalactic Gamma-ray Background and the role of halo substructure**
Miguel Angel Sanchez-Conde[1]
[1]*KIPAC/SLAC, Stanford University.*

117 New Horizons for Science From the Moon: Precision Measurements in Gravitational Physics

Monday, 2:00 pm - 3:30 pm, Ballroom A, Dena'ina Center

The New Worlds, New Horizons Particle Astrophysics & Cosmology Panel of the Astro2010 Decadal Survey emphasized the unique role of the Moon where Lunar Laser Ranging (LLR) "offers a promising and cost-effective way to test General Relativity and other theories of gravity". The report recommended "deploying a global, long-lived *LLR+ network on the Moon," especially since the Apollo arrays have already demonstrated most of the best tests of GR. LLR is also complementary to the recently-launched GRAIL mission for studying the Moon's interior, providing more detailed data on the inner core region. In this session, recent advances in LLR will be presented including the first laser signals recovered from Lunokhod 1 and next generation retro-reflectors that may be emplaced on the Moon within the next few years by potential commercial spacecraft (Google Lunar X-Prize). This "Lunar Laser Ranging Retroreflector for the 21st Century" will increase the accuracy supported by the lunar emplacement by a factor of 10 to 100.

117.00C **Chair**
Douglas G. Currie[1]
[1]*University of Maryland.*

117.01 **How and Where to Test General Relativity and Explore Gravitational Physics**
E Sterl Phinney[1]
[1]*Caltech.*

117.02 **Gravity Recovery and Interior Laboratory (GRAIL) Mission: Mission Status and Preliminary Science Results**
Maria Zuber[1], D. E. Smith[1], M. M. Watkins[2], D. H. Lehman[2], GRAIL Science Team
[1]MIT, [2]JPL.

117.03 **Testing Gravity and Lunar Dust via Lunar Laser Ranging**
Thomas W. Murphy[1]
[1]UC, San Diego.

117.04 **Astrophysics and the Next Generation of Lunar Laser Ranging**
Douglas G. Currie[1], S. Dell'Agnello[2], G. Delle Monache[2], K. Zacny[3], B. Behr[4]
[1]University of Maryland, [2]2. Istituto Nazionale di Fisica Nucleare Laboratori Nazionali di Frascati, Italy, [3]3. Exploration Technology Group, Honeybee Robotics Spacecraft Mechanisms Corporation, [4]University of Maryland, College Park.

117.05 **Large-Scale Hollow Retroreflectors for Lunar Laser Ranging at Goddard Space Flight Center**
Alix M. Preston[1]
[1]Goddard Space Flight Center.

117.06 **MoonLIGHT, a Lunar Laser Ranging Retroreflector Array for the 21st Century, and the ASI-INFN Etrusco-2 project**
Giovanni O. Delle Monache[1], S. Dell' Agnello[1], D. Currie[2], M. Martini[1], R. Vittori[3], C. Cantone[1], A. Boni[1], S. Berardi[1], G. Patrizi[1], M. Maiello[1], M. Tibuzzi[1], M. Garattini[1], C. Lops[1], E. Ciocci[1], C. Graziosi[1], G. Bianco[1], N. Intaglietta[1]
[1]INFN-LNF, Italy, [2]University of Maryland, [3]ESA-EAC, Germany.

118 Galaxy Mergers from the Largest to the Smallest Scales: Large-Scale Structure and Merger Rates

Monday, 2:00 pm - 3:30 pm, Room 2, Dena'ina Center

Galaxy mergers, including the mergers of their central SMBHs, take place on a vast range of time and distance scales. They can be observed at wavelengths spanning most of the electromagnetic spectrum, and through gravitational waves, and encompass a wide range of astrophysical phenomena. Two key areas have seen rapid progress recently. Current and upcoming large-scale spectroscopic, imaging, and transient surveys will be provide tight new constraints on merger statistics, will detect many more dual AGN, and may be sensitive to the newly predicted electromagnetic transients from coalescing BBHs. And, modeling the final SMBH coalescence and the resulting BH recoil has a wealth of potential astrophysical implications which are now being explored, including galaxy and BH evolution at the epoch of structure formation and unified models of active galaxies. This timely meeting combines all key aspects of galaxy mergers from large to small scales, and brings together experts from the different subfields.

This first session begins with an overview, and then examines properties of mergers on the largest scales.

118.00C **Chair**
Stefanie Komossa[1]
[1]Max-Planck-Institut fuer Radioastronomie.

118.01 **Galaxy Mergers from the Largest to the Smallest Scales: Introduction and Overview**
Joan Centrella[1]
[1]NASA's GSFC.

118.02 **TBD**
Philip F. Hopkins[1]
[1]*UC Berkeley.*

118.03 **The Evolution of AGN in Groups and Clusters of Galaxies**
Paul Martini[1]
[1]*The Ohio State University.*

119 The Deepest View of the X-ray Universe: 4 Ms Chandra Deep Field Results II

Monday, 2:00 pm - 3:30 pm, Summit Hall 2, Egan Center

This session will cover recent results from the deepest X-ray survey of the Universe, the Chandra Deep Field 4 Ms survey. The two 90-minute sessions begin with an overview of X-ray surveys that have already taken place as well as a view of the future with new missions such as NuSTAR and eROSITA. Speakers from a variety of topics ranging from Galactic stars, high-redshift galaxies and galaxy groups will report on what this ultradeep view in the X-rays reveals. We envision a 30 minute overview talk on X-ray surveys, followed by a 15-minute description of the sources of the CDF-S (number counts and source types). The second session will begin with a talk on normal galaxies which are among the very faintest X-ray sources in the 4 Ms CDF-S.

119.00C **Chair**
Bret Lehmer[1]
[1]*Johns Hopkins University.*

119.01 **A High Redshift Group of Quiescent Early-Type Galaxies in the Chandra Deep Field South**
Masayuki Tanaka[1], A. Finoguenov[2], M. Mirkazemi[2], J. Mulchaey[3], D. Wilman[4], N. Brandt[5], Y. Xue[5]
[1]*IPMU, Japan,* [2]*MPE, Germany,* [3]*Carnegie Observatory,* [4]*MPI, Germany,* [5]*Penn State University.*

119.02 **The Interplay of Massive Black Hole Growth and Galaxy Evolution**
C. Megan Urry[1]
[1]*Yale Univ..*

119.03 **The Cosmic History of Black Hole Accretion from Chandra X-ray Stacking**
Ezequiel Treister[1], C. Urry[2], K. Schawinski[2], N. Lee[3], P. Natarajan[2], M. Volonteri[4], D. B. Sanders[3]
[1]*Universidad de Concepción, Chile,* [2]*Yale University,* [3]*University of Hawaii,* [4]*Institut d'Astrophysique de Paris, France.*

119.04 **Tracking Down the Source Population Responsible for the Unresolved Cosmic 6-8 keV Background**
Yongquan Xue[1], S. X. Wang[2], W. N. Brandt[2], B. Luo[3], D. M. Alexander[4], F. E. Bauer[5], A. Comastri[6], A. C. Fabian[7], R. Gilla[6], B. D. Lehmer[8], D. P. Schneider[2], C. Vignali[9], M. Young[2]
[1]*University of Sciences and Technology of China, China,* [2]*Penn State University,* [3]*Harvard-Smithsonian CfA,* [4]*Durham University,* [5]*Pontificia Universidad Catolica de Chile/SSI, Chile,* [6]*Osservatorio Astronomico di Bologna, Italy,* [7]*Institute of Astronomy, United Kingdom,* [8]*Johns Hopkins University/NASA GSFC,* [9]*Universita di Bologna, Italy.*

120 Solar Systems I

Monday, 2:00 pm - 3:30 pm, Ballroom B, Dena'ina Center

120.00C **Chair**
Michael F. A'Hearn[1]
[1]*Univiversity of Maryland.*

120.01 **WISE Constraints on the Particle Properties in Saturn's Phoebe Ring**
Douglas P. Hamilton[1], M. F. Skrutskie[2], A. J. Verbiscer[2]
[1]Univ. of Maryland, [2]Univ. of Virginia.

120.02 **Tidal Evolution of the Quaoar-Weywot System**
Wesley Fraser[1], M. E. Brown[2], K. Batygin[2], A. Bouchez[3]
[1]Herzberg Institute of Astrophysics, Canada, [2]California Institute of Technology, [3]Giant Magellan Telescope Observatory.

120.03 **The Sunward Continuum Features of Comet 103P/Hartley 2**
Beatrice E. A. Mueller[1], N. H. Samarasinha[1], T. L. Farnham[2], M. F. A'Hearn[2]
[1]Planetary Science Institute, [2]Department of Astronomy, University of Maryland.

120.04 **Cometary Volatiles and Planetary System Origins**
Michael F. A'Hearn[1]
[1]Univiversity of Maryland.

120.05 **Asymmetric Spherical Coupled Escape Probability: Model and Results for Optically Thick Cometary Comae**
Alan Gersch[1], M. F. A'Hearn[1]
[1]Univ. of Maryland.

120.06 **Looking for Planets in all the Right Places**
Rosanne Di Stefano[1]
[1]Harvard-Smithsonian CfA.

120.07 **The KELT-North Transit Survey's First Planetary Detections**
Thomas G. Beatty[1], A. Bieryla[2], D. Cohen[3], K. Collins[4], J. Eastman[5], B. J. Fulton[5], B. Gary[6], B. S. Gaudi[1], L. Hebb[6], E. L. N. Jensen[3], D. W. Latham[2], M. Manner[7], J. Pepper[6], R. Siverd[6], K. Stassun[6], R. A. Street[5]
[1]Ohio State University, [2]Harvard-Smithsonian Center for Astrophysics, [3]Swarthmore College, [4]University of Louisville, [5]Las Cumbres Observatory Global Telescope Network, [6]Vanderbilt University, [7]Spot Observatory.

120.08 **Precision Near-Infrared Radial Velocities**
Peter Plavchan[1], G. Anglada[2], P. Gao[1], R. White[3], C. Davison[3], D. Ciardi[1], C. Beichman[1], K. Wallace[4], B. Mennesson[4], K. von Braun[1], G. Vasisht[4], M. Fitzgerald[5], I. McLean[5], C. Brinkworth[1], L. Prato[6], J. Johnson[1], S. Kane[1], B. Walp[7], A. Tanner[8], S. Crawford[4], S. Lin[1], S. Mills[1]
[1]Caltech, [2]University of Goettingen, Germany, [3]Georgia State University, [4]Jet Propulson Laboratory, Caltech, [5]UCLA, [6]Lowell Observatory, [7]Gemini, [8]Mississippi State.

120.09 **High-Contrast Imaging Follow-up of Radial Velocity Trend Stars**
Justin R. Crepp[1], J. A. Johnson[1], California Planet Search
[1]California Institute of Technology.

121 Binaries and Interacting Systems

Monday, 2:00 pm - 3:30 pm, Room 3, Dena'ina Center

121.00C **Chair**
Massimo Marengo[1]
[1]Iowa State University.

121.01 **Interacting Binary Star Research at the Kutztown University Observatory**
Phillip A. Reed[1]
[1]Kutztown University.

121.02 **The Discovered Exoplanets Have The Same Orbital Elements As Stellar Systems**
Helmut A. Abt[1]
[1]Kitt Peak National Obs..

121.03 **The Brown Dwarf Desert: A Tale of Stars Engulfing their Massive Close-in Companions**
Tristan Guillot[1], D. N. C. Lin[2], P. Morel[3]
[1]OCA/UCSC, France, [2]UCSC, [3]OCA, France.

121.04D **Eccentric Ellipsoidal Red Giant Binaries**
Christine Nicholls[1], P. Wood[2]
[1]University of California San Diego, [2]Mt Stromlo Observatory, Australia.

121.05 **Intriguing Sources from the XMM-Newton Survey of Rich Open Clusters**
Natalie M. Gosnell[1], D. Pooley[2], A. M. Geller[3], R. D. Mathieu[1], J. Kalirai[4], P. Frinchaboy[5], E. Ramirez-Ruiz[6]
[1]University of Wisconsin-Madison, [2]Sam Houston State University, [3]Northwestern University, [4]Space Telescope Science Institute, [5]Texas Christian University, [6]University of California.

121.06 **Modeling The Evolution Of Low Mass X-Ray Binaries In Globular Clusters**
Sanghamitra Goswami[1]
[1]Northwestern University.

121.07 **Reflection Of X-rays In Oxygen Rich Disks Of Ultra-compact X-ray Binaries**
Oliwia Madej[1], P. G. Jonker[1], R. R. Ross[2]
[1]SRON, Netherlands, [2]Physics Department, College of the Holy Cross.

121.08 **Discovering The Quiet Stellar Mass Black Holes In The Milky Way**
Jifeng Liu[1]
[1]National Astronomical Observatory of China.

122 Instrumentation: Ground, Air & Space

Monday, 2:00 pm - 3:30 pm, Summit Hall 3, Egan Center

122.00C **Chair**
Alan M. Title[1]
[1]Lockheed Martin.

122.01 **Coronagraphic Imaging of Debris Disks from a High Altitude Balloon Platform**
Stephen C. Unwin[1], W. A. Traub[1], J. T. Trauger[1], G. Bryden[1], D. W. Stuchlik[2], C. F. Lillie[3]
[1]JPL, [2]NASA Wallops Flight Facility, [3]NGAS.

122.02 **Advanced Technology Solar Telescope Construction: Progress Report**
Thomas R. Rimmele[1], J. McMullin[1], S. Keil[1], P. Goode[2], M. Knoelker[3], J. Kuhn[4], R. Rosner[5], ATST Team
[1]NSO, [2]NJIT, [3]HAO, [4]University Hawaii, [5]University Chicago.

122.03 **A Comparison Of The Flux Density Scales Between The Planck Mission And The VLA And ATCA Interferometers**
R. A. Perley[1], B. Butler[1], B. Partridge[2], P. Edwards[3], J. Stevens[3]
[1]National Radio Astronomy Observatory, [2]Haverford College, [3]Australia Telescope National Facility, Australia.

122.04 **Depth Dependent Background Measurements with the Nuclear Compton Telescope (NCT)**
Jeng-Lun Chiu[1], H. Chang[1], S. E. Boggs[2], NCT Collaboration
[1]Institute of Astronomy, National Tsing Hua University, Taiwan, [2]Space Sciences Laboratory, UC. Berkeley.

122.05 **The Quality and Stability of Chandra Telescope Pointing and Spacial Resolution**
Ping Zhao[1]
[1]Harvard-Smithsonian, CfA.

122.06 **Precision-Deployable, Stable, Optical Benches for Cost-Effective Space Telescopes**
Rolf Danner[1], S. Pellegrino[2], D. Dailey[1], G. Marks[1], J. Bookbinder[3]
[1]Northrop Grumman Corporation, [2]California Institute of Technology, [3]Smithsonia Astrophysical Observatory.

122.07 **Design And Performance Of Micro-Spec, An Ultra Compact High-sensitivity Far-infrared Spectrometer For SPICA**
Giuseppe Cataldo[1], S. H. Moseley[2], W. Hsieh[2], W. Huang[2], T. R. Stevenson[2], E. J. Wollack[2]
[1]NASA GSFC (USRA), [2]NASA GSFC.

122.08 **The HST Object Catalog**
Stephen H. Lubow[1], T. Budavari[2]
[1]Space Telescope Science Institute, [2]Johns Hopkins University.

123 Solar Magnetism & the Activity Cycle II

Monday, 2:00 pm - 3:30 pm, Room 5, Dena'ina Center

123.00C **Chair**
Robert F. Stein[1]
[1]Michigan State Univ..

123.01 **On the Maintenance of Meridional Circulation and Differential Rotation in the Sun**
Nicholas Featherstone[1], M. S. Miesch[1]
[1]High Altitude Observatory.

123.02 **Latest Results on the Torsional Oscillation and Solar Cycle 25**
Frank Hill[1], R. Howe[2], J. Schou[3], M. Thompson[4], T. Larson[3], R. Komm[1]
[1]National Solar Obs., [2]University of Birmingham, United Kingdom, [3]Stanford University, [4]High Altitude Observatory.

123.03 **Cycle 24 Northern-Hemisphere Solar Maximum Observed in Fe XIV**
Richard C. Altrock[1]
[1]Air Force Research Lab..

123.04 **Calibration Of a Century of Polar Field Measurements and what this Tells us About the Long-term Variability of the Solar and Heliospheric Magnetic Field**
Andres Munoz-Jaramillo[1], N. R. Sheeley[2], J. Zhang[3], E. E. DeLuca[1]
[1]Harvard-Smithsonian Center for Astrophysics, [2]Naval Research Laboratory, [3]George Mason University.

123.05 **Active Longitudes Revealed by Large-scale, and Long-lived Coronal Streamers**
Jing Li[1]
[1]ESS, UCLA.

123.06 **Spies - Spectral Polarimetric Imager For The Energetic Sun**
Haosheng Lin[1], S. Jaeggli[2]
[1]Univ. of Hawaii, [2]Montana State University.

124 Chromosphere & Transition Region

Monday, 2:00 pm - 3:30 pm, Room 4, Dena'ina Center

124.00C **Chair**
John W. Leibacher[1]
[1]National Solar Observatory.

124.01 **Simultaneous Imaging and Spectroscopy by Inversion of MOSES Sounding Rocket Data**
Charles Kankelborg[1], S. Atwood[1], H. Courrier[1], J. Plovanic[1], T. Rust[1]
[1]Montana State Univ..

124.02 **On The Origin Of Chromospheric Spicules And Fibrils**
Sara F. Martin[1], O. Panasenco[1]
[1]Helio Research.

124.03 **Evidence for Two Separate But Interlaced Components of the Chromospheric Magnetic Field**
Karin Muglach[1], K. Reardon[2], Y. Wang[3], H. Warren[3]
[1]GSFC, [2]Osservatorio Astrofisico di Arcetri, Italy, [3]Naval Research Laboratory.

124.04 **Modeling Of Magnetic Fields In The Solar Chromosphere: Flux Emergence And Magnetic Reconnection**
James E. Leake[1], M. G. Linton[2], V. Lukin[2]
[1]George Mason University, [2]Naval Resrach Laboratory.

124.05 **Convection-Chromosphere Coupling due to Vortex Tube Dynamic**
Irina Kitiashvili[1], A. Kosovichev[1], N. Mansour[2], A. Wray[2]
[1]Stanford University, [2]NASA Ames Research Center.

124.06 **An Insight Into Atmospheric Structure Through Compact Chromospheric Brightenings**
Michael S. Kirk[1], K. Balasubramaniam[2], J. Jackiewicz[1], R. McAteer[1]
[1]New Mexico State University, [2]Air Force Research Laboratory.

Invited Session 125 Is the Magnetosphere of Jupiter a Colossal Comet? What will NASA's Juno Reveal?

Monday, 3:40 pm - 4:30 pm, Ballroom B, Dena'ina Center

125.00C **Chair**
Edward B. Churchwell[1]
[1]Univ. of Wisconsin.

125.01 **Is the Magnetosphere of Jupiter a Colossal Comet? What will NASA's Juno Reveal?**
Fran Bagenal[1]
[1]Univ. of Colorado.

Invited Session 126 Exploring the Planet Mercury: One Year of MESSENGER Orbital Observations

Monday, 4:30 pm - 5:20 pm, Ballroom B, Dena'ina Center

126.00C **Chair**
Lee Anne M. Willson[1]
[1]Iowa State Univ..

126.01 **Exploring the Planet Mercury: One Year of MESSENGER Orbital Observations**
Sean C. Solomon[1]
[1]Carnegie Inst. of Washington.

127 Public Talk: Transits of Venus and Mercury: Exoplanet Analogs in Our Solar System

Monday, 8:00 pm - 9:00 pm, Ballroom B, Dena'ina Center

127.00C **Chair**
Nicholas B. Suntzeff[1]
[1]*Texas A&M University.*

127.01 **Transits of Venus and Mercury: Exoplanet Analogs in Our Solar System**
Jay M. Pasachoff[1]
[1]*Williams College.*

138 The NASA Kepler Mission Town Hall: 2012 and Beyond

Monday, 6:30 pm - 8:00 pm, Ballroom A, Dena'ina Center

The NASA Kepler mission has recently been granted a mission extension by the Astrophysics Senior Review process. This Town Hall will present the Kepler project plans for the extended mission. These include significant changes in the data release policy, availability of new project products, avenues for community involvement via the Kepler Participating Scientist Program and Guest Observer program, as well as the role of the MAST and NexSci archives. Please come join us for this town hall reception, meet the Kepler team, and learn about the future mission plans for both planet discovery and astrophysics using Kepler data.

Organizer
Steve B. Howell[1]
[1]*NASA ARC.*

"New Horizons For Science From the Moon" Reception

Monday, 6:30 pm - 8:30 pm, Anchorage Room, Marriott Downtown

Reception for attendees of the "New Horizons for Science from the Moon" workshop, discussion of the work being done in LUNAR and in collaboration with Lockheed.

Organizer
Jack O. Burns[1]
[1]*Univ. of Colorado at Boulder.*

LBGTIQ Networking Dinner

Monday, 6:30 pm - 8:30 pm, meet at AAS Registration Desk

The AAS Working Group on LGBTIQ Equality (WGLE) works to promote equality for lesbian, gay, bisexual, transgender, intersex, and questioning individuals within our profession. Join us for dinner on Monday evening, June 11. We'll meet in front of the AAS Meeting Registration Desk at 6:30 and walk to a local restaurant. Please bring a method of payment for this dinner.

Organizer
Rolf Danner[1]
[1]*Northrop Grumman Corporation.*

Monday Posters, 11 June 2012

128 Solar System

Monday, 9:00 am - 6:30 pm, Exhibit Hall, Dena'ina Center

128.01 **On The Distribution Of Angular Orbital Elements Of Near-earth Objects**
Youngmin JeongAhn[1], R. Malhotra[1]
[1]Lunar and Planetary Laboratory, University of Arizona.

128.02 **The Shape and Spin Distributions of Near-Earth Asteroids Observed with the Arecibo Radar System**
Patrick A. Taylor[1], E. S. Howell[1], M. C. Nolan[1], A. A. Thane[2]
[1]Arecibo Observatory, [2]The University of Montana.

128.03 **A Multiwavelength Investigation of the Remains of Sungrazing Comet Lovejoy (C/2011 W3)**
Matthew M. Knight[1], H. A. Weaver[2], Y. R. Fernandez[3], S. R. Chesley[4], M. S. Kelley[5], R. McNaught[6], D. Bodewits[5], C. M. Lisse[2], D. J. Osip[7], N. Dello Russo[2], K. Battams[8]
[1]Lowell Observatory/JHU-APL, [2]Johns Hopkins University Applied Physics Laboratory, [3]University of Central Florida, [4]California Institute of Technology, Jet Propulsion Laboratory, [5]University of Maryland, [6]Siding Spring Observatory, Australian National University, Australia, [7]Las Campanas Observatory, Carnegie Observatories, Chile, [8]Naval Research Laboratory.

128.04 **The Fate Of The Solar System Around A Dying Sun: White Dwarfs And Dark Planets**
Ciprian T. Berghea[1], V. V. Makarov[1], R. P. Dudik[1], P. P. Eggleton[2]
[1]USNO, [2]LLNL.

129 Extrasolar Planets

Monday, 9:00 am - 6:30 pm, Exhibit Hall, Dena'ina Center

129.01 **Detecting The Magnetic Field Of The Transiting Exoplanet Wasp-12b Through Ground-based And Space-based Near-UV And Optical Observations**
Jake Turner[1], C. A. Griffith[1], J. K. Teske[1], B. E. Crawford[1], A. N. Robertson[1], B. M. Smart[1], K. K. Hardegree-Ullman[1], R. T. Zellem[1]
[1]University of Arizona.

129.02 **Characterization of Exoplanets in Eccentric Orbits**
Stephen R. Kane[1], D. M. Gelino[1]
[1]NASA Exoplanet Science Institute, Caltech.

129.03 **The Habitable Zone Gallery and its Applications**
Dawn M. Gelino[1], *S. R. Kane[1]*
[1]NASA Exoplanet Science Institute, Caltech.

129.04 **Near-UV and Optical Observations of the Transiting Extrasolar Planet Tres-3b**
Carter-Thaxton W. Smith[1], B. Smart[1], J. D. Turner[1], A. Walker-LaFollette[1], K. K. Hardegree-Ullman[1], L. C. Small[1], A. M. McGraw[1], B. E. Crawford[1], T. M. Carleton[1], A. N. Robertson[1], A. P. M. Towner[1], M. J. Daugherty[1], B. Guvenen[1]
[1]University of Arizona.

129.05 **A Transiting Brown Dwarf Candidate from the KELT-North Transit Survey**
Robert Siverd[1]
[1]Vanderbilt University.

129.06 **Realistic Simulations of the Planetary Yields of KMTNet, a Next-Generation Microlensing Survey**
Calen B. Henderson[1], B. S. Gaudi[1]
[1]The Ohio State University.

129.07 **Time-resolved Ultraviolet Spectroscopy of the GJ 876 Exoplanetary System**
Kevin France[1], F. Tian[1], J. L. Linsky[1], C. S. Froning[1], A. Roberge[2], J. T. Stocke[1]
[1]University of Colorado, [2]GSFC.

130 Massive Stars, Stellar Atmospheres, and Stellar Winds

Monday, 9:00 am - 6:30 pm, Exhibit Hall, Dena'ina Center

130.01 **LMC O Supergiant Mass Loss Rates Determined from P V, S V and IR Excesses**
Derck Massa[1], R. Prinja[2], A. Fullerton[1], D. Lennon[1]
[1]STScI, [2]UCL, United Kingdom.

130.02 **Limb-darkening Coefficients For GK Dwarf Stars From The SAtlas Stellar Atmospheres Code**
Hilding R. Neilson[1]
[1]University of Bonn, Germany.

130.03 **Chromium Abundance Determination Utilizing Ionization Equilibrium In Two Very Metal-poor Stars**
Matthew Alvarez[1], J. S. Sobeck[2], J. E. Lawler[3], E. A. Den Hartog[3], C. Sneden[1], . J. Cowan[4]
[1]University of Texas, [2]University of Chicago, [3]University of Wisconsin, [4]University of Oklahoma.

130.04 **Self-Consistent Field Model Spectra and Images for the Rapid Rotator α Cephei**
Jason P. Aufdenberg[1], K. MacGregor[2], M. Sola[1]
[1]Embry-Riddle Aeronautical Univ., [2]High Altitude Observatory.

130.05 **Lifting Thor's Helmet: An X-ray/infrared Archival Study Of The Wind-blown Bubble Ngc 2359**
Marcus Freeman[1], Laboratory for Multiwavelength Astrophysics, J. Kastner[1], R. Montez[1], S. Rappaport[2]
[1]Rochester Institute of Technology, [2]Massachusetts Institute of Technology.

130.06 **Luminous Stars And Variables In M31 And M33**
Roberta M. Humphreys[1], K. Weia[2]
[1]Univ. of Minnesota, [2]Ruhr-Universitaet Bochum, Germany.

130.07 **The Herschel First Inventory of FIR Molecular and Atomic Species associated with Eta Carinae and the Homunculus**
Theodore R. Gull[1], P. Morris[2], K. E. Nielsen[3], J. H. Black[4], M. J. Barlow[5], B. Swinyard[5], P. Royer[6], E. Dwek[1], M. A. Bautista[7], I. Cherchneff[8]
[1]NASA/GSFC, [2]Cal Tech, [3]Catholic University of America, [4]Onsala Space Observatory, Sweden, [5]University College London, United Kingdom, [6]KU Leuven, Belgium, [7]Western Michigan University, [8]Basel University, Switzerland.

130.08 **Toward Detecting Fast Moving Massive Stars around the 30 Doradus Region**
Imants Platais[1], E. Sabbi[2], J. Anderson[2], D. J. Lennon[2], R. P. van der Marel[2], A. J. Bellini[2], S. E. de Mink[2], S. T. Sohn[2], L. R. Bedin[3]
[1]Johns Hopkins Univ., [2]Space Telescope Science Institute, [3]Osservatorio Astronomico di Padova, Italy.

131 New Horizons for Science From the Moon

Monday, 9:00 am - 6:30 pm, Exhibit Hall, Dena'ina Center

131.01 **Gravitational Horizon(3)**
Chao Yuan Yang[1]
[1]NASA/GSFC(Retired).

131.02 **Dark Ages Radio Explorer - Field Tests of a Prototype Instrument**
Abhirup Datta[1], R. Bradley[2], I. J. O'Dwyer[3], J. D. Bowman[4], J. O. Burns[1], J. Lazio[3], J. J. Bauman[5]
[1]University of Colorado, [2]National Radio Astronomy Observatory, [3]Jet Propulsion Laboratory, California Institute of Technology, [4]Arizona State University, [5]NASA Ames Research Center.

131.03 **Mcmc Signal Extraction For 21-cm Global Signal Experiments**
Geraint Harker[1]
[1]University of Colorado.

131.04 **Inflatable Antennas for a Lunar Low Frequency Array**
Dayton L. Jones[1]
[1]JPL.

132 Sunyaev-Zel'dovich Effect Observations

Monday, 9:00 am - 6:30 pm, Exhibit Hall, Dena'ina Center

132.01 **Cosmological Simulations Of Cluster Mergers With Mock High-resolution SZE Imaging**
John Ruan[1], T. R. Quinn[1]
[1]University of Washington.

132.02 **Mock Astro-H Simulations of Gas Motions in LCDM Clusters**
Daisuke Nagai[1], E. Lau[1]
[1]Yale University.

132.03 **Modeling High-Resolution Sunyaev-Zel'dovich Effect Measurements of Galaxy Clusters with Cosmological Simulations**
Kaylea Nelson[1], D. Nagai[1], J. Chluba[2]
[1]Yale University, [2]CITA, Canada.

132.04 **NIKA: A High-Resolution Millimetre Camera for the IRAM 30m Telescope**
F. Xavier Desert[1], P. Mazzotta[2], C. NIKA[3]
[1]Institut de Planetologie et d'Astrophysique de Grenoble, France, France, [2]Dipartimento di Fisica, Italy, [3]European Consortium, France.

133 Catalogs and Surveys

Monday, 9:00 am - 6:30 pm, Exhibit Hall, Dena'ina Center

133.01 **CANDELS: Measuring Photometric Redshifts And Stellar Masses For Deep Surveys**
Tomas Dahlen[1], B. Mobasher[2], CANDELS Collaboration
[1]STScI, [2]UCR.

133.02 **Optical Properties Of Millimeter-wave Sources From The SPT/ACT Surveys**
John Patrick Hughes[1], F. Menanteau[1]
[1]Rutgers Univ..

133.03 **Identifying Microlenses In Large, Non-uniformly Sampled Surveys: The Case Of PTF**
Adrian M. Price-Whelan[1], M. Agüeros[1], A. Fournier[2], E. Ofek[3], R. Street[4]
[1]Columbia University, [2]University of California Santa Barbara, [3]Weizmann Institute of Science, Israel, [4]Las Cumbres Observatory Global Telescope Network, Inc..

133.04 **The HST Object Catalog for Multicolor and Time-Domain Studies**
Tamas Budavari[1], S. Lubow[2]
[1]Johns Hopkins University, [2]Space Telescope Science Institute.

133.05 **Rapid Rotators among APOGEE Red Giants**
Dmitry Bizyaev[1], J. K. Carlberg[2], D. L. Nidever[3], S. R. Majewski[3], M. D. Shetrone[4], V. V. Smith[5], R. J. Patterson[3], K. Cunha[6], J. A. Holtzman[7], R. W. O'Connell[3], K. Pan[1]
[1]Apache Point Observatory / NMSU, [2]Carnegie Institution of Washington, [3]University of Virginia, [4]McDonald Observatory, [5]National Optical Astronomy Observatory, [6]Observatorio Nacional, Brazil, Steward Observatory/NOAO, [7]New Mexico State University.

133.06 **The AAVSO Photometric All-Sky Survey Completes the Sky**
Arne A. Henden[1], T. C. Smith[2], S. E. Levine[3], D. Terrell[4]
[1]AAVSO, [2]DRO, [3]Lowell Observatory, [4]SwRI.

134 Molecular Clouds, HII Regions, Dust and the ISM

Monday, 9:00 am - 6:30 pm, Exhibit Hall, Dena'ina Center

134.01 **Small Scale HI Structure: Multi-epoch Green Bank Pulsar HI Absorption Observations**
Anthony Howard Minter[1]
[1]NRAO.

134.02 **Three New Intermediate-Velocity Molecular Clouds in the Northern Galactic Hemisphere**
Allison J. Smith[1], L. Magnani[1]
[1]University of Georgia.

134.03 **Probing Our Heliospheric History II**
Katherine Wyman[1], S. Redfield[2]
[1]Smithsonian Astrophysical Observatory, [2]Wesleyan University.

134.04 **CO and H2O Ices Towards Field and Embedded Stars in ρ Ophiuchi and Taurus**
Steven Lentine[1], D. Horne[1], D. Whittet[1], J. Chiar[2]
[1]Rensselaer Polytechnic Institute, [2]SETI Institute.

134.05 **Estimates of Dust and 13CO Radial Volume Density Profiles in Nearby Molecular Clouds**
Marko Krco[1]
[1]Cornell University.

134.06 **The Fate of Ionizing Photons in Two Different Star Formation Complexes in the SMC**
Audrey Simmons[1], R. Walterbos[2], E. Sabbi[3], S. Points[4], A. Nota[3]
[1]New Mexico State University / Apache Point Observatory, [2]New Mexico State University, [3]STScI, [4]Cerro Tololo Inter-American Obs., Chile.

134.07 **WITHDRAWN: Inward Gas Migration from the Galactic Disk to the Central Molecular Zone**
Sungsoo S. Kim[1], T. R. Saitoh[2], J. Baba[2], M. Jeon[3]
[1]Kyung Hee University, Korea, Republic of, [2]Tokyo Institute of Technology, Japan, [3]University of Texas.

134.08 **The Environmental Dependence Of UV Extinction In The SMC**
Edward L. Fitzpatrick[1], K. D. Gordon[2], D. L. Massa[2], D. J. Lennon[3], K. Sandstrom[4], G. C. Clayton[5], K. Misselt[6], R. Bohlin[2]
[1]Villanova University, [2]Space Telescope Science Institute, [3]Space Telescope Science Institute - ESA, [4]Max Planck Institut fur Astronomie, Germany, [5]Louisiana State University and A&M College, [6]University of Arizona.

134.09 **Terahertz Ballooning: STO And GUSSTO**
Christopher L. Martin[1], Stratospheric TeraHertz Observatory (STO) Team, Gal/Xgal U/LDB Spectroscopic/Stratospheric THz Observatory (GUSSTO) Team
[1]Oberlin College.

134.10 **Dense Core Properties in the Serpens North Molecular Cloud**
Kevin Hardegree-Ullman[1], Y. L. Shirley[1], E. W. Rosolowsky[2], K. J. Burleigh[1], J. H. Bieging[1], E. E. Hardegree-Ullman[3], W. M. Schlingman[1]
[1]University of Arizona, [2]University of British Columbia at Okanagan, Canada, [3]Rensselaer Polytechnic Institute.

134.11 **Small-Scale Structure in the Interstellar Medium Traced by Formaldehyde Absorption**
Esteban Araya[1], M. Goss[2], N. Dieter-Conklin[3]
[1]Western Illinois University, [2]National Radio Astronomy Observatory, [3]Emeritus, Radio Astronomy Laboratory, University of California.

134.12 **AZTECAN C3PO: Arizona Three-millimeter Educational C18O And N2H+ Cold Core Census of Planck Objects**
Amanda Walker-LaFollette[1], Y. L. Shirley[1], K. K. Hardegree-Ullman[1], A. P. M. Towner[1], S. C. Wallace[1], C. W. Smith[1], J. D. Turner[1], A. N. Robertson[1], C. L. Austin[1], L. C. Small[1], T. M. Carleton[1], A. M. McGraw[1], M. J. Daugherty[1], B. C. Guvenen[1], K. L. Johnson[1], B. E. Crawford[1], B. M. Smart[1]
[1]University of Arizona.

134.13 **The Structure of Carbon in the Interstellar Medium**
Jean E. Chiar[1], A. G. G. M. Tielens[2]
[1]SETI Institute, [2]Leiden Observatory, Netherlands.

134.14 **Interstellar Dust Plumes in the Heliosphere**
Priscilla C. Frisch[1], J. D. Slavin[2], J. Heerikhuisen[3], N. V. Pogorelov[3], G. P. Zank[3], H. Mueller[4], W. Reach[5], K. Avinash[3]
[1]Univ. of Chicago, [2]Harvard-Smithsonian Center for Astrophysics, [3]Univ. of Alabama, [4]Dartmouth College, [5]SOFIA/USRA.

134.15 **Assessing The Presence, Charge And Size Of Pahs In Dense Clouds**
Tin Tran[1], J. E. Chiar[2], E. Peeters[3], A. Ricca[4], L. J. Allamandola[5], A. L. Mattioda[5], M. Kress[6]
[1]SETI Institute, San Jose State University, [2]SETI Institute, [3]University of Western Ontario, Canada, [4]SETI Institute, NASA Ames Research Center, [5]NASA Ames Research Center, [6]San Jose State University.

135 Instrumentation, Computation and Data Handling

Monday, 9:00 am - 6:30 pm, Exhibit Hall, Dena'ina Center

135.01 **Extreme Doppler Precision With Octagonal Fiber Scramblers**
Julien Spronck[1], Z. A. Kaplan[1], D. A. Fischer[1], C. Schwab[1], A. E. Szymkowiak[1]
[1]Yale University.

135.02 **An Innovative Combination of Fiber Scrambling and Image Slicing for High Resolution Spectrographs**
Zachary Kaplan[1], J. F. P. Spronck[1], D. A. Fischer[1], C. Schwab[1]
[1]Yale University.

135.03 **KAPAO: A Natural Guide Star Adaptive Optics System for Small Aperture Telescopes**
Scott A. Severson[1], P. I. Choi[2], E. Spjut[3], D. S. Contreras[2], B. N. Gilbreth[1], L. P. McGonigle[2], W. A. Morrison[2], A. R. Rudy[2], A. Xue[3], C. Baranec[4], R. Riddle[4]
[1]Sonoma State University, [2]Pomona College, [3]Harvey Mudd College, [4]California Institute of Technology.

135.04 **KAPAO-Alpha: An On-The-Sky Testbed for Adaptive Optics on Small Aperture Telescopes**
Will Morrison[1], P. I. Choi[1], S. A. Severson[2], E. Spjut[3], D. S. Contreras[1], B. N. Gilbreth[2], L. P. McGonigle[1], A. R. Rudy[1], A. Xue[3], C. Baranec[4], R. Riddle[4]
[1]Pomona College, [2]Sonoma State University, [3]Harvey Mudd College, [4]California Institute of Technology.

135.05 USNO Robotic Astrometric Telescope (URAT) Underway
Charlie T. Finch[1], G. Bredthauer[2], M. DiVittorio[1], F. Harris[1], T. Rafferty[1], G. Wieder[1], N. Zacharias[1]
[1]US Naval Observatory, [2]Semiconductor Technology Associates, Inc..

135.06 The Chromospheric Magnetometer ChroMag
Christian Bethge[1], A. G. de Wijn[1], S. W. McIntosh[1], S. Tomczyk[1], R. Casini[1]
[1]High Altitude Observatory.

135.07 Characterization Of The Ultraviolet Imaging Telescope (uvit) Detector Performance At The University Of Calgary
Denis A. Leahy[1], J. Postma[1], J. Hutchings[2]
[1]Univ. of Calgary, Canada, [2]National Research Council, Herzberg Institute of Astrophysics, Canada.

135.08 In-flight Performance of the Water Vapor Monitor Onboard the SOFIA Observatory
Thomas L. Roellig[1], L. Yuen[2], D. Sisson[2], R. Hang[3]
[1]NASA Ames Research Center, [2]TechnoScience Corporation, [3]NASA Dryden Flight Research Center.

135.09 Geometric Calibration of the H-4RG Detector
Steven Howard Pravdo[1], S. Shaklan[1], B. Dorland[2], R. Dudik[2]
[1]Caltech, JPL, [2]USNO.

135.10 Affordable and High-heritage SMEX Spacecraft Solutions
Greg Lee[1], J. Rickey[1], A. Lo[1], K. Griffin[1], M. Riesco[2]
[1]Northrop Grumman, [2]Sierra Nevada Corporation.

135.11 AstroDrizzle: A Roadmap for Beginners
Amber Armstrong[1], S. Gonzaga[1], STScI AstroDrizzle Team
[1]Space Telescope Science Institute.

135.12 AstroDrizzle: A Guide to Creating HST Mosaics
Jennifer R. Mack[1], W. Hack[1], STScI AstroDrizzle Team
[1]STScI.

135.13 AstroDrizzle: Aligning Images From Multiple Instruments
Roberto J. Avila[1], W. J. Hack[1], STScI AstroDrizzle Team
[1]Space Telescope Science Institute.

135.14 AstroDrizzle: A Photometric Performance Study
Leonardo Ubeda[1], STScI AstroDrizzle Team
[1]Space Telescope Science Institute.

135.15 AstroDrizzle: More than a New MultiDrizzle
Warren J. Hack[1], N. Dencheva[1], A. S. Fruchter[1], A. Armstrong[1], R. Avila[1], S. Baggett[1], E. Bray[1], M. Droettboom[1], M. Dulude[1], S. Gonzaga[1], N. A. Grogin[1], V. Kozhurina-Platais[1], R. A. Lucas[1], J. Mack[1], J. MacKenty[1], L. Petro[1], N. Pirzkal[1], A. Rajan[1], L. J. Smith[1], C. Sontag[1], L. Ubeda[1]
[1]STScI.

135.16 AstroDrizzle: Utilizing New CALACS Products
Ray A. Lucas[1], STScI AstroDrizzle Team, ACS Team
[1]STScI.

135.17 Visualizing 3-D Datasets In The New SAOImage DS9 V7.0
Tracy L. Beck[1], B. Joye[2], A. Conti[1]
[1]Space Telescope Science Institute, [2]Harvard - Center for Astrophysics.

135.18 On the Significance of Absorption Features in HST/COS Data
Brian A. Keeney[1], C. W. Danforth[1], J. T. Stocke[1], J. C. Green[1]
[1]Univ. of Colorado.

136 Space Telescopes & Instrumentation

Monday, 9:00 am - 6:30 pm, Exhibit Hall, Dena'ina Center

136.01 **Updates to the Performance of the Space Telescope Imaging Spectrograph**
John H. Debes[1], A. Aloisi[1], R. C. Bohlin[1], K. A. Bostrom[1], C. Cox[1], R. Diaz[1], J. Duval[1], J. Ely[1], E. Mason[1], R. Osten[1], C. Proffitt[1], P. Sonnentrucker[1], M. A. Wolfe[1]
[1]Space Telescope Science institute.

136.02 **COS Acquisition Strategies**
Brian Andrew York[1], A. Aloisi[1], S. Penton[1], C. Proffitt[1], D. Sahnow[1], P. Sonnentrucker[1]
[1]Space Telescope Science Institute.

136.03 **A Fresh Start for the COS FUV Detector**
Cristina M. Oliveira[1], A. Aloisi[1], J. Ely[1], G. Kriss[1], D. Massa[1], R. Osten[1], S. Osterman[2], S. Penton[1], C. Proffitt[1], D. Sahnow[1]
[1]Space Telescope Science Institute, [2]University of Colorado.

136.04 **Recent Trends in the COS FUV Time Dependent Sensitivity**
K. Azalee Bostroem[1], R. Osten[1], O. Lupie[2], D. Massa[1], A. Aloisi[1], C. Proffitt[1]
[1]Space Telescope Science Institute, [2]Goddard Space Flight Center.

136.05 **Strategies For The Mitigation Of Gain Sag In The Cos Fuv Detectors**
Justin Ely[1], A. Aloisi[1], K. Bostroem[1], P. Hodge[1], G. Kriss[1], D. Massa[1], C. Oliveira[1], R. Osten[1], S. Penton[1], C. Proffitt[2], D. Sahnow[1], B. York[1]
[1]STScI, [2]STScI/CSC.

136.06 **Gapless And Low Far-uv Astigmatism Mode For Cos G140l**
Keith Redwine[1], B. Fleming[1], S. R. McCandliss[1], S. Osterman[2], J. C. Howk[3], W. Zheng[1], S. F. Anderson[4], B. T. Gaensicke[5], K. France[2]
[1]Johns Hopkins University, [2]University of Colorado, [3]University of Notre Dame, [4]University of Washington, [5]University of Warwick, United Kingdom.

136.07 **Medium Resolution "EUV" Observing With HST+COS In Cycle 20**
Steven V. Penton[1], J. Duval[2], K. France[3], D. Massa[4], C. Oliveira[2], S. Osterman[1], P. Sonnentrucker[2]
[1]Univ. of Colorado, [2]Space Telescope Science Institute, [3]University of Colorado, [4]Space Science Telescope Institute.

136.08 **Pixel-based CTE Correction of ACS/WFC: Dark Reference Files**
Sara Ogaz[1], J. Anderson[1], N. Grogin[1], P. Lim[1]
[1]Space Telescope Science Institute.

136.09 **Status and Calibration of the HST Wide Field Camera 3**
John W. MacKenty[1], WFC3 Team
[1]STScI.

136.10 **A Pixel-based Cte Correction For Hst's Wfc3/uvis**
Jay Anderson[1], WFC3 team
[1]STScI.

136.11 **Augmenting The HST Pure Parallel Observations**
Alan Patterson[1], G. Soutchkova[2], W. Workman[1]
[1]CSC/STScI, [2]STScI.

136.12 **Status of the JWST Science Instrument Module**
Matthew A. Greenhouse[1], J. Dunn[1], S. Lambros[1], R. Lundquist[1], B. Rauscher[1], M. Voyton[1]
[1]NASA's GSFC.

136.13 **WFIRST Needs 3 Microns**
Edward L. Wright[1]
[1]UC, Los Angeles.

136.14 Status Of The Fortis Rocket-borne Far-uv Spectro-telescope
Brian Fleming[1], S. R. McCandliss[1], K. Redwine[1], M. Kaiser[1], P. D. Feldman[1], J. Kruk[2], A. S. Kutyrev[2], M. J. Li[2], S. H. Moseley[2], D. A. Rapchun[3], O. Siegmund[4], J. Vallerga[4], A. Martin[4]
[1]Johns Hopkins University, [2]NASA Goddard Space Flight Center, [3]Global Science and Technology, [4]Sensor Sciences.

136.15 Progress in Soft X-ray Polarimetry
Herman L. Marshall[1], N. Schulz[1], R. Heilmann[1], K. Kochanski[1]
[1]MIT.

136.16 Recent Advances In Cryogenic Monolithic Millimeter-wave Integrated Circuit (MMIC) Low Noise Amplifiers For Astrophysical Observations
Lorene Samoska[1], S. Church[2], K. Cleary[3], T. Gaier[1], R. Gawande[3], P. Kangaslahti[1], C. Lawrence[1], A. Readhead[3], R. Reeves[3], M. Seiffert[1], M. Sieth[2], M. Varonen[1], P. Voll[2]
[1]Jet Propulsion Laboratory, [2]Stanford University, [3]California Institute of Technology.

136.17 Materials Testing for a Lunar Radio Telescope with the LUNAR Simulant Thermal-Vacuum Chamber
Kristina Davis[1], L. Kruger[1], C. Yarrish[1], J. Burns[1]
[1]University of Colorado.

200's: Posters Mon-Thur

200 CME

Monday, 9:00 am - Thursday, 2:00 pm, Exhibit Hall, Dena'ina Center

200.00C **Chair**
Nat Gopalswamy[1]
[1]NASA GSFC.

200.01 **Relating CME Shock Front Observations to their In-Situ Signatures**
Phillip Hess[1], J. Zhang[1]
[1]George Mason University.

200.02 **Mass Constraints of Hot and Cold Coronal Mass Ejection Plasmas Observed in EUV and X-ray**
Jin-Yi Lee[1], J. C. Raymond[2], K. K. Reeves[2], Y. Moon[1]
[1]Kyung Hee University, Korea, Republic of, [2]Harvard-Smithsonian, CfA.

200.03 **Alternating Twist in an Erupting Prominence**
William T. Thompson[1]
[1]Adnet Systems, Inc..

200.04 **Comparison of Prominence Structures with Instances of Flux Rope CMEs in STEREO Data**
Amy Rager[1], B. J. Thompson[2], S. K. Antiochos[2], A. Thernisien[3], W. T. Thompson[4]
[1]NASA GSFC/CUA, [2]NASA GSFC, [3]GMU, [4]NASA GSFC/ADNET.

200.05 **The CORIMP CME Catalogue: Automatically Detecting and Tracking CMEs in Coronagraph Data**
Jason Byrne[1], H. Morgan[2], S. R. Habbal[1]
[1]Institute for Astronomy, [2]University of Aberystwyth, United Kingdom.

201 Solar & Stellar

Monday, 9:00 am - Thursday, 2:00 pm, Exhibit Hall, Dena'ina Center

201.01 **The US 2017 Total Solar Eclipse Workshops**
Martina B. Arndt[1], S. R. Habbal[2], Solar Wind Sherpas
[1]Bridgewater State University, [2]Institute for Astronomy.

201.02 **High-resolution Solar Imaging with a Photon Sieve**
Joseph M. Davila[1]
[1]Goddard Space Flight Center.

201.03 **Evidence for Wave Damping at at Low Heights in a Polar Coronal Hole**
Michael Hahn[1], E. Landi[2], D. W. Savin[1]
[1]Columbia University, [2]University of Michigan.

201.04 **Plasma Blobs in the Solar Polar Regions: Outflows or Waves?**
Nour-Eddine Raouafi[1], P. N. Bernasconi[1], M. K. Georgoulis[2]
[1]Johns Hopkins University/Applied Physics Laboratory, [2]RCAAM, Academy of Athens, Greece.

201.05 **A Comparative Evaluation of Automated Solar Filament Detection**
Michael Schuh[1], J. Banda[1], P. Bernasconi[2], R. Angryk[1], P. Martens[1]
[1]Montana State University, [2]Johns Hopkins University.

201.06 **Magnetic Shear, Rayleigh-Taylor Instability, And Prominence Threads**
C. Richard DeVore[1]
[1]NRL.

201.07 **Multi-wavelength Observations Of The Evolution Of A Multi-filament Complex**
David Alexander[1], C. Zhu[1]
[1]Rice Univ..

201.08 **Statistical Analysis of Eruptive Events Reported by the Flare Detective Module**
Henry D. Winter, III[1], P. Testa[1]
[1]SAO.

201.09 **Dynamic Evolution of Active Region Flux Tubes in the Turbulent Convective Envelope of a Young Sun: Solar-like Fast Rotators**
Maria A. Weber[1], B. P. Brown[2], Y. Fan[1]
[1]High Altitude Observatory, [2]Department of Astronomy and Center for Magnetic Self-Organization in Laboratory and Astrophysical Plasmas, University of Wisconsin - Madison.

201.10 **Particle-In-Cell Simulations of Particle Energization from Low Mach Number Fast Mode Shocks Using the Moving Wall Boundary Condition**
Jared C. Workman[1], J. Park[2], E. Blackman[2], C. Ren[2], R. Siller[2]
[1]Colorado Mesa University, [2]University of Rochester.

201.11 **The IBIS Mosaic - A Broad View Of The Solar Atmosphere**
Kevin P. Reardon[1], G. Cauzzi[1]
[1]INAF - Oss. Astrofisico di Arcetri, Italy.

201.12 **Particle Dynamics In The Reconnecting Heliospheric Current Sheet: Solar Wind Data Versus 3d PIC Simulations**
Valentina Zharkova[1], O. Khabarova[2]
[1]University of Bradford, United Kingdom, [2]IZMIRAN, Russian Federation.

201.13 **Multiscale Dynamics of Interacting Solar Structures**
Vadim Uritsky[1], J. M. Davila[2]
[1]CUA at NASA/GSFC, [2]NASA/GSFC.

201.14 **Solar Bolometric Imager for Investigating the Sources of Solar Irradiance Variability**
Pietro N. Bernasconi[1], P. V. Foukal[2]
[1]JHU/APL, [2]Heliophysics Inc..

201.15 **Differential Emission Measure Analysis for AIA and XRT Observations of Comet Lovejoy (C/2011 W3)**
Patrick McCauley[1], S. H. Saar[1], L. E. Golub[1]
[1]Smithsonian Astrophysical Observatory.

201.16 **Multithermal Analysis of EIS Coronal Loops**
Brian T. Worley[1], J. T. Schmelz[1], S. Pathak[1]
[1]The University of Memphis.

201.17 **Automatic Detection and Characterization of EIT Waves Observed by AIA Data**
Jack Ireland[1], S. Christe[2], V. K. Hughitt[1], A. Y. Shih[2], C. A. Young[1], M. D. Earnshaw[3], F. Mayer[4]
[1]ADNET Systems, NASA's GSFC, [2]NASA's GSFC, [3]Blackett Laboratory, Imperial College, London, United Kingdom., United Kingdom, [4]Technische Universitat Wien, Vienna, Austria, Austria.

201.18 **Properties of Polar Coronal Jets in the Fast Solar Wind**
Mari Paz Miralles[1], S. R. Cranmer[1], J. C. Raymond[1], G. Stenborg[2]
[1]Harvard-Smithsonian CfA, [2]School of Physics, Astronomy and Computational Sciences, College of Science, George Mason University.

201.19 **Jet Statistics with the Automatic Jet Detections Module**
Antonia Savcheva[1]
[1]Boston Univ..

201.20 Fast EUV Dimming Associated with a Coronal Jet Seen in Multi-Wavelength and Stereoscopic Observations
Kyoung-Sun Lee[1], D. E. Innes[2], Y. Moon[1], K. Shibata[3], J. Lee[1]
[1]Kyung Hee University, Korea, Republic of, [2]Max-Planck Institute for Solar System Research, Germany, [3]Kwasan and Hida observatory, Kyoto University, Japan.

201.21 Acoustic-Gravity Waves in the Solar Atmosphere: Comparing Hinode/SP Observations with Numerical Simulations
Bernard Fleck[1], T. Straus[2], G. Severino[2]
[1]ESA Science Operations Department, [2]INAF/OAC, Italy.

201.22 Supporting Solar Physics Research via Data Mining
Rafal Angryk[1], J. Banda[1], M. Schuh[1], K. Ganesan Pillai[1], H. Tosun[1], P. Martens[1]
[1]Montana State University.

201.23 Content-based Image Retrieval For Solar Physics: First Steps And A Practical Demonstration.
Juan Banda[1], R. Angryk[1], P. Martens[1]
[1]Montana State University.

201.24 The Virtual Solar Observatory: What Are We Up To Now?
Joseph B. Gurman[1], F. Hill[2], F. Suàrez-Solà[2], R. Bogart[3], A. Amezcua[3], P. Martens[4], J. Hourclé[1], K. Hughitt[1]
[1]NASA GSFC, [2]NSO, [3]Stanford University, [4]Montana State University.

201.25 Solar Tiling And Tracking Extraction Service Using The VSO API As The Backend
Alisdair R. Davey[1], I. Suarez Sola[2], E. Gonzalez Suarez[3], I. Gonzalez Hernandez[2], F. Hill[2], J. Hourcle[4], VSO Team
[1]SAO, [2]NSO, [3]Imperial College London, United Kingdom, [4]SDAC.

201.26 Photometric Uncertainties within Hinode XRT
Adam Kobelski[1], S. H. Saar[2], M. A. Weber[2], D. E. McKenzie[1], K. K. Reeves[2]
[1]Montana State University, [2]Harvard-Smithsonian Center for Astrophysics.

201.27 Recommendations for Data & Software Citation in Solar Physics
Joseph Hourcle[1]
[1]NASA/GSFC (Wyle).

201.28 Best Practices for FITS Headers
Joseph Hourcle[1]
[1]NASA/GSFC (Wyle).

201.29 Calibration of Hinode/XRT for Coalignment
Keiji Yoshimura[1], D. E. McKenzie[1]
[1]Montana State University.

202 Coronal Magnetic Fields

Monday, 9:00 am - Thursday, 2:00 pm, Exhibit Hall, Dena'ina Center

202.00C Chair
Stephen M. White[1]
[1]Air Force Research Laboratory.

202.01 The Solar Polar Coronal Holes in Solar Cycle 24
Shea Hess Webber[1], N. Karna[1], W. D. Pesnell[2], M. S. Kirk[3]
[1]GMU, [2]NASA GSFC, [3]NMSU.

202.02 Coronal Holes, Filament Channels And Filaments: Observations Of The Self-organization Of The Coronal Magnetic Field Over Solar Cycles 23 And 24
Olga Panasenco[1], S. F. Martin[1], M. Velli[2], M. A. Berger[3]
[1]Helio Research, [2]Jet Propulsion Laboratory, California Institute of Technology, [3]University of Exeter, United Kingdom.

202.03 **The Effects Of B/L-dependent Heating On The Formation And Evolution Of A Multi-threaded Prominence**
Judith T. Karpen[1], M. Luna[2], C. DeVore[3]
[1]NASA GSFC, [2]UMD/CRESST/NASA GSFC, [3]NRL.

202.04 **Coronal Cavities from SDO Observations**
Nishu Karna[1], S. A. Hess Webber[1], W. D. Pesnell[2], J. Zhang[1], M. S. Kirk[3]
[1]George Mason University, [2]Goddard Space Flight Center/ NASA, [3]New Mexico State University.

202.05 **Morphology Of A Hot Prominence Cavity Observed With Hinode/XRT And SDO/AIA**
Mark A. Weber[1], K. K. Reeves[1], S. E. Gibson[2], T. A. Kucera[3]
[1]SAO, [2]HAO/NCAR, [3]NASA/GSFC.

202.06 **A New Perspective of Coronal-Loop EUV Emissions**
Yung Mok[1], R. Lionello[2], Z. Mikic[2], J. Linker[2]
[1]Univ. of California, Irvine, [2]Predictive Science, Inc..

202.07 **Topological Tools For The Analysis Of Active Region Filament Stability**
Edward E. DeLuca[1], A. Savcheva[1], A. van Ballegooijen[1], E. Pariat[2], G. Aulanier[2], Y. Su[1]
[1]Harvard-Smithsonian, CfA, [2]Observatoire de Paris, France.

202.08 **Temperature Analysis of an Active Region Core Loop Using AIA and XRT Data**
Jennifer W. Garst[1], J. Schmelz[1], J. Kimble[1]
[1]Univ. Of Memphis.

202.09 **Interdependence of Solar Plasma Flows and Magnetic Fields**
E. J. Zita[1], C. Smith[1], N. Hurlburt[2]
[1]Evergreen St. College, [2]Lockheed Martin Solar Astrophysics Lab.

202.10 **Finding Electric Fields, Poynting and Helicity Fluxes from Vector Magnetograms**
Maria Kazachenko[1], G. H. Fisher[1], B. T. Welsch[1]
[1]Space Science Laboratory, UC Berkeley.

202.11 **The Coronal Solar Magnetism Observatory (COSMO)**
Steven Tomczyk[1]
[1]HAO/NCAR.

202.12 **Pseudostreamers and Twin Filaments in the Solar Corona**
Olga Panasenco[1], M. Velli[2]
[1]Helio Research, [2]Jet Propulsion Laboratory, California Institute of Technology.

202.13 **Principle Component Analysis of the Solar Background and Sunspot Excess Magnetic Fields in the Cycles 21-23**
Sergei Zharkov[1], V. Zharkova[2], S. Shepherd[2]
[1]Mullard Space Science Laboratory/UCL, United Kingdom, [2]University of Bradford, United Kingdom.

203 Chromosphere & Transition Region

Monday, 9:00 am - Thursday, 2:00 pm, Exhibit Hall, Dena'ina Center

203.00C **Chair**
Charles A. Lindsey[1]
[1]NorthWest Research Associates.

203.01 **Helium D3 at High Resolution**
Kevin P. Reardon[1]
[1]National Solar Observatory.

203.02 **Multi-wavelength Spectropolarimetry Of A Sunspot Superpenumbra With Firs And Ibis**
Thomas A. Schad[1], A. Tritschler[2], M. J. Penn[2]
[1]University of Arizona/National Solar Observatory, [2]National Solar Observatory.

203.03 **PSF Equalization For MOSES**
Shane Atwood[1], C. Kanbelborg[1]
[1]Montana State University.

203.04 **Oscillations of Rapid Blueshifted Events as Derived from NST Data**
Vasyl B. Yurchyshyn[1], A. Kilcik[1], V. Abramenko[1]
[1]Big Bear Solar Obs..

203.05 **Spectropolarimetry in the Sodium 589.6nm D1 line: Evaluating the Resulting Chromospheric (?) Vector Field Maps.**
K D. Leka[1]
[1]NorthWest Research Associates, INC..

203.06 **How Low–Quality Observations Affect Spicule Properties**
Tiago M. D. Pereira[1], B. De Pontieu[2], M. Carlsson[3]
[1]NASA Ames Research Center, [2]Lockheed Martin Solar & Astrophysics Laboratory, [3]Institute of Theoretical Astrophysics, University of Oslo, Norway.

203.07 **UV Signatures of Flare Heating and Cooling**
Jiong Qiu[1], D. W. Longcope[1]
[1]Montana State Univ..

203.08 **Radiative Transfer and Absorbing Structures in the Transition Region**
Jacob Plovanic[1], C. C. Kankelborg[1]
[1]Montana State University.

203.09 **Ca II K And H Spectral Line Profiles From "Basal" And "Magnetic" Chromospheres**
Alexei A. Pevtsov[1], L. Bertello[1]
[1]National Solar Observatory.

203.10 **Coordinated Observations Of On-disk Type II Spicules With IBIS And Hinode**
Xin Chen[1], D. Na[1], J. Jing[1], A. Tritschler[2], K. Reardon[3], H. Wang[1]
[1]New Jersey Institute of Technology, [2]National Solar Observatory, [3]INAF - Osservatorio Astrofisico di Arcetri, Italy.

203.11 **Detection of Solar Differential Rotation in Disk-Integrated Ca II K Measurements**
Luca Bertello[1], A. Pietarila[1], A. A. Pevtsov[1]
[1]National Solar Observatory.

203.12 **Modeling Observed Characteristics of Chromospheric Evaporation Driven by Thermal Conduction Fronts from Reconnection**
Sean Brannon[1], D. Longcope[1]
[1]Montana State University - Bozeman.

203.13 **Theoretical Performance of a Multi-Order Spectral Imager for the Solar Transition Region**
Hans Courrier[1], C. Kankelborg[1]
[1]Montana State University Physics.

203.14 **Joint Response of the Helium Lines to Chromospheric Heating in Solar-type Stars**
Mark S. Giampapa[1], V. Andretta[2], B. Beeck[3], A. Reiners[4], M. Schussler[3]
[1]NSO, [2]INAF, Italy, [3]Max Planck Institute for Solar System Research, Germany, [4]Georg-August-Universitat, Germany.

204 Solar Energetic Events & Flares

Monday, 9:00 am - Thursday, 2:00 pm, Exhibit Hall, Dena'ina Center

204.00C1 **Chair**
A. Gordon Emslie[1]
[1]Western Kentucky University.

204.00C2 Chair
Lyndsay Fletcher[1]
[1]Univ. of Glasgow, United Kingdom.

204.01 WITHDRAWN: Characterization of a Coronal Shock as a Source of Solar Energetic Particles
Kamen A. Kozarev[1], K. E. Korreck[2], V. V. Lobzin[3], J. C. Raymond[2], N. A. Schwadron[4]
[1]Harvard-Smithsonian Center for Astrophysics, [2]Smithsonian Astrophysical Observatory, [3]The University of Sydney, Australia, [4]University of New Hampshire.

204.02 Simulating the Strength of the Neupert Effect in Large Flares
Henry D. Winter, III[1], K. K. Reeves[1], A. Egan[2]
[1]SAO, [2]Bernard College.

204.03 Simulating The Effects Of Turbulent Density Fluctuations On Solar Flare X-ray Spectrum
Iain Hannah[1], E. P. Kontar[1], H. A. S. Reid[2]
[1]University of Glasgow, United Kingdom, [2]LESIA, Observatoire de Paris, France.

204.04 The Energy-Dependent Growth Of RHESSI HXR Loops As A Possible Signature Of Turbulent Acceleration
Iain Hannah[1], E. P. Kontar[1], N. L. S. Jeffrey[1]
[1]University of Glasgow, United Kingdom.

204.05 Thermal Structure of Supra-Arcade Plasma in Two Solar Flares
Kathy Reeves[1], S. L. Savage[2], D. E. McKenzie[3], M. A. Weber[1]
[1]Harvard-Smithsonian, CfA, [2]NASA Goddard/ORAU, [3]Montana State University.

204.06 Abrupt Changes in the Photospheric Magnetic Structures and H-alpha Chromosphere during the 2006 December 6 X6.5 Flare
Gordon Petrie[1], K. S. Balasubramaniam[2], O. Burtseva[1], A. A. Pevtsov[1]
[1]NSO, [2]Space Vehicles Directorate, Air Force Research Laboratory, Kirtland AFB.

204.07 Nozzle Driven Shocks in Post-CME Plasma
Roger B. Scott[1], D. W. Longcope[1], D. E. McKenzie[1]
[1]Montana State University.

204.08 Return Current Energy Losses and Plasma Heating inSolar Flares
Meriem Alaoui[1], G. Holman[1]
[1]GSFC\NASA.

204.09 Physics of Transient Seismic Emission from Flares
Charles A. Lindsey[1], A. Donea[2], A. Malanushenko[3]
[1]NorthWest Research Associates, [2]Monash University, Australia, [3]Lockheed-Martin Solar and Astrophysical Laboratory.

204.10 The Relationship Between Hard X-ray Pulse Timings and the Locations of Footpoint Sources During Solar Flares
Andrew Inglis[1], B. Dennis[1]
[1]NASA Goddard Space Flight Center.

204.11 A Comprehensive View of the Temperature Distribution in Solar Flares from EVE and RHESSI
Amir Caspi[1], J. M. McTiernan[2], H. P. Warren[3]
[1]Laboratory for Atmospheric and Space Physics, Univ. of CO, Boulder, [2]Space Sciences Laboratory, Univ. of CA, Berkeley, [3]Naval Research Laboratory.

204.12 Direct Comparison Of A Moreton Wave, EUV Wave And CME
Stephen M. White[1], E. Cliver[1], K. Balasubramaniam[1]
[1]Air Force Research Laboratory.

204.13 Characteristic Size Of Flare Kernels In Visible And The Near-infrared Continua
Yan Xu[1], W. Cao[1], J. Jing[1], H. Wang[1]
[1]New Jersey Institute of Tech..

204.14 **Flare-associated Energy Exchange Between the Photosphere and Corona**
Valentyna Abramenko[1], L. Harra[2]
[1]Big Bear Solar Observatory, [2]UCL-Mullard Space Science Laboratory, Holmbury St Mary, United Kingdom.

204.15 **Temperature Evolution Before Flare Events for Active Regions at the Limb**
Andrew P. Sturner[1], K. Korreck[2]
[1]Haverford College, [2]Harvard-Smithsonian Center for Astrophysics.

204.16 **New Statistical Approaches to RHESSI Solar Flare Imaging**
Richard A. Schwartz[1], F. Benevenuto[2], A. Massone[3], M. Piana[2], A. Sorrentino[4]
[1]NASA's GSFC, [2]dipartimento di matematica, università di genova, Italy, [3]CNR SPIN, Italy, [4]department of statistics, United Kingdom.

204.17 **On the Origin of Solar Flare's EUV Late Phase**
Kai Liu[1], J. Zhang[1], Y. Wang[2], X. Cheng[3]
[1]GMU, [2]USTC, China, [3]NJU, China.

204.18 **Using HMI To Study Photospheric Footpoint Motions In X-class Flares**
Priyamvada Desai[1], R. Bogart[1], S. Couvidat[1], J. Schou[1]
[1]Stanford University.

204.19 **Coupling of Particle Acceleration and Atmospheric Dynamic Response to Impulsive Energy Release in Solar Flares**
Wei Liu[1], V. Petrosian[2], Q. Chen[2], J. Mariska[3]
[1]Stanford-Lockheed Institute for Space Research, [2]Stanford University, [3]George Mason University.

204.20 **WITHDRAWN: A New Temperature and Emission-measure Based Background Subtraction Method (TEBBS) for Improving Accuracy of Automatically Deriving Thermal Properties of Solar Flares from GOES X-ray Observations**
Daniel Ryan[1]
[1]Trinity College Dublin, Ireland.

204.21 **EUV Rapid Cadence Spectroscopic Observation of Direct Coronal Heating During a C-class Solar Flare**
Jeffrey W. Brosius[1]
[1]Catholic University of America at NASA/GSFC.

204.22 **Complex Dynamic Flows in Solar Flare Sheet Structures**
David Eugene McKenzie[1], K. K. Reeves[2], S. L. Savage[3]
[1]Montana State Univ., [2]Harvard-Smithsonian Astrophysical Observatory, [3]NASA/GSFC (ORAU).

204.23 **Efficiency Of Energy Dissipation At A Magnetic X-point**
Dana Longcope[1], L. Tarr[1]
[1]Montana State Univ..

204.24 **RHESSI X-ray Detection of Thermal Footpoint Emission down to 3 keV in an X1.9 Solar Flare**
Qingrong Chen[1], V. Petrosian[1]
[1]Stanford University.

204.25 **Accelerated Electron Spectra and Turbulence Characteristics from RHESSI Solar Flare Observations II**
Qingrong Chen[1], V. Petrosian[1]
[1]Stanford University.

204.26 **Non-Linear Force Free Field Modeling and Flare Ribbon Comparison of AR11347**
Sean McKillop[1], A. Savcheva[2]
[1]Smithsonian Astrophysical Observatory, [2]Boston University.

204.27 Heating of Flare Foops During a Two-ribbon Flare on 2011 March 07
Wenjuan Liu[1], J. O'Hara[2], C. Peck[1], J. Qiu[1], D. W. Longcope[1]
[1]Montana State University, [2]University of St Andrews, United Kingdom.

204.28 Uncertainty Estimation in Fitting Parameterized Models to Solar Flare Hard X-ray Spectra
Jack Ireland[1], A. K. Tolbert[2], G. D. Holman[3], B. R. Dennis[3], R. A. Schwartz[2]
[1]ADNET Systems, NASA's GSFC, [2]Catholic University of America, [3]NASA GSFC.

204.29 Irreversible Change of Photospheric Magnetic Field: Evidence for Back Reaction of Coronal Field Restructuring
Shuo Wang[1], C. Liu[1], R. Liu[1], N. Deng[1], Y. Liu[2], H. Wang[1]
[1]Space Weather Research Laboratory, New Jersey Institute of Technology, [2]W. W. Hansen Experimental Physics Laboratory, Stanford University.

204.30 Expanded Owens Valley Solar Array (EOVSA) Testbed and Prototype
Dale E. Gary[1], G. M. Nita[1], N. Sane[1]
[1]NJIT.

204.31 Multi-Stranded Coronal Loops - A Statistical Forward Model
Adam Kobelski[1], D. E. McKenzie[1]
[1]Montana State University.

204.32 Calculating Separate Magnetic Free Energy Estimates for Active Regions Producing Multiple Flares: NOAA AR11158
Lucas Tarr[1], D. W. Longcope[1]
[1]Montana State University.

204.33 Magnetic Footprints Of Flares
Olga Burtseva[1], J. C. Martinez-Oliveros[2], G. Petrie[1]
[1]National Solar Observatory, [2]SSL, University of California Berkeley.

204.34 Do Type III-associated Escaping Electron Beams Cool The Corona?
Pascal Saint-Hilaire[1], L. Wang[1], S. D. Christe[2], N. Vilmer[3], A. Kerdraon[3], R. P. Lin[1]
[1]University of California, Berkeley, [2]NASA Goddard Space Flight Center, [3]LESIA, Observatoire de Paris, CNRS, UPMC, Universite Paris-Diderot, France.

204.35 Identification of Backside Solar Proton Events
Jinhye Park[1], Y. Moon[1]
[1]Kyung Hee University, Korea, Republic of.

204.36 A Comparison of Solar Energetic Particle Events with 1 AU Magnetic Field Connections to Solar Coronal Holes
Stephen W. Kahler[1], C. N. Arge[1], S. Akiyama[2], N. Gopalswamy[3]
[1]Air Force Research Laboratory, [2]The Catholic University of America, [3]NASA Goddard Space Flight Center.

204.37 Empirical Determination of the Energy Loss Rate of Accelerated Electrons in a Well-Observed Solar Flare

A. Gordon Emslie[1], G. Torre[2], N. Pinamonti[2], J. Guo[2], A. M. Massone[3], M. Piana[2]
[1]Western Kentucky University, [2]University of Genoa, Italy, [3]CNR, Italy.

204.38 The Limit of Magnetic-Shear Energy in Solar Active Regions

Ronald L. Moore[1], D. A. Falconer[1], A. C. Sterling[1]
[1]NASA's MSFC.

204.39 Modeling of Magnetic Non-Potentiality of Active Region using a 3D Data-Driven Active Region Evolution Model: Seeking Necessary and Sufficient Conditions for Solar Eruption
S. T. Wu[1], D. Falconer[1], Q. Hu[1], A. Wang[1], G. A. Gary[1]
[1]Univ. of Alabama, Huntsville.

204.40 **Global Forces in Eruptive Solar Flares: The Lorentz Force Acting on the Solar Atmosphere and the Solar Interior**
George H. Fisher[1], D. J. Bercik[1], B. T. Welsch[1], H. S. Hudson[1]
[1]UC, Berkeley.

204.41 **Direct Measurement Of The Height Of A White-light Flare**
Hugh S. Hudson[1], J. Martinez-Oliveros[1], S. Krucker[1], G. Hurford[1], W. Thompson[2], J. Schou[3], S. Couvidat[3], C. Lindsey[4]
[1]UC, Berkeley, [2]NASA Goddard Space Flight Center, [3]Stanford University, [4]NorthWest Research Associates.

204.42 **Hinode/EIS Flare Spectra During RHESSI Hard X-ray Bursts**
Peter R. Young[1], H. Warren[2], G. Doschek[2]
[1]George Mason University, [2]Naval Research Laboratory.

204.43 **Radio Spectroscopic Imaging of Electron Beams in the Solar Corona**
Timothy S. Bastian[1], B. Chen[2]
[1]National Radio Astronomy Observatory, [2]University of Virginia.

204.44 **WITHDRAWN: The Thermal Properties of Solar Flares Over Three Solar Cycles Using GOES X-ray Observations**
Daniel Ryan[1]
[1]Trinity College Dublin, Ireland.

204.45 **Zoology of Solar Eruptions**
Jie Zhang[1], K. Liu[1]
[1]George Mason Univ..

204.46 **Insights Into Categorization Of Solar Flares Using Principal Component Analysis**
K. S. Balasubramaniam[1], D. C. Norquist[1]
[1]USAF/AFRL.

204.47 **Modeling the Solar Atmospheric Response to Flare-Accelerated Ion Beams**

Joel C. Allred[1], G. D. Holman[1]
[1]NASA/Goddard Space Flight Center.

204.48 **Low-Energy Neutron Production in Solar Flares and the Importance of their Detection in the Inner Heliosphere**
Ronald Murphy[1], B. Kozlovsky[2], G. Share[3]
[1]NRL, [2]Tel Aviv University, Israel, [3]University of Maryland.

204.49 **High Cadence and High Resolution Halpha Imaging Spectroscopy of a C4.1 Flare with IBIS**
Na Deng[1], A. Tritschler[2], J. Jing[1], X. Chen[1], K. Reardon[3], C. Liu[1], Y. Xu[1], H. Wang[1]
[1]New Jersey Institute of Technology, [2]National Solar Observatory, [3]INAF - Osservatorio Astrofisico di Arcetri, Italy.

204.50 **Early Cruise Observations From The RAD Instrument On The Mars Science Laboratory**
Donald M. Hassler[1], C. Zeitlin[1], R. Wimmer-Schweingruber[2], S. Boettcher[2], C. Martin[2], D. Brinza[3], S. Rafkin[1], A. Posner[4], F. Cucinotta[5]
[1]Southwest Research Institute, [2]Christian Albrechts University, Germany, [3]Jet Propulsion Laboratory, [4]NASA HQ, [5]Johnson Space Center.

204.51 **Integrated Idl Tool For 3d Modeling And Imaging Data Analysis**
Gelu M. Nita[1], G. D. Fleishman[1], D. E. Gary[1], A. A. Kuznetsov[2], E. P. Kontar[3]
[1]New Jersey Institute of Technology, [2]Armagh Observatory, United Kingdom, [3]University of Glasgow, United Kingdom.

204.52 **Time-resolved NUV And Optical Spectra Of A Stellar Megaflare On YZ CMi With SALT/RSS**
Benjamin Brown[1], A. F. Kowalski[2], M. Mathioudakis[3], E. J. Hooper[1], S. L. Hawley[2], R. A. Osten[4], J. P. Wisniewski[2]
[1]Univ. of Wisconsin - Madison, [2]University of Washington, [3]Queen's University Belfast, United Kingdom, [4]Space Telescope Science Institute.

205 Interior

Monday, 9:00 am - Thursday, 2:00 pm, Exhibit Hall, Dena'ina Center

205.00C **Chair**
Alexander G. Kosovichev[1]
[1]Stanford Univ..

205.01 **Torsional Oscillations Pattern from Time-distance analysis**
Shukur Kholikov[1]
[1]National Solar Observatory.

205.02 **Extracting Low-Degree Timeseries and Modes from Imaged Helioseismology**
John W. Leibacher[1]
[1]National Solar Observatory.

205.03 **On The Energetics Of Seismic Excitation Mechanisms**
Juan Carlos Martinez Oliveros[1], H. Bain[1], S. Krucker[1], A. Donea[2], H. Hudson[1], R. P. Lin[1], C. Lindsey[3]
[1]University of California Berkeley, [2]School of Mathematical Sciences, Monash University, Australia, [3]CoRA-NWRA.

205.04 **Multi-Wavelength Helioseismology: Power and Phase Maps in an Active Region**
Frank Hill[1], R. Howe[2], K. Jain[1], S. Tripathy[1], R. Bogart[3], C. Baldner[3], D. Haber[4]
[1]National Solar Obs., [2]University of Birmingham, United Kingdom, [3]Stanford University, [4]JILA, University of Colorado.

205.05 **Meridional Circulation From Normal Mode Analysis**
Jesper Schou[1], M. F. Woodard[2], T. P. Larson[1]
[1]Stanford Univ., [2]CORA/NWRA.

205.06 **Viewing Geometry, Line Height-of-Formation, and Helioseismic Measurements**
Charles Baldner[1], K. Parchevsky[1], J. Schou[1], T. Larson[1], S. Couvidat[1]
[1]Stanford Univ..

205.07 **An Improved 3D Radiative-MHD Model of the Convection Zone-to-Corona System**
William P. Abbett[1], D. J. Bercik[1], M. Kazachenko[1]
[1]University of California.

205.08 **Numerical Simulations of Solar Differential Rotation and Sub-Grid Scale Turbulence Modeling**
Gustavo Guerrero[1]
[1]Solar Group, Stanford University.

205.09 **The Evolution of Large-Scale Subsurface Flow Patterns in the Sun**
Richard S. Bogart[1], C. S. Baldner[1], S. Basu[2], O. Burtseva[3], I. Gonzalez-Hernandez[3], D. A. Haber[4], F. Hill[3], R. Howe[5], K. Jain[3], R. W. Komm[3], M. C. Rabello-Soares[1], S. Tripathy[3]
[1]Stanford Univ., [2]Yale Univ., [3]National Solar Observatory, [4]JILA/ Univ. of Colorado, [5]Univ of Birmingham, United Kingdom.

205.10 **A Search for Pre-Emergence Helioseismic Signatures of Active Regions**
Graham Barnes[1], A. Birch[1], K. Leka[1], D. Braun[1], T. Dunn[1], B. Javornik[1], I. Gonzalez Hernandez[2]
[1]NWRA, [2]NSO.

205.11 A RHESSI and SDO Campaign Measuring Latitude-dependent Limb Profiles and Oblateness of the Optical Solar Disk II
Martin Fivian[1], H. S. Hudson[1], R. P. Lin[1], R. I. Bush[2], M. Emilio[3], J. R. Kuhn[4], I. F. Scholl[4]
[1]Space Sciences Lab/ UC Berkeley, [2]Stanford University, [3]Universidade Estadual de Ponta Grossa, Brazil, [4]Institute for Astronomy, University of Hawaii.

205.12 Data From The HMI Ring-Diagram Pipelines
Richard S. Bogart[1], C. S. Baldner[1], S. Basu[2], I. Gonzalez-Hernandez[3], D. A. Haber[4], F. Hill[3], R. Howe[5], K. Jain[3], R. W. Komm[3], M. C. Rabello-Soares[1], S. Tripathy[3]
[1]Stanford Univ., [2]Yale Univ., [3]National Solar Observatory, [4]JILA/ Univ. of Colorado, [5]Univ of Birmingham, United Kingdom.

205.13 Mode Identification In Pulsating Subdwarf B Stars Observed With Kepler Spacecraft
Andrzej Baran[1], M. Reed[1]
[1]Missouri State University.

205.14 Analysis of Radon Decay Data and its Implications for Physics, Geophysics, and Solar Physics
Peter A. Sturrock[1], E. Fischbach[2], J. H. Jenkins[2], G. Steinitz[3]
[1]Stanford Univ., [2]Purdue Univ., [3]Geological Survey of Israel, Israel.

206 Solar Magnetism & the Activity Cycle

Monday, 9:00 am - Thursday, 2:00 pm, Exhibit Hall, Dena'ina Center

206.00C Chair
Dana Longcope[1]
[1]Montana State Univ..

206.01 A Statistical Test of Uniformity in Solar Cycle Indices
David H. Hathaway[1]
[1]NASA/MSFC.

206.02 A Standard Law for the Equatorward Drift of the Sunspot Zones
David H. Hathaway[1]
[1]NASA/MSFC.

206.03 Geomagnetic Indices and the Solar Magnetic Open Flux
Aimee Ann Norton[1], W. M. Arden[2]
[1]Stanford University, [2]James Cook University, Australia.

206.04 Footpoint Separation and Evershed Flow of Active Regions
Aimee Ann Norton[1], E. H. Jones[2]
[1]Stanford University, [2]James Cook University, Australia.

206.05 The Vector Magnetic Fields of Sunspots as Observed with HMI
Aimee Ann Norton[1], H. M. I. Vector Magnetic Field Team[1]
[1]Stanford University.

206.06 Multi-height Spectropolarimetry Of Sunspots With Firs And Ibis
Sarah A. Jaeggli[1], H. Lin[2], A. Tritschler[3]
[1]Montana State University, [2]Institute for Astronomy, University of Hawai'i, [3]National Solar Observatory.

206.07 Polar Reversal, Solar Maximum, and the Large-Scale Heliospheric Field in Solar Cycle 24
Jon Todd Hoeksema[1]
[1]Stanford University.

206.08 Variation Of Sunspot Properties Between 1999 And 2011
Wolfgang Schmidt[1], R. Rezaei[1], C. Beck[2]
[1]Kiepenheuer-Institut, Germany, [2]Instituto de Astrofisica de Canarias, Spain.

206.09 **Ambiguity Resolution of Multiple Height Magnetic Field Observations**
Graham Barnes[1], K. Leka[1], A. Crouch[1]
[1]NWRA.

206.10 **Sunspot Dynamics as seen with CO 4666nm Spectroscopy**
Matthew J. Penn[1], T. Schad[2]
[1]National Solar Obs., [2]UA / National Solar Obs..

206.11 **Use of a Time Delay Dynamo Model to Obtain Sun-Like Sunspot Cycles**
Ernest C. Amouzou[1], D. Nandi[2], A. Munoz-Jaramillo[3], P. C. H. Martens[1]
[1]Montana State University, [2]Indian Institute of Science Education and Research, India, [3]Harvard-Smithsonian Center for Astrophysics.

206.12 **The Magnetic and Dynamic Structure Of An Active Region From The Photosphere To The Chromosphere**
Alexandra Tritschler[1]
[1]National Solar Obs..

206.13 **Axisymmetric Flow Properties for Magnetic Elements of Differing Strength**
Lisa Rightmire-Upton[1], D. H. Hathaway[2]
[1]University of Alabama Huntsville, [2]NASA MSFC.

206.14 **Dynamics of the Photospheric Bright Points Observed With SST and Hinode**
Lakshmi Pradeep Chitta[1], A. van Ballegooijen[1], L. Rouppe van der Voort[2], E. DeLuca[1], R. Kariyappa[3]
[1]Harvard-Smithsonian Center for Astrophysics, [2]Institute of Theoretical Astrophysics, University of Oslo, Norway, [3]Indian Institute of Astrophysics, India.

206.15 **Calcium II K Line as a Measure of Activity: Meshing Sac Peak and Solis Measurements**
Elana Urbach[1], J. Earley[2], S. Keil[3]
[1]College of William and Mary, [2]Hidden Valley High School, [3]National Solar Observatory.

206.16 **Calibration of data from InfraRed Imaging Magnetograph for the New Solar Telescope**
Kwangsu Ahn[1], W. Cao[1], N. Gorceix[1], P. R. Goode[1]
[1]Big Bear Solar Observatory.

206.17 **Slitless Solar Spectroscopy**
Joseph M. Davila[1]
[1]Goddard Space Flight Center.

206.18 **Sunrise - Prospects for the Second Science Flight**
Michael Knoelker[1]
[1]High Altitude Observatory/NCAR.

206.19 **Magnetic and Thermal Effects of MHD Wave Propagation in Different Models of Sunspots**
Konstantin Parchevsky[1], A. G. Kosovichev[1]
[1]Stanford University.

206.20 **Pore Formation and Evolution**
Robert F. Stein[1], A. Nordlund[2]
[1]Michigan State Univ., [2]Niels Bohr Institute, Copenhagen University, Denmark.

206.21 **Testing the Reliability of Far-side Active Region Predictions from Helioseismology using STEREO Far-side Observations**
Paulett C. Liewer[1], J. R. Hall[1], I. Gonzalez-Hernandez[2], A. Misrak[3], W. T. Thompson[4], E. M. DE Jong[1]
[1]Jet Propulsion Laboratory, California Institute of Technology, [2]National Solar Observatory, [3]California Institute of Technology, [4]Adnet Systems Incorporated.

206.22 Direct Observation of the Intensity Counterpart of Moving Magnetic Features on the Photosphere and the Corresponding Vector Magnetic Fields
Eunkyung Lim[1], V. Yurchyshyn[1], P. Goode[2]
[1]Big Bear Solar Observatory / NJIT, [2]New Jersey Institute of Technology.

206.23 Beckers Effect in a Fabry-Pérot Imaging Interferometer and Its Effects on Magnetic Field Measurements
Brian Robinson[1], K. Balasubramaniam[2], G. Gary[3]
[1]University of Alabama in Huntsville, [2]USAF/AFRL, [3]The University of Alabama in Huntsvile/CSPAR.

206.24 The Three-Dimensional Reconstruction of the AR 11158 During its Emergence Phase Using SDO/HMI Observations
Georgios Chintzoglou[1], J. Zhang[1]
[1]George Mason University, School of Physics, Astronomy and Computational Sciences.

207 Solar Dynamics Observatory

Monday, 9:00 am - Thursday, 2:00 pm, Exhibit Hall, Dena'ina Center

207.00C Chair
Kathy Reeves[1]
[1]Harvard-Smithsonian, CfA.

207.01 On The Magnetic-Field Diagnostics Potential of SDO/HMI
Bernard Fleck[1], K. Hayashi[2], R. Rezaei[3], N. Vitas[4], R. Centeno[5], M. Cheung[6], S. Couvidat[2], C. Fischer[7], O. Steiner[3], T. Straus[8], B. Viticchie[7]
[1]ESA Science Operations Department, [2]Stanford Univ., [3]KIS, Germany, [4]SRON, Netherlands, [5]HAO, [6]LMSAL, [7]ESA/RSSD, Netherlands, [8]INAF/OAC, Italy.

207.02 Two Years of Global Analysis with HMI
Timothy P. Larson[1], J. Schou[1]
[1]Stanford University.

207.03 A Spatio-temporal Description of the Abrupt Changes in the Magnetic and Lorentz-force Vectors During the 2011 February 15 X2.2 Flare
Gordon Petrie[1]
[1]NSO.

207.04 Fix Up Your AIA Images: A Complete Empirically Determined Set of PSFs And Their Inverses for the AIA EUV Channels
Craig DeForest[1], B. Poduval[1], J. Schmelz[2]
[1]Southwest Research Inst., [2]University of Memphis.

207.05 SWAMIS Magnetic Feature Tracking for SDO
Craig DeForest[1], D. Lamb[1], A. Davey[2], R. Timmons[3]
[1]Southwest Research Inst., [2]Smithsonian Astrophysical Observatory, [3]Lockheed-Martin.

207.06 Tracking Vector Magnetograms with the Helioseismic and Magnetic Imager
Peter W. Schuck[1]
[1]Goddard Space Flight Center.

207.07 Helioviewer.org: Solar and Heliospheric Data Visualization
V. Keith Hughitt[1], J. Ireland[1], D. Mueller[2]
[1]ADNET Systems/NASA, [2]ESTEC, European Space Agency, Netherlands.

207.08 SDO/AIA Observations of Sustained Coronal Condensation in Prominences as Return Flows of the Chromosphere-Corona Mass Cycle
Wei Liu[1], T. Berger[2], B. C. Low[3]
[1]Stanford-Lockheed Institute for Space Research, [2]Lockheed Martin Solar and Astrophysics Laboratory, [3]High Altitude Observatory.

207.09 **Inter-calibration Of Eis, Xrt And Aia Using Active Region And Bright Point Data**
Fana Mulu[1], A. Winebarger[1], J. Cirtain[1], S. Farid[2]
[1]NASA Marshall Space Flight Center, [2]UAHuntsville.

207.10 **Acoustic Power Absorption in Sunspots Observed by SDO/HMI and SDO/AIA**
Sebastien Couvidat[1]
[1]Stanford Univ..

207.11 **Measuring Solar Photospheric Diffusion By The Second Moment of Active Region Magnetograms**
Alexander Engell[1], D. Longcope[1]
[1]Montana State University.

207.12 **The SDO EPO Program: Bringing Solar Data into the Community College Classroom**
Deborah K. Scherrer[1]
[1]Stanford Univ.

207.13 **An Exploration of the Emission Properties of X-ray Bright Points Seen With SDO**
Steven H. Saar[1], T. Elsden[2], K. Muglach[3]
[1]Harvard-Smithsonian, CfA, [2]University of St, Andrews, United Kingdom, [3]Goddard Space Flight Center.

207.14 **Global Thermodynamic MHD Modeling of the Solar Corona in the Context of SDO/AIA Observations.**
Cooper Downs[1], J. A. Linker[1], Z. Mikic[1], R. Lionello[1], P. Riley[1]
[1]Predictive Science, Inc..

207.15 **AIA Multithermal Analysis of Coronal Loops**
Ben Jenkins[1], J. Schmelz[1]
[1]University of Memphis.

207.16 **Making The Daily-updated Synoptic Map Of HMI Line-of-sight Magnetogram Cooperating With The HARP module**
Keiji Hayashi[1], Y. Liu[1], X. Sun[1], M. J. Turmon[2], HMI Team
[1]Stanford University, [2]JPL/NASA.

207.17 **Growing Transverse Oscillations of a Multistranded Loop Observed by SDO/AIA**
Tongjiang Wang[1], L. Ofman[1], J. M. Davila[2], Y. Su[3]
[1]Catholic Univ of America / NASA GSFC, [2]NASA Goddard Space Flight Center, [3]IGAM/ Institute of Physics, University of Graz, Austria.

208 Laboratory & Astrophysics: Atoms

Monday, 9:00 am - Thursday, 2:00 pm, Exhibit Hall, Dena'ina Center

208.01 **Electron Impact Excitation Of Ti XIX**
Kanti M. Aggarwal[1], F. P. Keenan[1]
[1]Queen's University Belfast, United Kingdom.

208.02 **Recent Developments with the CHIANTI Atomic Database for Astrophysical Spectroscopy**
Kenneth P. Dere[1]
[1]George Mason Univ..

208.03 **Recent Advances In The Spectral Simulation Code Cloudy**
Gary J. Ferland[1]
[1]Univ. of Kentucky.

208.04 **Radiative Rates for Forbidden Transitions in Doubly-Ionized Fe-Peak Elements**
Vanessa Fivet[1], P. Quinet[2], M. Bautista[1]
[1]Western Michigan University, [2]Université de Mons - UMONS, Belgium.

208.05 **Eta Carinae and the Homunculus: an Astrophysical Laboratory**
Theodore R. Gull[1], H. Hartman[2], M. A. Bautista[3]
[1]NASA/GSFC, [2]Lund University & Malmo University, Sweden, [3]Western Michigan University.

208.06 **Storage Ring Measurements of Electron Impact Ionization for Calculations of Plasma Charge State Distributions**
Michael Hahn[1], A. Becker[2], D. Bernhardt[3], M. Grieser[2], C. Krantz[2], M. Lestinsky[4], A. Müller[3], O. Novotný[1], R. Repnow[2], S. Schippers[3], K. Spruck[3], A. Wolf[2], D. W. Savin[1]
[1]Columbia University, [2]Max-Planck-Institut für Kernphysik, Germany, [3]Justus-Liebig-Universität Giessen, Germany, [4]GSI Helmholtzzentrum für Schwerionenforschung, Germany.

208.07 **Near-UV Atomic Line Identifications in Metal-Poor Solar-Type Stars**
Ruth Peterson[1]
[1]Astrophysical Advances.

208.08 **Radiative and Collision Atomic Parameters for N-like ions**
Swaraj S. Tayal[1]
[1]Clark Atlanta Univ..

209 Laboratory & Astrophysics: Molecules

Monday, 9:00 am - Thursday, 2:00 pm, Exhibit Hall, Dena'ina Center

209.01 **The ORGANIC Experiment on EXPOSE-R on the ISS: A Space Exposure Experiment**
Kathryn Bryson[1], Z. Peeters[2], F. Salama[3], B. Foing[4], P. Ehrenfreund[5], A. J. Ricco[3], E. Jessberger[6], A. Bischoff[6], M. Breitfellner[7], W. Schmidt[8], F. Robert[9]
[1]Bay Area Environmental Research Insitute, [2]Carnegie Institute of Washington, [3]NASA Ames Research Center, [4]European Space Agency, ESTEC, Netherlands, [5]Leiden Institute of Chemistry, Netherlands, [6]Westfälische Wilhelms-Universität, Germany, [7]European Space Astronomy Centre, Spain, [8]PAH Research Institute, Germany, [9]Laboratoire de Minéralogie et Cosmochimie du Muséum, France.

209.02 **High Resolution Laboratory Studies for Astronomical Spectroscopy**
Harshal Gupta[1], L. R. Brown[1], B. J. Drouin[1], C. E. Miller[1], J. C. Pearson[1], K. Sung[1], S. Yu[1]
[1]Jet Propulsion Laboratory, California Institute of Technology.

209.03 **Oscillator Strengths and Predissociation Rates for $^{12}C^{16}O$ Bands between 92.9 and 93.4 nm**
Steven Robert Federman[1], M. Eidelsberg[2], J. L. Lemaire[2], G. Stark[3], A. N. Heays[3], L. Gavilan[2], J. Fillion[4], F. Rostas[2], J. R. Lyons[5], P. L. Smith[3], N. de Oliveira[6], D. Joyeux[6], M. Roudjane[6], L. Nahon[6]
[1]Univ. of Toledo, [2]Observatoire de Paris, France, [3]Wellesley, [4]Univ. PVI UMPC, France, [5]UCLA, [6]Synchrotron SOLEIL, France.

209.04 **A Novel Apparatus To Study Interstellar Organic Chemistry**
Aodh O Connor[1], K. A. Miller[1], J. Stützel[1], X. Urbain[2], E. F. McCormack[3], D. W. Savin[1]
[1]Columbia University, [2]Université catholique de Louvain, Belgium, [3]Bryn Mawr College.

209.05 **From the Laboratory to Space: Neutral and Ionized PAHs in Translucent Interstellar Clouds**
Farid Salama[1], G. Galazutdinov[2], L. Biennier[3], J. Krelowski[4]
[1]NASA Ames Research Center, [2]Instituto de Astronomia, Universidad Catolica del Norte, Chile, [3]Institut de Physique de Rennes, UMR 6251 du CNRS, France, [4]Center for Astronomy, Nicolaus Copernicus University, Poland.

209.06 **Measurements of the Associative Detachment Reaction $H^- + H \rightarrow H2 + e^-$ for Modeling Protogalaxy and First Star Formation in the Early Universe**
Daniel Wolf Savin[1], K. A. Miller[1], H. Bruhns[1], H. Kreckel[1], X. Urbain[2], J. Eliášek[3], M. Čížek[3]
[1]Columbia Astrophysics Lab., [2]Universié catholiuqe de Louvain, Belgium, [3]Charles University, Czech Republic.

209.07 **Dissociative Recombination of Astrophysically Relevant Polyatomic Ions**
Julia Stuetzel[1], O. Novotný[1], H. Buhr[2], W. Geppert[3], M. Hamberg[3], C. Krantz[4], M. Mendes[4], A. Petrignani[4], D. Schwalm[2], A. Wolf[4], D. W. Savin[1]
[1]Columbia University, [2]Weizmann Institute of Science, Israel, [3]Stockholm University, Sweden, [4]Max Planck Institute for Nuclear Physics, Germany.

210 Laboratory & Astrophysics: Dust & Ice

Monday, 9:00 am - Thursday, 2:00 pm, Exhibit Hall, Dena'ina Center

210.01 **The Effects Of Methanol On The Trapping Of Volatile Ice Components**
Wendy Brown[1], D. Burke[1]
[1]University College London, United Kingdom.

210.02 **LASSIE - Laboratory Astrochemical Surface Science in Europe**
Wendy Brown[1]
[1]University College London, United Kingdom.

210.03 **Sublimation and Irradiation of Glycolaldehyde/Water Ices**
Daren Burke[1], W. A. Brown[1], S. Viti[1], P. M. Woods[1], B. Slater[1]
[1]University College London, United Kingdom.

210.04 **Laboratory Studies of the Formation of Carbonaceous Cosmic Dust from PAH Precursors**
Farid Salama[1], C. S. Contreras[1]
[1]NASA Ames Research Center.

210.05 **Formation of Water on Dust Grains**
Gianfranco Vidali[1], D. Jing[1], J. He[1]
[1]Syracuse Univ..

210.06 **Laboratory Spectral Studies of NH3 Ice Mixtures Relevant to Astrophysical Environments**
Douglas White[1], R. M. E. Mastrapa[2], P. A. Gerakines[3], S. A. Sandford[1]
[1]NASA Ames Research Center, [2]The SETI Institute, [3]NASA Goddard Space Flight Center.

211 Laboratory & Astrophysics: Plasma

Monday, 9:00 am - Thursday, 2:00 pm, Exhibit Hall, Dena'ina Center

211.01 **Thermodynamics And Convergence In Simulations Of The ICM With Anisotropic Conduction**
Mark Avara[1], C. S. Reynolds[1], T. Bogdanovic[1]
[1]Department of Astronomy, UMD.

211.02 **The Madison Plasma Dynamo Experiment: a Laboratory for Astrophysics**
Benjamin Brown[1], M. D. Nornberg[1], C. B. Forest[1], E. G. Zweibel[1], J. B. Wallace[1], M. Clark[1], E. J. Spence[2], K. Rahbarnia[1], E. J. Kaplan[1], N. Z. Taylor[1]
[1]Univ. of Wisconsin - Madison, [2]Princeton Plasma Physics Laboratory.

211.03 **Collaborative Comparison of High-Energy-Density Physics Codes**
Bruce Alan Fryxell[1], M. Fatenejad[2], D. Lamb[2], C. Graziani[2], E. Myra[1], C. Fryer[3], J. Wohlbier[3]
[1]University of Michigan, [2]University of Chicago, [3]Los Alamos National Laboratory.

211.04 Radiation-Hydrodynamic Simulation of Experiments With Intense Lasers Generating Collisionless Interpenetrating Plasmas
Michael Grosskopf[1], R. Drake[1], C. Kuranz[1], H. Park[2], N. Kugland[2], S. Pollaine[2], J. Ross[2], B. Remington[2], A. Spitkovsky[3], L. Gargate[3], G. Gregori[4], A. Bell[4], C. Murphy[4], J. Meinecke[4], B. Reville[4], Y. Sakawa[5], Y. Kuramitsu[5], H. Takabe[5], D. Froula[6], G. Fiksel[6], F. Miniati[7], M. Koenig[8], A. Ravasio[8], E. Liang[9], N. Woolsey[10]
[1]University of Michgan, [2]Lawrence Livermore National Laboratory, [3]Princeton University, [4]Oxford University, United Kingdom, [5]Osaka University, Japan, [6]Laboratory for Laser Energetics, [7]ETH Science and Technology University, Switzerland, [8]Ecole Polytechnique, France, [9]Rice University, [10]University of York, United Kingdom.

211.05 Theory and High-Energy-Density Laser Experiments Relevant to Accretion Processes in Cataclysmic Variables
Christine Krauland[1], R. Drake[1], B. Loupias[2], E. Falize[2], C. Busschaert[2], A. Ravasio[3], R. Yurchak[4], A. Pelka[4], M. Koenig[4], C. C. Kuranz[1], T. Plewa[5], C. M. Huntington[1], D. N. Kaczala[1], S. Klein[1], R. Sweeney[1], B. Villete[2], R. Young[1], P. A. Keiter[1]
[1]University of Michigan, [2]CEA, France, [3]UnEcole Polytechnique, France, [4]Ecole Polytechnique, France, [5]Florida State University.

211.06 NIF Laboratory Astrophysics Experiments Investigating The Effects Of A Radiative Shock On Hydrodynamic Instabilities
Carolyn C. Kuranz[1], R. P. Drake[1], C. M. Huntington[1], S. R. Klein[1], M. R. Trantham[1], H. S. Park[2], B. A. Remington[2], A. R. Miles[2], K. Raman[2], J. L. Kline[3], T. Plewa[4]
[1]University of Michigan, [2]Lawrence Livermore National Laboratory, [3]Los Alamos National Laboratory, [4]Florida State University.

211.07 Discrete-Ordinates and Flux-Limited-Diffusion Methods for Radiation Transport: A Comparison Study
Eric S. Myra[1], W. D. Hawkins[2]
[1]University of Michigan, [2]Texas A&M University.

211.08 Particle-in-cell Simulations Of Particle Energization From Low Mach Number Fast Mode Shocks
Chuang Ren[1], E. Blackman[1], J. Park[1], R. Siller[1], J. Workman[1]
[1]University of Rochester.

211.09 Developments in the Generation of Large, Laser-Driven Magnetized Collisionless Shocks
Derek Schaeffer[1], E. T. Everson[1], D. Winske[2], C. G. Constantin[1], A. S. Bondarenko[1], K. A. Flippo[2], D. S. Montgomery[2], C. Niemann[1]
[1]UCLA, [2]Los Alamos National Laboratory.

211.10 A New Way to Generate Collimated Plasma Jets?
Rachel Young[1], C. C. Kuranz[1], R. M. Sweeney[1], R. P. Drake[1]
[1]University of Michigan.

212 Laboratory & Astrophysics: Planetary

Monday, 9:00 am - Thursday, 2:00 pm, Exhibit Hall, Dena'ina Center

212.01 Probing the effect of Gases on Activated Lunar Simulant
F. Salama[1], C. L. Ricketts[1], Ella Sciamma-O'Brien[1], C. S. Contreras[1], A. L. Mattioda[1], E. L. Yates[1], L. T. Iraci[1], A. Ricca[1]
[1]NASA Ames Research Center.

212.02 Laboratory Simulations Of Titan's Atmospheric Chemistry With The NASA Ames Titan Haze Simulation Experiment
Ella Sciamma-O'Brien[1], C. S. Contreras[1], C. L. Ricketts[1], F. Salama[1]
[1]NASA Ames Research Center.

Tuesday, 12 June 2012

Invited Session 300 SPD Harvey Prize: The Solar Cycle: From Understanding to Forecasting

Tuesday, 8:30 am - 9:20 am Ballroom B, Dena'ina Center

300.00C **Chair**
David Alexander[1]
[1]Rice University.

Harvey Prize
The 2012 Harvey Prize is awarded to Dibyendu Nandy for his advances in the use of kinematic dynamo models to elucidate the typical and atypical solar cycle, and for his outstanding leadership within the solar physics and space climate communities.

300.01 **The Solar Cycle: From Understanding to Forecasting**
Dibyendu Nandy[1]
[1]Indian Institute of Science Education and Research, Kolkata, India.

301 Bridging Laboratory and Astrophysics: Molecules

Tuesday, 10:00 am - 11:30 am, Summit Hall 1, Egan Center

Laboratory astrophysics is the Rosetta Stone that enables astronomers to understand and interpret the cosmos. This session will focus on the interplay between astrophysics with theoretical and experimental studies into the underlying molecular processes which drive our cosmos.

301.00C **Chair**
Steven Robert Federman[1]
[1]Univ. of Toledo.

301.01 **Interstellar Molecules: Laboratory, Theoretical and Astronomical Studies**
David A. Neufeld[1]
[1]Johns Hopkins University.

301.02 **Gas Phase Theoretical Kinetics for Astrochemistry**
Stephen J. Klippenstein[1], Y. Georgievskii[1], L. B. Harding[1]
[1]Argonne National Laboratory.

301.03 **Cracking the Astrochemical Code: Molecular Spectroscopy in Support of Observational Astrophysics**
Susanna L. Widicus Weaver[1]
[1]Emory University.

302 Multiple Populations in Globular Clusters: Abundances & Stellar Models

Tuesday, 10:00 am - 11:30 am, Room 3, Dena'ina Center

This session focuses on understanding the chemical differences among populations within globular clusters, including application of and constraints from stellar models, as well as open problems.

302.00C **Chair**
Raffaele Gratton[1]
[1]Osservatorio Astronomico di Padova, Italy.

302.01 **The Challenges of omega Centauri**
John E. Norris[1]
[1]Mount Stromlo & Siding Spring Observatories, Australia.

302.02 **Photometry of Multiple Stellar Populations in Globular Clusters**
Antonino Milone[1]
[1]Instituto de Astrofisica de Canarias, Spain.

302.03 **Agb And Sagb Stars In A Possible Scenario For The Formation Of Multiple Populations In Globular Clusters**
Paolo Ventura[1]
[1]INAF - Observatory of Rome, Italy.

302.04 **Massive Stars and Their Possible Impacts in Globular Clusters**
Thibaut Decressin[1]
[1]Geneva Observatory, Switzerland.

303 Wide-Field IR Space Telescope Science: Introduction and Survey Science

Tuesday, 10:00 am - 11:30 am, Summit Hall 3, Egan Center

The Astro2010 Decadal Survey gave its highest recommendation in the large-scale space mission category to WFIRST, a Wide-Field Infrared Survey Telescope with both imaging and spectroscopy capabilities. The science made possible by such a facility reaches across many disciplines from dark energy to exoplanets to deep surveys. The proposed mission will conduct microlensing observations of stars in the galactic bulge, near-IR surveys of thousands of square degrees to magnitudes limits of AB ~25, spectroscopic measurements of a hundred million galaxies to redshift accuracy of ~0.1% and precision supernova observations into the near-IR of thousands of events. It will be a powerful tool for the astronomical community. The purpose of this workshop is to inform the community of the planned capabilities and gather input for defining the mission and its science.

303.00C **Chair**
N. Gehrels[1]
[1]NASA's GSFC.

303.01 **WFIRST: Big Science with a Small Telescope**
Alan Dressler[1]
[1]Carnegie Observatory.

303.02 **Cosmic Acceleration: Standard Candles and Standard Rulers**
Paul Schechter[1]
[1]MIT.

303.03 **Extragalactic Science and Cosmology with WFIRST**
Richard S. Ellis[1]
[1]Caltech.

303.04 **A Study of Stellar Populations in the Local Volume with WFIRST**
Jason S. Kalirai[1]
[1]Space Telescope Science Institute.

304 New Horizons for Science From the Moon: Heliophysics, Coronal Mass Ejections & Space Weather

Tuesday, 10:00 am - 11:30 am, Summit Hall 2, Egan Center

High energy particle acceleration occurs in diverse environments including the Sun, stars, supernovae, and AGNs. Fundamental problems include understanding the mechanisms and sites of this acceleration, in particular the roles of shock waves and magnetic reconnection. This session will discuss current observations and models of Coronal Mass Ejections, their impact on the near-Earth environs, and the radio bursts they produce. The design and deployment of proposed v<10 MHz imaging arrays on the Moon will be presented. The arrays and their deployers also have other science applications. Examples include detection of implementing and interstellar dust striking polymide antennas on the lunar surface and deployment of a range of detectors for other science targets.

304.00C **Chair**
Justin C. Kasper[1]
[1]Harvard-Smithsonian CfA.

304.01 **The Current Status of Research on Coronal Mass Ejections**
Angelos Vourlidas[1]
[1]NRL.

304.02 **Solar Eruptions Imaged by EUV and X-Ray Telescopes**
Kathy Reeves[1]
[1]Harvard-Smithsonian, CfA.

304.03 **CME-associated Radio Bursts from Satellite Observations**
Nat Gopalswamy[1]
[1]NASA GSFC.

304.04 **Impacts of CME energized particles on the near-Earth environment**
Daniel Baker[1]
[1]University of Colorado.

304.05 **Heliophysics From the Surface of the Moon**

Justin C. Kasper[1]
[1]Harvard-Smithsonian CfA.

304.06 **Antenna Deployment for a Pathfinder Lunar Radio Observatory**
Robert J. MacDowall[1], F. A. Minetto[1], T. W. Lazio[2], D. L. Jones[2], J. C. Kasper[3], . O. Burns[4], K. P. Stewart[5], K. W. Weiler[5]
[1]NASA/GSFC, [2]Jet Propulsion Laboratory, [3]Center for Astrophysics, [4]University of Colorado, [5]Naval Research Laboratory.

305 Galaxy Mergers from the Largest to the Smallest Scales: Early to Late Stages of Galaxy Mergers

Tuesday, 10:00 am - 11:30 am, Room 2, Dena'ina Center

This second session looks at the actual process of galaxy merging, from the early phase of interaction to the late stage of merging and the formation of a new galaxy, and focuses on the large and small-scale gas and stellar dynamics during the merger. The first part of the session addresses theoretical aspects and numerical simulations of galaxy mergers, while the second part describes observations of the properties of galaxies in the process of merging, and signs of past mergers in the host galaxies of massive quasars.

305.00C **Chair**
Alister Graham[1]
[1]Swinburne Univ., Australia.

305.01 **Gas Dynamics in Black Hole Pairing**
Sandor Van Wassenhove[1]
[1]University of Michigan.

305.02 **Growing the Lightest Supermassive Black Holes: Beyond the Major Merger Paradigm**
Kelly Holley-Bockelmann[1]
[1]Vanderbilt University.

305.03 **Luminous Infrared Galaxies: Superstarbursts and Merging Massive Black Holes**
David B. Sanders[1]
[1]Univ. of Hawaii.

305.04 **Quasars and Mergers**
Gabriela Canalizo[1], A. Stockton[2], V. Bennert[3], K. Lee[1], C. Welker[1], C. Peng[4]
[1]Univ. of California, Riverside, [2]Institute for Astronomy, U. of Hawaii, [3]Cal Poly San Luis Obispo, [4]Carnegie Observatories.

306 Exoplanet Census from Kepler

Tuesday, 10:00 am - 11:30 am, Ballroom C, Dena'ina Center

NASA's Kepler Mission is designed to determine the frequency of rocky planets in or near the habitable zone of solar-like stars. As of Jan 2012, Kepler has collected over 2 1/2 years of nearly continuous precise photometry on more than 150,000 stars. 1 1/2 years of data are available to the public, with the remainder to be released by the end of the nominal mission in Nov 2012. Over 2300 transiting planet candidates have been identified, a number of which are in habitable zone orbits. This session will present the current the status of the Kepler mission, the status of the exoplanet search, and the status of follow-up observations. Talks will cover specific classes of exoplanets and exoplanet systems, giving their characteristics, prevalence, and distributions. Both theory and observational talks will cover Earth-size and sub-Neptune-size planets, giant planet characterization, multiple planet systems, and the dynamics of planetary systems.

306.00C **Chair**
Jessie Christiansen[1]
[1]NASA Ames Research Center/SETI Institute.

306.01 **Transiting Planet Candidates Observed by Kepler**
Natalie M. Batalha[1], Kepler Team
[1]San Jose State University.

306.02 **Planet Masses and Densities**
Geoffrey W. Marcy[1]
[1]UC, Berkeley.

306.03 **Small Planets Do Not Require A Metal-Rich Environment**
David W. Latham[1], L. A. Buchhave[2]
[1]Harvard-Smithsonian, CfA, [2]Niels Bohr Institute, University of Copenhagen, Denmark.

306.04 **Characteristics of the Stars and Exoplanets in Multiple Planet Systems from Kepler**
David Ciardi[1], Kepler Team
[1]Caltech.

306.05 **Dynamics of Kepler's Multiple Planet Systems**
Jack J. Lissauer[1], Kepler Science Team
[1]NASA Ames Research Center.

306.06 **Confirming and Constraining Kepler Planets via Transit Timing Variations**
Matthew J. Holman[1], Kepler Team
[1]Harvard-Smithsonian Center for Astrophysics.

306.07 **Recent Kepler Results on Candidate Circumbinary Planets**
Jerome A. Orosz[1], W. F. Welsh[1], Kepler Team
[1]San Diego State University.

307 Black Holes, Accretion Disks and Gravitational Waves

Tuesday, 10:00 am - 11:30 am, Ballroom B, Dena'ina Center

307.00C **Chair**
Vahe Petrosian[1]
[1]Stanford Univ.

307.01 **Evidence for Collimated Outflow from Sgr A*?**
Farhad Yusef-Zadeh[1], R. Arendt[2], H. Bushouse[3], W. Cotton[4], D. Haggard[1], C. Heinke[5], D. A. Roberts[1], M. Royster[1], M. Wardle[6]
[1]Northwestern Univ., [2]GSFC, [3]STScI, [4]NRAO, [5]U. Alberta, Canada, [6]Macquarie U., Australia.

307.02 **Launching and Quenching of Black Hole Relativistic Jets**
Hung-Yi Pu[1], K. Hirotani[2], H. Chang[3]
[1]Physics Department, National Tsing Hua University, Taiwan, [2]Theoretical Inst ituteforAdvancedResearchinAstrophysics(TIARA), AcademiaSinica, Instituteof AstronomyandAstrophysics (ASIAA), Taiwan, [3]Institute of Astronomy, National Tsing Hua University, Taiwan.

307.03 **Using HST to Detect Isolated Black Holes and Neutron Stars through Astrometric Microlensing**
Kailash C. Sahu[1], M. Albrow[2], J. Anderson[1], H. E. Bond[1], I. Bond[3], T. M. Brown[1], S. Casertano[1], M. Dominik[4], H. C. Ferguson[1], C. Fryer[5], M. Livio[1], S. Mao[6], Y. Perrott[7], A. Udalski[8], P. Yock[9]
[1]STScI, [2]Univ. Canterbury, New Zealand, [3]Massey University, New Zealand, [4]University of St Andrews, United Kingdom, [5]Los Alamos National Laboratory, [6]Manchester University, United Kingdom, [7]University of Cambridge, United Kingdom, [8]Warsaw University, Poland, [9]Univ. Auckland, New Zealand.

307.04 **The Microlensing Signature of Binary Black Holes**
Jeremy Schnittman[1], T. Littenberg[2], K. Sahu[3]
[1]NASA/GSFC, [2]U. Maryland and NASA/GSFC, [3]STScI.

307.05 **The Chandra Legacy 1 Megasecond Observation of NGC3115**
Jimmy Irwin[1], K. Wong[1], J. Strader[2], A. Romanowsky[3], G. Sivakoff[4], M. Yukita[1], E. Million[1], Y. Su[1], W. Mathews[3], E. Quataert[5], J. Brody[3], S. Larsen[6]
[1]University of Alabama, [2]SAO, [3]University of California-Santa Cruz, [4]University of Alberta, Canada, [5]University of California-Berkeley, [6]University of Utrecht, Netherlands.

307.06 **X-ray Reflected Spectra from Accretion Disks: The Impact of Ionization Gradients**
Javier Garcia[1], C. Reynolds[1], J. McClintock[2], T. Kallman[3]
[1]University of Maryland, [2]Harvard-Smithsonian Center for Astrophysics, [3]NASA - Goddard Space Flight Center.

307.07 **Fast and Accurate Sky Localization of Gravitational Wave Sources using MCMC Methods**
Benjamin F. Farr[1], V. Raymond[1], W. Farr[1], D. Fazi[1], J. Veitch[2], I. Mandel[3], B. Aylott[3], C. Roever[4], V. Kalogera[1]
[1]Northwestern University, [2]Nikhef - National Institute for Subatomic Physics, Netherlands, [3]University of Birmingham, United Kingdom, [4]Max-Planck-Institut fur Gravitationsphysik, Germany.

307.08 **Transient Gravitational-wave Astronomy With LIGO, Virgo And GEO600**
Joshua Smith[1], LIGO Scientific Collaboration, Virgo Collaboration
[1]California State University Fullerton.

307.09 **Swift Follow-up Observations of Candidate Gravitational-Wave Transient Events**
Ruslan Vaulin[1], LIGO and Virgo Scientific Collaboration, P. A. Evans[2], N. Gehrels[3], J. Gelbord[4], P. Handbauer[5], J. A. Kennea[4], J. P. Osborne[2], M. Siegel[6], M. Smith[4]
[1]MIT, [2]University of Leicester, United Kingdom, [3]NASA Goddard Space Flight Center, [4]Pennsylvania State University, [5]Eotvos Lorand University, Hungary, [6]Pennsylvania State University,.

308 Starbursts & Spirals

Tuesday, 10:00 am - 11:30 am, Room 1, Dena'ina Center

308.00C **Chair**
Patricia Knezek[1]
[1]WIYN Consortium, Inc..

308.01 **The Gismo 2-millimeter Deep Field In GOODS-N**
Johannes Staguhn[1], A. Kovacs[2], F. Walter[3], E. Dwek[4], R. Decarli[3], D. Benford[5], D. Fixsen[6], K. Irwin[7], C. Jhabvala[5], S. Samuel Leclercq[8], S. Maher[5], T. Miller[5], S. Moseley[5], E. Sharp[5], E. Wollack[5]
[1]Johns Hopkins University & NASA's GSFC, [2]Caltech, [3]Max Planck Institute for Astronomy, Germany, [4]Nasa/ Goddard Space Flight Center, [5]NASA/Goddard Space Flight Center, [6]University of Marylanf, [7]National Institute of Standards and Technology, [8]IRAM, France.

308.02 **Discovery of an Exceptionally Bright Gravitationally Lensed Submillimeter Galaxy at z=4.69**
Eiichi Egami[1], Herschel Lensing Survey (HLS) team
[1]Univ. of Arizona.

308.03 **The Source Counts of Submillimeter Galaxies Detected at λ = 1.1 mm**
Kimberly S. Scott[1], G. W. Wilson[2], I. Aretxaga[3], J. E. Austermann[4], E. L. Chapin[5], J. D. Dunlop[6], H. Ezawa[7], M. Halpern[5], B. Hatsukade[8], D. H. Hughes[3], R. Kawabe[9], S. Kim[10], K. Kotaro[11], J. D. Lowenthal[12], A. Montana[3], K. Nakanishi[7], T. Oshima[9], D. Sanders[13], D. Scott[5], N. Scoville[14], Y. Tamura[11], D. Welch[2], M. S. Yun[2], M. Zeballos[3]
[1]North American ALMA Science Center, National Radio Astronomy Observatory, [2]University of Massachusetts, [3]Instituto Nacional de Astrofisica, Optica y Electronica, Mexico, [4]Center for Astrophysics and Space Astronomy, University of Colorado, [5]University of British Columbia, Canada, [6]University of Edinburgh, Royal Observatory, United Kingdom, [7]ALMA Project Office, National Astronomical Observatory of Japan, Japan, [8]Kyoto University, Japan, [9]Nobeyama Radio Observatory, National Astronomical Observatory of Japan, Japan, [10]Sejong University, Korea, Republic of, [11]Institute of Astronomy, University of Tokyo, Japan, [12]Smith College, [13]University of Hawaii, [14]California Institute of Technology.

308.04 **Some Updates on the Star Formation Laws in Galaxies**
Yu Gao[1]
[1]Purple Mountain Observatory, China.

308.05 **A Simple Model for the Galactic Dynamo**
Ethan T. Vishniac[1]
[1]McMaster University, Canada.

308.06 **Rejuvenation of Bulges by Bars: Evidence from Stellar Population Analysis**
Dimitri Gadotti[1], P. Coelho[2]
[1]European Southern Observatory, Chile, [2]Universidade Cruzeiro do Sul, Brazil.

308.07D **Ionized Gas Velocities from Multi-Slit Spectroscopy for Nearby, Edge-on Galaxies**
Catharine J. Wu[1], R. Walterbos[1], M. Patterson[1], R. Rand[2], G. Heald[3], HALOGAS Team
[1]New Mexico State University, [2]University of New Mexico, [3]ASTRON, Netherlands.

308.08 **X-ray Spectroscopy of Galactic Feedback**
Q. Daniel Wang[1]
[1]Univ. of Massachusetts.

309 Solar Dynamics Observatory I

Tuesday, 10:00 am - 11:30 am, Room 5, Dena'ina Center

309.00C **Chair**
Markus J. Aschwanden[1]
[1]Lockheed Martin ATC.

309.01 **CME's - The Early Stages**
Alan M. Title[1]
[1]Lockheed Martin.

309.02 **SDO-AIA Response Functions: Insights and Updates from Hinode EIS Bright Point Data**
Joan T. Schmelz[1], B. S. Jenkins[1]
[1]Univ. of Memphis.

309.03 **Can We Resolve Coronal Loops with Hinode and SDO?**
Ignacio Ugarte-Urra[1], D. H. Brooks[1], H. P. Warren[2]
[1]George Mason University, [2]Naval Research Laboratory.

309.04 **Nanoflare Properties throughout Active Regions: Comparing SDO/AIA Observations with Modeled Active Region Light Curves**
Nicholeen Viall[1], J. Klimchuk[1]
[1]NASA Goddard Space Flight Center.

309.05 **Temperature And Density Analysis Of A Coronal Loop Observed By Eis And Aia**
Joseph Plowman[1], P. Martens[1], C. Kankelborg[1], M. Ritchie[2], J. Scott[1], R. Sharma[3]
[1]Montana State University, [2]University of St Andrews, United Kingdom, [3]Mohanlal Sukhadia University, India.

309.06 **Investigating the Dependency of Footpoint Temperature on Hard X-ray Energy using AIA Dispersion Spectra and RHESSI Imaging**
Claire Raftery[1], H. M. Bain[1], S. Krucker[1]
[1]Space Science Lab, UC Berkeley.

310 Coronal B Fields I

Tuesday, 10:00 am - 11:30 am, Room 4, Dena'ina Center

310.00C **Chair**
Yuhong Fan[1]
[1]HAO/NCAR.

310.01 **Recent Results from the Coronal Multi-Channel Polarimeter**
Steven Tomczyk[1], C. Bethge[1], S. E. Gibson[1], S. W. McIntosh[1], L. A. Rachmeler[1], H. Tian[1]
[1]HAO/NCAR.

310.02 **The Magnetism and Dynamics of Solar Coronal Cavities**
Sarah Gibson[1]
[1]NCAR.

310.03 **An Explanation For Large-amplitude Longitudinal Oscillations In Prominences**
Manuel Luna Bennasar[1], J. T. Karpen[2]
[1]UMD @ NASA Goddard Space Flight Center, [2]NASA Goddard Space Flight Center.

310.04 **Observations and Magnetic Field Modeling of a Large Polar Crown Prominence**
Yingna Su[1], A. van Ballegooijen[1]
[1]Smithsonian Astrophysical Observatory.

310.05 **Coronal Rain Observed On-disk with He I Spectropolarimetry from DST/FIRS**
Thomas A. Schad[1], M. J. Penn[2], A. Pietarila[2]
[1]University of Arizona/National Solar Observatory, [2]National Solar Observatory.

337 AAS Sustainability Committee

Tuesday, 10:00 am - 11:30 am, Summit Hall 4, Egan Center

The AAS Sustainability Committee aims to reduce the ecological footprint of the AAS and its operations. This special session will focus on the energy use and greenhouse gas emissions associated with AAS conferences and how we can reduce them.

Organizer
James D. Lowenthal[1]
[1]Smith College.

Invited Session 311 Russell Prize: The Cold Dark Matter Theory of Galaxy Formation: A Status Report

Tuesday, 11:40 am - 12:30 pm Ballroom B, Dena'ina Center

311.00C **Chair**
Debra M. Elmegreen[1]
[1]Vassar College.

Henry Norris Russell Lectureship
The 2011 Henry Norris Russell Lectureship of the American Astronomical Society is awarded to Sandra Faber of the University of California at Santa Cruz for a lifetime of seminal contributions to galaxy evolution and dynamics, the distribution of the mysterious "dark matter" in the universe, for leading the construction of astronomical instrumentation, and for mentoring future leading astronomers.

311.01 **The Cold Dark Matter Theory of Galaxy Formation: A Status Report**
Sandra M. Faber[1]
[1]University of California, Santa Cruz.

312 NASA Town Hall

Tuesday, 12:45 pm - 1:45 pm, Ballroom A, Dena'ina Center

Senior representatives from NASA's Science Mission Directorate and Astrophysics Division will discuss NASA's science program and outlook. Topics will include the status of the research program, highlights of operating missions, NASA's response to the Astro2010 decadal survey, progress of missions in development, and anticipated opportunities for both non-flight basic research awards (grants) and flight mission investigations.

312.00C **Chair**
Paul L. Hertz[1]
[1]NASA Headquarters.

313 Informal Science Education Engages the Public and Science Careers

Tuesday, 12:45 pm - 1:45 pm, Ballroom C, Dena'ina Center

CAISE, the Center for Advancement of Informal Science Education, is a resource center

funded by the National Science Foundation (NSF). CAISE connects informal science education (ISE) professionals and researchers to the knowledge and people of ISE, through its website, products and in-person workshops and meetings.

The Town Hall will focus both on how CAISE and the NSF can help researchers strategize their engagement with the public as well as focusing on introducing the AAS audience to the landscape of the ISE field and the diversity of career paths within it.

A growing body of research shows that people learn the majority of their science knowledge outside of school (Falk & Dierking, 2010). As a result, ISE can be an effective conduit for meaningful science communication. The Town Hall will present examples of how the ISE field offers researchers possible non-research career options that make an impact on the public's engagement with science.

The CAISE Town Hall will outline the diversity of the ISE field, concisely presenting data relevant to the impact of ISE on science learning. Examples of successful programs that connect AAS-related science with the public will be shared while discussing ways to bring together AAS-related researchers with practitioners and researchers within ISE. Pathways to various resources in the form of current CAISE initiatives will be described as well, including information regarding NSF awards.

The format for this Town Hall has been used at a number of meetings in the past. It includes presentations and interviews with scientists, educators and professionals involved in AAS-relevant ISE initiatives around the country as well as with those who have made the leap from a research to ISE career. The goal is conversation in a "talk show" format, not a panel. Ample time throughout will be allowed for discussion regarding participant programs and issues related to the ISE field.

313.00C **Chair**
Benjamin Dickow[1]
[1]*OSU/ CAISE.*

Straight Talk about an Astronomical Career: A Professional Development Session

Tuesday, 12:45 pm - 2:00 pm, Summit Hall 13-14, Egan Center

Mentoring of ALL young researchers early in their careers is essential for retaining them as active members of the astronomical community. This is particularly important for underrepresented scientists who often face additional barriers to their success in science.

As part of the mission of the CSMA, we propose to sponsor a special session luncheon as part of the June 2012 AAS meeting in Anchorage, AK to introduce junior and more senior astronomical researchers in order to help build and strengthen mentoring connections as these scientist move through their careers. During this informal, interactive lunchtime session a panel of professional astronomers will present information and strategies relevant for building a career as a professional astronomer. We will discuss the academic paths leading to a degree in Astronomy and/or Astrophysics and the various trajectories that can be taken on the way to a career that makes the most of that degree. We will give tips for applying for postdoctoral positions, and suggest techniques for making the most of your time at each stage along your career path. Students and recent PhDs are invited to discuss topics that include challenging advisors, difficult or confusing professional situations or other topics like "impostor syndrome". We intend for the discussions to be largely be guided by audience participation.

Organizer
Dara J. Norman[1]
[1]*NOAO.*

314 Bridging Laboratory and Astrophysics: Dust and Ice

Tuesday, 2:00 pm - 3:30 pm, Summit Hall 1, Egan Center

Laboratory astrophysics is the Rosetta Stone that enables astronomers to understand and interpret the cosmos. This session will focus on the interplay between astrophysics with theoretical and experimental studies into the underlying dust and ice processes which drive our cosmos.

314.00C **Chair**
Farid Salama[1]
[1]NASA Ames Research Center.

314.01 **Laboratory Needs for Interstellar Ice Studies**
Abraham C. A. Boogert[1]
[1]California Institute of Tech..

314.02 **What Do We Know About the Ultraviolet Extinction Curve, Fifty Years After the Discovery of the Bump?**
Geoffrey C. Clayton[1]
[1]Louisiana State Univ..

314.03 **On the Formation of Astrobiologically Important Molecules in Outer Solar System Ices**
Ralf-Ingo Kaiser[1]
[1]University of Hawaii.

315 Multiple Populations in Globular Clusters: Dynamical Evolution

Tuesday, 2:00 pm - 3:30 pm, Room 3, Dena'ina Center

This session focuses on understanding the dynamical evolution of the primordial and evolving objects that became today's globular clusters, as well as forthcoming approaches to tackle problems in this field.

315.00C **Chair**
Ted von Hippel[1]
[1]Embry-Riddle Aeronautical University.

315.01 **Formation and Dynamical Evolution of Multiple Stellar Populations in Globular Clusters**
Enrico Vesperini[1]
[1]Drexel Univ..

315.02 **Modeling Self Enrichment and the Mass-Metallicity Relation**
Jeremy Bailin[1], B. Harris[2]
[1]University of Michigan, [2]McMaster University, Canada.

315.03 **Formation Processes Of Globular Clusters With Chemical Abundance Spread**
Kenji Bekki[1]
[1]University of Western Australia, Australia.

316 Wide-Field IR Space Telescope Science: Dark Energy Science

Tuesday, 2:00 pm - 3:30 pm Summit Hall 3, Egan Center

The Astro2010 Decadal Survey gave its highest recommendation in the large-scale space mission category to WFIRST, a Wide-Field Infrared Survey Telescope with both imaging and spectroscopy capabilities. The science made possible by such a facility reaches across many

disciplines from dark energy to exoplanets to deep surveys. The dark energy measurements will be made using four principal measurement techniques: Baryonic Acoustic Oscillation (BAO), Redshift Space Distortions (RSD), Type 1a supernovae (SNe), and weak lensing (WL). Large area imaging and spectroscopic surveys will enable the BAO, RSD and WL techniques. Monitoring observations will enable the SNe technique. The dark energy science aspects of WFIRST will be discussed in this session.

316.00C **Chair**
Paul Schechter[1]
[1]MIT.

316.01 **Dark Energy, Particle Physics and Cosmology**
Michael S. Turner[1]
[1]The University of Chicago.

316.02 **Dark Energy: Systematics Requirements and Future Prospects**
Dragan Huterer[1]
[1]University of Michigan.

316.03 **Exoplanet Demographics with a Space-Based Microlensing Survey**
B. Scott Gaudi[1]
[1]Ohio State Univ..

317 Galaxy Mergers from the Largest to the Smallest Scales: Active SMBHs

Tuesday, 2:00 pm - 3:30 pm, Room 2, Dena'ina Center

This session gives an overview of the key properties of accretion onto single SMBHs, and how they appear in observations; and sets the stage for modeling, and successful searches in observations, of accretion onto wide and compact pairs of SMBHs. The first part gives an overview of the physics of accretion activity and key observational signatures, while the second part addresses current and ongoing large-area surveys which will detect large numbers of single and binary AGN.

317.00C **Chair**
C. Megan Urry[1]
[1]Yale Univ.

317.01 **AGN Variability at Low Energies**
Erin Wells Bonning[1]
[1]Yale University.

317.02 **AGN Variability at X-ray Energies**
Lance Miller[1]
[1]Oxford University, United Kingdom.

317.03 **Pan-STARRS1: Transient AGN Events and High Redshift Quasars**
Kenneth C. Chambers[1]
[1]Univ. of Hawaii.

317.04 **The Frequency and Demographics of Active Galactic Nucleus Pairs: from Tens-of-kpc to Sub-kpc Scales**
Xin Liu[1]
[1]Harvard College Observatory.

318 Kepler's Future: the Road to Eta-Earth

Tuesday, 2:00 pm - 3:30 pm, Ballroom A, Dena'ina Center

This session will present plans for the future of the Kepler Mission. The discussion will

include the progress towards Kepler's goal of determining the frequency of terrestrial planets in the habitable zone of solar-like stars. Talks will cover the statistics of exoplanets based on Kepler results, including discussion the false-positive rate and the completeness of the Kepler results. The session will cover plans for the future of Kepler, including data collection, processing, and archiving.

318.00C **Chair**
Douglas A. Caldwell[1]
[1]*SETI Institute.*

318.01 **Kepler: Updated Exoplanet Statistics and an Estimate of the Frequency of Planetary Candidates in the Habitable Zone**
William J. Borucki[1]
[1]*NASA Ames Research Center.*

318.02 **The Occurrence of Planets 1-10x the Size of Earth**
Andrew W. Howard[1]
[1]*UC Berkeley.*

318.03 **Results From The Search For Planetary Companions To Kepler Hot Jupiter Candidates**
Jason H. Steffen[1], Kepler Science Team
[1]*Fermilab.*

318.04 **Validation And Characterization Of The Jupiter-sized Planets KOI-196 And KOI-217**
Elisa V. Quintana[1], J. Rowe[1], T. Barclay[2], Kepler Team
[1]*SETI Institute,* [2]*NASA Ames Research Center.*

318.05 **A Waypoint on the Road to EtaEarth: Improving the Sensitivity of Kepler's Science Pipeline**
Jon Michael Jenkins[1]
[1]*SETI Institute/NASA Ames Research Center.*

318.06 **The Kepler Completeness Study: Implications for Small Planets**
Jessie Christiansen[1], C. J. Burke[1], B. D. Clarke[1], Kepler Completeness Study Working Group
[1]*NASA Ames Research Center/SETI Institute.*

318.07 **Eliminating False-Positives in the Kepler Planet Catalog**
Steve Bryson[1]
[1]*NASA Ames Research Center.*

319 Novae, Pulsars, Neutron Stars, and GRBs

Tuesday, 2:00 pm - 3:30 pm, Ballroom C, Dena'ina Center

319.00C **Chair**
David J. Helfand[1]
[1]*Columbia Astrophysics Lab.*

319.01 **O VI Recombination Lines In Ultraviolet And Visible Spectra Of Rr Telescopii**
Peter R. Young[1]
[1]*George Mason University.*

319.02 **Nebular Remnants of Classical Novae Resolved with Keck Adaptive Optics**
Randall Campbell[1], J. Lyke[1], M. Kassis[1]
[1]*W.M. Keck Observatory.*

319.03 **Modeling the Surface Emission and Viewing Geometry of PSR J0821-4300 in Puppis A**
Eric V. Gotthelf[1]
[1]*Columbia Astrophysics Lab.*

319.04 **Imaging Pulsar Polar Caps with Scintillation Statistics**
Michael Johnson[1], C. R. Gwinn[1], P. Demorest[2]
[1]Univ. California, Santa Barbara, [2]National Radio Astronomy Observatory.

319.05 **Resonant Shattering of Neutron Star Crusts**
David Tsang[1], J. S. Read[2], T. Hinderer[3], A. Piro[1]
[1]California Institute of Technlogy, [2]University of Mississippi, [3]University of Maryland.

319.06 **The Intrinsic Nature Of A Luminosity- Time Correlation In The X-ray Afterglows Of Grbs**
Maria Dainotti[1], V. Petrosian[1], J. Singal[1]
[1]Stanford University.

319.07 **Photospheric Emission As The Dominant Radiation Mechanism In Long-Duration Gamma-Ray Bursts**
Brian J. Morsony[1], D. Lazzati[2], M. C. Begelman[3]
[1]University of Wisconsin-Madison, [2]North Carolina State University, [3]University of Colorado, Boulder.

TUE

320 AGN, QSO, Blazars I

Tuesday, 2:00 pm - 3:30 pm, Room 1, Dena'ina Center

320.00C **Chair**
Travis A. Rector[1]
[1]Univ. of Alaska Anchorage.

320.01 **Broad Absorption Line Variability on Multi-Year Timescales: Current Results and SDSS-III Prospects**
W. Niel Brandt[1], N. Filiz Ak[1], P. B. Hall[2], D. P. Schneider[1], BOSS Quasar Working Group
[1]Penn State Univ., [2]York Univ., Canada.

320.02 **The Long-term X-ray Variability Of Broad Absorption Line Quasars**
Cristian Saez[1], N. Brandt[1], S. Gallagher[2], F. Bauer[3], G. Garmire[1]
[1]The Pennsylvania State University, [2]The University of Western Ontario, Canada, [3]Pontificia Universidad Catolica de Chile, Chile.

320.03 **Extreme Velocity Quasar Outflows and the Role of X-Ray Shielding**
Frederick W. Hamann[1], P. Rodriguez Hidalgo[2], G. Chartas[3], S. Joseph[4], J. Charlton[5], M. Eracleous[5]
[1]University of Florida, [2]University of Toronto, Canada, [3]College of Charleston, [4]Ohio University, [5]Pennsylvania State University.

320.04 **Extremely High Velocity Outflows in Quasars**
Paola Rodriguez Hidalgo[1], P. Hall[1], J. Charlton[2], G. Chartas[3], F. Hamann[4], M. Eracleous[2], J. Shields[5]
[1]York University, Canada, [2]Penn State University, [3]College of Charleston, [4]University of Florida, [5]Ohio University.

320.05 **How Much Do X-ray Warm Absorbers, In AGN, Care About The UV Continuum?**
Susmita Chakravorty[1], J. C. Lee[1], G. A. Kriss[2]
[1]Harvard University, [2]Space Telescope Science Institute.

320.06 **The Relationship between Feedback Rates and Supermassive Black Hole Spin Evolution**
Ruth A. Daly[1]
[1]Penn State Univ..

320.07 **Probing the Nature of Low Luminosity AGN via Megamaser Activity**
Anca Constantin[1]
[1]James Madison University.

320.08 **The Radio and Optical Luminosity Evolution of Quasars: AGN Were More Radio Loud In The Past**
Jack Singal[1], V. Petrosian[1]
[1]KIPAC - Stanford.

321 Dark Matter, Dark Energy, and Large Scale Structure

Tuesday, 2:00 pm - 3:30 pm, Ballroom B, Dena'ina Center

321.00C **Chair**
Robert Mathieu[1]
[1]Univ. of Wisconsin.

321.01 **Mapping the Dark Matter with 6dFGS**
Jeremy R. Mould[1], C. Magoulas[2], C. Springob[3], M. Colless[3], H. Jones[4], J. Lucey[5], P. Erdogdu[6], L. Campbell[7]
[1]Swinburne University, Australia, [2]Melbourne University, Australia, [3]AAO, Australia, [4]Monash University, Australia, [5]Durham University, United Kingdom, [6]UCL, United Kingdom, [7]WKU.

321.02 **Refined Dark Matter Determinations from Chandra Observations of Quadruply Lensed Quasars**
David A. Pooley[1]
[1]Eureka Scientific.

321.03 **Cmb Bounds On Dark Matter Properties**
Aravind Natarajan[1]
[1]Carnegie Mellon University.

321.04 **The Largest-Scale Structure in the Universe and Consistency with Homogeneity**
Changbom Park[1], J. Kim[1], Y. Choi[2]
[1]Korea Institute for Advanced Study, Korea, Republic of, [2]Kyung Hee University, Korea, Republic of.

321.05 **The Flight Path of Nearby Galaxies**
Edward J. Shaya[1]
[1]Univ. of Maryland.

321.06 **Fundamental Constant Constraints on New Physics and Quintessence Models**
Rodger I. Thompson[1]
[1]Univ. of Arizona.

321.07 **Acceleration of Black Hole Universe**
Tianxi Zhang[1]
[1]Alabama A&M University.

322 Solar Dynamics Observatory II

Tuesday, 2:00 pm - 3:30 pm, Room 5, Dena'ina Center

322.00C **Chair**
Joan T. Schmelz[1]
[1]Univ. of Memphis.

322.01 **Flare Half-Loops: What Are They?**
David Eugene McKenzie[1], S. E. Guidoni[1], D. W. Longcope[1], K. Yoshimura[1]
[1]Montana State Univ..

322.02 **Dynamical Heating In Flares Observed With SDO/AIA & RHESSI**
Iain Hannah[1], L. Fletcher[1], E. P. Kontar[1]
[1]University of Glasgow, United Kingdom.

322.03 **Observation & Modeling of An Erupting Double-Decker Filament**
Rui Liu[1], B. Kliem[2], T. Toeroek[3], C. Liu[4], V. S. Titov[3], R. Lionello[3], J. A. Linker[3], H. Wang[4]
[1]University of Science and Technology of China, China, [2]Institute of Physics and Astronomy, Germany, [3]Predictive Science, Inc., [4]New Jersey Institute of Technology.

322.04 **Impulsively Driven Waves And Flows In Coronal Active Regions**
Leon Ofman[1], T. Wang[1], J. M. Davila[2], W. Liu[3]
[1]Catholic University and NASA's GSFC, [2]NASA's GSFC, [3]Stanford University and Lockheed Martin Solar and Astrophysics Laboratory.

322.05 **SDO / AIA Observations of Slow Mode Waves in Coronal Fan Loops**
Vadim Uritsky[1], J. M. Davila[1], N. M. Viall[2]
[1]CUA at NASA/GSFC, [2]ORAU at NASA/GSFC.

322.06 **A Portrait of the Magnetic Sun: Observation and Modeling at Global and Active Region Scales**
Xudong Sun[1], T. Hoeksema[1], Y. Liu[1], X. Zhao[1], K. Hayashi[1]
[1]Stanford University.

323 Solar Information Processing and Distribution in the Petabyte Era

TUE

Tuesday, 2:00 pm - 3:30 pm, Room 4, Dena'ina Center

The data volumes and rates of SDO and ATST surpass anything previous in solar physics by almost two orders of magnitude. This session will highlight the recent solutions that the solar physics community has devised for the distribution, retrieval, and automated analysis of this deluge of images.

There will be invited presentations on the following subjects:
1) The Virtual Solar Observatory's central role in finding and retrieving on-line solar data, and the distribution of SDO data,

2) The automated feature recognition modules that have been developed by the Feature Finding Team to monitor and analyze the SDO data stream in near-real-time, creating a complete and consistent set of metadata (called catalogs in the past), thereby enabling scientific research projects that were not possible before,

3) The functionality and framework that the Heliophysics Event Knowledgebase (HEK) has created for accessing, sorting, and retrieving solar metadata in a versatile and effective manner will be presented,

4) This will be complemented by a presentation on Helioviewer, a newly developed means of rapidly accessing and viewing solar images on-line based on JPEG2000 and the Google Earth tiling technique,

5) The ATST will come to surpass SDO in data volume, and the planned approaches for the distribution and analysis of these complicated data sets will be presented.
A parallel poster session will feature booths from various groups with hands-on educational demonstrations of the various new information delivery and processing software solutions that have been developed. In addition there will be traditional posters on the subject of this session.

323.00C **Chair**
Frank Hill[1]
[1]National Solar Obs..

323.01 **The Helioviewer Project: Making Petabytes of Images Available to Everyone**
Jack Ireland[1], V. K. Hughitt[1], D. Mueller[2]
[1]ADNET Systems, NASA's GSFC, [2]ESA/ESTEC, Netherlands.

323.02 **Image Recognition and Feature Detection in Solar Physics**
Petrus C. Martens[1]
[1]Montana State University.

323.03 **SDO data distribution and access with VSO**
Alisdair R. Davey[1], Virtual Solar Observatory Team
[1]SAO.

323.04 **Enabling systematic Heliophysics research with the Heliophysics Events Knowledgebase**
Neal E. Hurlburt[1]
[1]*Lockheed Martin Corp..*

323.05 **ATST Data Distribution and Analysis**
Kevin P. Reardon[1]
[1]*National Solar Observatory.*

Invited Session 324 Measuring Cosmic Rays at 1 PeV and Above

Tuesday, 3:40 pm - 4:30, pm Ballroom B, Dena'ina Center

324.00C **Chair**
Nicholas B. Suntzeff[1]
[1]*Texas A&M University.*

324.01 **Measuring Cosmic Rays at 1 PeV and Above**
Katherine Rawlins[1]
[1]*University of Alaska Anchorage.*

Invited Session 325 The Plasma Physics of Cosmic Rays

Tuesday, 4:30 pm - 5:20 pm, Ballroom B, Dena'ina Center

325.00C **Chair**
Edward B. Churchwell[1]
[1]*Univ. of Wisconsin.*

325.01 **The Plasma Physics of Cosmic Rays**
Ellen Gould Zweibel[1]
[1]*Univ. of Wisconsin.*

SOFIA Science Highlights and Cycle 1 Observing

Tuesday, 5:30 pm - 7:30 pm, Ballroom C, Dena'ina Center

The Stratospheric Observatory for Infrared Astronomy (SOFIA) is a 2.5-meter infrared airborne telescope in a Boeing 747SP that operates in the stratosphere at altitudes as high as 45,000 feet (14 km). A joint project of NASA and the German Aerospace Center (DLR), SOFIA can conduct photometric, spectroscopic, and imaging observations at wavelengths from 0.3 micron to 1.6 millimeters with an average atmospheric transmission greater than 80 percent across that range. The 1st-generation instruments span the range from 0.3 to 240 microns.

SOFIA began science observations in December 2010 and carried out 35 flights in the Early Science program that included participation by the first guest investigators using the FORCAST mid-infrared camera (5-40 microns; P.I. Terry Herter, Cornell University) and the GREAT far-infrared heterodyne spectrometer (60-240 microns; P.I. Rolf Guesten, Max Planck Institute for Radio Astronomy). The Cycle 1 observing call for proposals has been solicited and results will be described. Instruments available for Cycle 1 will be: FORCAST, GREAT, FLITECAM (1-5 microns; P.I. Ian McLean, UCLA) and HIPO (0.3-1 microns; P.I. Edward Dunham, Lowell Observatory).

In this splinter session, we will give a mission status update, inform the community about 1st-generation instruments to be commissioned in the coming year, describe the results of the call for 2nd-generation instruments, and present recent science highlights, some of which will be published as special issues of Astrophysical Journal Letters and Astronomy

& Astrophysics in April and May, respectively. The session presentations will also include information about: i) FORCAST data processing and the status of the data archive, ii) capabilities and status of the near-IR camera FLITECAM, iii) science operations, iv) user support including introduction to archival data, and v) the Airborne Astronomy Ambassador E/PO program.

Organizer
Jeonghee Rho[1]
[1]*SOFIA Science Center/USRA.*

326 SPD Members' Meeting

Tuesday, 6:00 pm - 8:00 pm, Room 5, Dena'ina Center

Hear about the activities of the Solar Physics Division and AAS, get the latest news from agency representatives, congratulate the popular writing award winners, and meet your new leaders at the Members' Meeting at 6 p.m. on Tuesday, June 12.

326.00C **Chair**
David Alexander[1]
[1]*Rice University.*

Invited Session 327 Public Talk: The Accelerating Universe

Tuesday, 8:00 pm - 9:00 pm, Ballroom B, Dena'ina Center

327.00C **Chair**
Nicholas B. Suntzeff[1]
[1]*Texas A&M University.*

327.01 **The Accelerating Universe**
Brian P. Schmidt[1]
[1]*RSAA, ANU, Australia.*

Tuesday Posters, 12 June 2012

328 Nearby Stars and Brown Dwarfs

Tuesday, 9:00 am - 6:30 pm, Exhibit Hall, Dena'ina Center

328.01 **Quantification Of Errors In The Hipparcos Catalog**
Gregory S. Hennessy[1], R. Dudik[1], B. Dorland[1], N. Zacharias[1], V. Makarov[1]
[1]U.S. Naval Obs..

328.02 **Energy Conservation And Gravity Waves In Stellar Interior Simulations That Employ Sound-proof Treatments**
Benjamin Brown[1], G. M. Vasil[2], D. Lecoanet[3], E. G. Zweibel[1]
[1]Univ. of Wisconsin - Madison, [2]Candian Institute for Theoretical Astrophysics, Canada, [3]University of California, Berkeley.

328.03 **Simultaneous Photometric and Spectroscopic Observations of Young Solar Analogs**
Jon M. Saken[1], R. O. Gray[2], C. J. Corbally[3]
[1]Marshall University, [2]Appalachian State University, [3]Vatican Observatory Research Group.

328.04 **The Old Feeble Transition Regions and Coronae of Solar-like Dwarf Stars in the Arcturus Moving Group**
Alexander Brown[1], E. J. Hodges-Kluck[2], T. R. Ayres[1], G. M. Harper[3]
[1]Univ. of Colorado, [2]Univ. of Michigan, [3]Trinity College Dublin, Ireland.

328.05 **A Cast of Characters in the Solar Neighborhood**
Todd J. Henry[1], S. B. Dieterich[2], W. Jao[2], A. R. Riedel[2], J. P. Subasavage[3], J. G. Winters[2], RECONS
[1]RECONS, [2]RECONS / Georgia State University, [3]RECONS / USNO.

328.06 **Rotational Modulation, Shear, And Cyclic Activity In HII 2927**
Jackie Milingo[1], S. H. Saar[2], S. L. Lehman[1], L. A. Marschall[1], J. R. Stauffer[3]
[1]Gettysburg College, [2]SAO, [3]Spitzer Science Center.

328.07 **Anchoring dM Star Age-Rotation-Activity Relationships and Assessing Planetary Habitability**
Scott G. Engle[1], E. Guinan[1], A. Marion[1]
[1]Villanova University.

328.08 **An SB1 with a Brown Dwarf Component in a Very-Low Mass Triple System**
Daniella Bardalez Gagliuffi[1], A. J. Burgasser[1], C. Luk[1], L. Prato[2], S. Dhital[3], C. Nicholls[1], A. A. West[4], C. Melis[1], S. Lepine[5]
[1]University of California, San Diego, [2]Lowell Observatory, [3]Vanderbilt University, [4]Boston University, [5]American Museum of Natural History.

328.09 **A USNO Search for Astrometric Companions to Brown Dwarfs II**
Jennifer L. Bartlett[1], F. J. Vrba[1], J. A. Munn[1], C. B. Luginbuhl[1], T. Tilleman[1], A. A. Henden[2]
[1]US Naval Observatory, [2]American Association of Variable Star Observers.

328.10 **The Brown Dwarf Kinematics Project (BDKP): Radial and Rotational Velocities for 50 T dwarfs with FIRE**
Adam J. Burgasser[1], C. Nicholls[1], J. Bochanski[2], J. Faherty[3], A. West[4], R. Simcoe[5]
[1]UC San Diego, [2]Pennsylvania State University, [3]Universidad de Chile, Chile, [4]Boston University, [5]MIT.

328.11 **L Dwarfs in the Catalina Real-time Transient Survey: Beats And Freaks**
Amelia Christensen[1], A. Burgasser[1], A. Drake[2], G. Hallinan[2]
[1]UC San Diego, [2]Caltech.

328.12 **Near-Infrared Variability in L and T Dwarfs: Are Some Spectral Binary Candidates Just "Patchy"?**
Harish G. Khandrika[1], A. J. Burgasser[1], C. Melis[1], E. Bowsher[2], B. Swift[3]
[1]University of California San Diego, [2]Columbia University, [3]University of Arizona.

329 Binary Stellar Systems, X-ray Binaries

Tuesday, 9:00 am - 6:30 pm, Exhibit Hall, Dena'ina Center

329.01 **Observation and Analysis of the Dwarf Solar type Classic Algol Binary V1043 Cassiopeia**
Ronald G. Samec[1], P. M. Smith[1], D. R. Faulkner[2], W. Van Hamme[3]
[1]Astronomy program, Bob Jones Univ., [2]University of South Carolina, [3]Department of Physics, Florida International University.

329.02 **H-alpha/H-beta and Optical Monitoring of High Mass X-ray Binary Systems**
Eric G. Hintz[1], M. D. Joner[1]
[1]Brigham Young Univ.

329.03 **A Search for Gamma-Ray Emission from Variable Galactic Radio Sources**
Chris R. Shrader[1], D. J. Macomb[2]
[1]NASA's GSFC, [2]Boise State University.

329.04 **The Near Contact System EG Cephei**
Ronald J. Angione[1], J. R. Sievers[2]
[1]San Diego State Univ., [2]San Diego Mesa College.

329.05 **A Very Short Period M dwarf Binary from the SDSS Stripe 82**
James R. A. Davenport[1], A. C. Becker[1]
[1]University of Washington.

329.06 **Direct Impact Accretion in Double White Dwarf Binary Systems**
Kyle Kremer[1], J. Sepinsky[2], V. Kalogera[1]
[1]Northwestern University, [2]The University of Scranton.

329.07 **Mapping the Amplitude Distribution of Cepheid Orbits**
Nancy Remage Evans[1], J. Nichols[1], D. Morgan[1], B. Sundheim[1], L. Berdnikov[2], N. Gorynya[2], A. Rastorguev[2], P. Moskalik[3], J. Lauer[1]
[1]SAO, [2]Sternberg Astronomical Institute of the Moscow State University, Russian Federation, [3]Copernicus Institute, Poland.

329.08 **Identifying the X-ray Source Population of our Nearest Starburst.**
Silas Laycock[1], A. Balchunas[1], R. Cappallo[1], K. Oram[1], A. Prestwich[2], B. Williams[3], A. Camero-Arranz[4]
[1]UMass Lowell, [2]Harvard-Smithsonian Center for Astrophysics, [3]University of Washington, [4]USRA.

329.09 **High Mass X-ray Binaries In The Mid-infrared**
Stefanie Wachter[1]
[1]Caltech.

329.10 **A Showcase of Unique Binary Systems Discovered by the Kepler Satellite**
Brian Kirk[1], A. Prsa[2], K. Conroy[2], S. Bloemen[3], A. Shporer[4], T. Barclay[5], K. Hambleton[6], J. Devor[7], K. Kinemuchi[8], B. Fulton[4]
[1]Eastern University, [2]Villanova University, [3]Instituut voor Sterrenkunde, Katholieke Universiteit Leuven, Belgium, [4]Las Cumbres Observatory Global Telescope Network, [5]Armagh Observatory, Ireland, [6]Jeremiah Horrocks Institute, United Kingdom, [7]Harvard-Smithsonian Center for Astrophysics, [8]NASA Ames Research Center.

329.11 **New Photometric Study of the Interacting Binary Star System: Y Piscium**
Bernard J. Yuhas[1], T. Coleman[1], P. A. Reed[1]
[1]Kutztown University.

329.12 **The First CCD Light Curves of BO Monocerotis**
Thomas Coleman[1], B. Yuhas[1], P. A. Reed[1]
[1]Kutztown University.

330 Kepler Mission

Tuesday, 9:00 am - 6:30 pm, Exhibit Hall, Dena'ina Center

330.01 **Keeping Up With The Planets: Scaling Kepler's Data Analysis Pipeline To Handle An Increasingly Complex Volume Of Astronomical Data.**
Todd C. Klaus[1], M. T. Cote[2], F. Girouard[1], S. D. McCauliff[1], C. Henze[2], J. D. Twicken[3], J. Li[3], P. Tenenbaum[3], S. Seader[3], B. D. Clarke[3], E. V. Quintana[3], J. M. Jenkins[3], D. A. Caldwell[3]
[1]Orbital Sciences Corporation, [2]NASA Ames Research Center, [3]SETI Institute.

330.02 **Dynamic Black-Level Correction and Artifact Flagging for Kepler Pixel Time Series**
Bruce Clarke[1], J. J. Kolodziejczak[2], D. A. Caldwell[1]
[1]SETI, [2]NASA Marshall Space Flight Center.

330.03 **Removing the Noise and Systematics while Preserving the Signal - An Empirical Bayesian Approach to Kepler Light Curve Systematic Error Correction**
Jeffrey C. Smith[1], M. C. Stumpe[1], J. Van Cleve[1], J. M. Jenkins[1], T. S. Barclay[2], M. N. Fanelli[2], F. Girouard[3], J. Kolodziejczak[4], S. McCauliff[3], R. L. Morris[1], J. D. Twicken[1]
[1]SETI Institute/NASA Ames Research Center, [2]Bay Area Environmental Research Institute / NASA Ames Research Center, [3]Orbital Sciences Corporation / NASA Ames Research Center, [4]Marshall Space Flight Center.

330.04 **Multiscale Systematic Error Correction via Wavelet-Based Band Splitting and Bayesian Error Modeling in Kepler Light Curves**
Martin C. Stumpe[1], J. C. Smith[1], J. Van Cleve[1], J. M. Jenkins[1], T. S. Barclay[2] M. N. Fanelli[2], F. Girouard[3], J. Kolodziejczak[4], S. McCauliff[3], R. L. Morris[1], J. D. Twicken[1]
[1]SETI Insitute / NASA Ames Research Center, [2]Bay Area Environmental Research Institute / NASA Ames Research Center, [3]Orbital Sciences Corporation / NASA Ames Research Center, [4]Marshall Space Flight Center.

330.05 **The Kepler Pipeline Data Validation Report: Coming Soon to the Exoplanet Archive**
Joseph D. Twicken[1], H. Wu[1], B. Wohler[2], F. Girouard[2], J. Li[1], B. D. Clarke[1], P. Tenenbaum[1], E. V. Quintana[1], T. Klaus[2], M. T. Cote[3], S. McCauliff[2], J. M. Jenkins[1], D. A. Caldwell[1], J. F. Rowe[1], S. T. Bryson[3], C. J. Burke[1]
[1]SETI Institute, [2]Orbital Sciences Corporation, [3]NASA Ames Research Center.

330.06 **Predicting the Potential Planet Yield from Kepler**
Douglas A. Caldwell[1], E. W. Dunham[2], V. S. Argabright[3], W. J. Borucki[4], C. J. Burke[1], J. L. Christiansen[1], R. L. Gilliland[5], J. M. Jenkins[1], J. F. Rowe[1], S. Seader[1], P. Tenenbaum[1], J. Van Cleve[1]
[1]SETI Institute, [2]Lowell Observatory, [3]Ball Aerospace and Technologies Corp, [4]NASA Ames, [5]STScI.

331 Circumstellar Disks

Tuesday, 9:00 am - 6:30 pm, Exhibit Hall, Dena'ina Center

331.01 **Spatially Resolved Millimeter-Wavelength Imaging of Debris Disks**
A. Meredith Hughes[1]
[1]UC Berkeley.

331.02 **Probing for Exoplanets Hiding in Dusty Debris Disks II: Disk Imaging, Characterization, and Exploration with HST/STIS Multi-Roll Coronagraphy - Update**
Glenn Schneider[1], J. Carson[2], J. Debes[3], M. Goto[4], C. Grady[5], T. Henning[4], D. Hines[3], P. Hinz[1], H. Jang-Condell[6], M. Kuchner[7], A. Moro-Martin[8], P. Marshall[3], G. Serabyn[9], M. Silverstone[10], C. Stark[11], M. Tamura[12], A. Weinberger[11], J. Wisniewski[13], B. Woodgate[7]
[1]Univ. of Arizona, [2]College of Charleston, [3]STScI, [4]MPIA, Germany, [5]Eureka Scientific, [6]Univ. Wyoming, [7]NASA/GSFC, [8]CSIC-INTA, Spain, [9]JPL/Caltech, [10]Univ. Alabama, [11]CIW, [12]NOAJ, Japan, [13]U. Washington.

331.03 **Using Gyrochronology to Understand the Evolution of Debris Disks**
Laura Vican[1]
[1]UCLA.

331.04 **Carbon Monoxide Absorption in T Tauri Disks**
Matthew McJunkin[1], K. France[2], E. Burgh[2]
[1]University of Colorado at Boulder, [2]CASA-ARL.

331.05 **Chemical Kinetics of Polycyclic Aromatic Hydrocarbons in Protoplanetary Disks**
Monika Kress[1], T. Tran[1], J. Chiar[2], A. G. G. M. Tielens[3]
[1]San Jose State Univ., [2]SETI Institute, [3]Leiden Observatory, Netherlands.

332 Large Scale Structure, Cosmic Distance Scale

Tuesday, 9:00 am - 6:30 pm, Exhibit Hall, Dena'ina Center

332.01 **Surface Brightness Fluctuation PSF Fitting Techniques with Natural Guide Star Adaptive Optics**
Joseph B. Jensen[1]
[1]Utah Valley University.

332.02 **Calibrating the IR Surface Brightness Fluctuation Distance Scale Using HST WFC3**
Brigham S. French[1], J. B. Jensen[1], J. P. Blakeslee[2]
[1]Utah Valley University, [2]Dominion Astrophysical Observatory, Canada.

332.03 **Characterization Of The Distribution Of The Lyα Emitters In The 53W002 Field At z = 2.4**
Ken Mawatari[1], T. Yamada[1], T. Hayashino[1], Y. Matsuda[2], Y. Nakamura[1]
[1]Tohoku University, Japan, [2]Caltech.

332.04 **The Halo Occupation of SDSS Quasars**
Jonathan Richardson[1], Z. Zheng[2], S. Chatterjee[3], D. Nagai[3], Y. Shen[4]
[1]University of Chicago, [2]University of Utah, [3]Yale University, [4]Harvard-Smithsonian Center for Astrophysics.

332.05 **Arecibo Observatory Hi Survey Of Extragalactic Sources From Glimpse And Mips Data In The Zone Of Avoidance**
Carmen Pantoja[1], M. Lebron[1], A. Noriega-Crespo[2]
[1]Univ. of Puerto Rico, [2]IPAC/Caltech.

332.06 **Measuring the Hubble Flow Hubble Constant with Cepheids in the Coma Cluster**
Michael Gregg[1], K. Cook[2], L. Macri[3], D. Welch[4], P. Stetson[5], J. Mould[6]
[1]University of California, [2]Eureka Scientific, [3]Texas A&M, [4]McMaster U., Canada, [5]Herzberg Institute of Astrophysics, Canada, [6]Swinburne University, Australia.

333 Variable Stars and Star Formation

Tuesday, 9:00 am - 6:30 pm, Exhibit Hall, Dena'ina Center

333.01 **Searching for Variable Stars in Southern Globular Clusters**
Brian W. Murphy[1], A. N. Darragh[1], K. E. Conroy[2], E. W. Johnson[1], Z. J. Liu[1], J. M. Toddy[3]
[1]Butler University, [2]Villanova University, [3]University of Georgia.

333.02 **Ten Years Long Near-infrared Variable Star Survey In The Magellanic Clouds**
Yoshifusa Ita[1]
[1]Tohoku University, Japan.

333.03 **Time-Dependent Behavior of the O'Connell Effect in Eclipsing Binary Star Systems**
Matthew M. Beaky[1], V. Koju[2]
[1]Juniata College, [2]Truman State University.

333.04 **High Precision Cepheid Distances: a 2% Solution for the Calibrating Cepheid SU Cassiopeiae**
David G. Turner[1], D. J. Majaess[1], D. J. Lane[1], D. D. Balam[2], W. P. Gieren[3], J. Storm[4], D. W. Forbes[5], R. J. Havlen[6], B. S. Alessi[7]
[1]Saint Mary's Univ., Canada, [2]Dominion Astrophysical Observatory, Canada, [3]Universidad de Concepcion, Chile, [4]Leibniz-Institut fur Astrophysik Potsdam (AIP), Germany, [5]Sir Wilfred Grenfell College, Canada, [6]307 Big Horn Ridge, NE, [7]Universidade de Sao Paulo, Brazil.

333.05 **On The Pulsation Modes And Masses Of Osarg Variables**
Masaki Takayama[1], H. Saio[1], Y. Ita[1]
[1]Tohoku University, Japan.

333.06 **A Significant Population of Candidate New Members of the Rho Ophiuchi Cluster**
Karl E. Haisch[1], M. Barsony[2], K. A. Marsh[3], C. McCarthy[4]
[1]Utah Valley University, [2]SETI Institute, [3]IPAC, Caltech, [4]San Francisco State University.

333.07 **Recent Star Formation in the Galaxy and Magellanic Clouds**
Guido De Marchi[1], N. Panagia[2], G. Beccari[3], M. Romaniello[3], E. Sabbi[2], L. Spezzi[3]
[1]ESA, Netherlands, [2]STScI, [3]ESO, Germany.

333.08 **Observational Diagnostics of Massive Stellar Evolution**
Remy Indebetouw[1], K. Wood[2], B. A. Whitney[3]
[1]Univ. of Virginia and NRAO, [2]Univ. of St Andrews, United Kingdom, [3]Univ. of Wisconsin.

333.09 **A Systematic Search for Molecule Outflows Toward Candiate Low-Luminosity Protostars**
Kamber R. Schwarz[1], Y. L. Shirley[1], M. M. Dunham[2]
[1]University of Arizona, [2]Yale University.

333.10 **A Complete Spectroscopic Survey of Dense Molecular Gas in Clumps in the Bolocam Galactic Plane Survey with $l \geq 7.5$ deg**
Yancy L. Shirley[1], T. Ellsworth-Bowers[2], S. Mairs[3], E. Rosolowsky[3], A. Ginsburg[2], C. Battersby[2], G. Stringfellow[2], M. Dunham[4], W. Schlingman[1]
[1]Univ. of Arizona, [2]Univ. of Colorado, [3]UBC, Canada, [4]Yale.

333.11 **Formaldehyde Densitometry Of Galactic Star-Forming Regions Using The H2CO 3(12)-3(13) And 4(13)-4(14) Transitions**
Patrick McCauley[1], J. G. Mangum[2], A. Wootten[2]
[1]Smithsonian Astrophysical Observatory, [2]National Radio Astronomy Observatory.

333.12 **Evolution Of Dense Cores In Perseus**
Padraig Cleary[1], H. Arce[1]
[1]Yale University.

333.13 **The ISM Around Natal Clusters in NGC4490**
Kelsey E. Johnson[1], R. Indebetouw[1], D. G. Whelan[1], A. E. Reines[2]
[1]Univ. of Virginia, [2]NRAO.

333.14 **The Impact Of Turbulence On The Physical State Of The Molecular Gas And On Star Formation In Galaxy Interactions: The Case Of Stephan's Quintet**
Pierre Guillard[1], F. Boulanger[2], P. Appleton[3], E. Falgarone[4], A. Gusdorf[4], U. Lisenfeld[5], P. Duc[6]
[1]Caltech, [2]Institut d'astrophysique Spatiale, France, [3]Nasa Herschel Science Center, IPAC, Caltech, [4]ENS, LERMA, France, [5]Instituto de Astrofisica de Andalucia, CSIC, Spain, [6]AIM, CEA, France.

333.15 **The Role of Irradiated and Shocked Cavity Walls on Observations of Protostellar Regions**
Steven D. Doty[1], S. Bruderer[2], L. Kristensen[3], R. Visser[4], E. van Dishoeck[3], C. Crocker[1]
[1]Denison Univ., [2]Max Planck Institute for Extraterrestrial Physics, Germany, [3]Sterrewacht Leiden, Netherlands, [4]University of Michigan.

333.16 **The Effects Of Grain Surface Chemistry In Evolving High-mass Star Forming Regions**
Sandra L. Doty[1], S. Doty[2], R. Visser[3], E. F. van Dishoeck[4]
[1]Ohio University of Lancaster, [2]Denison University, [3]University of Michigan, [4]Sterrewacht Leiden, Netherlands.

333.17 **Beads, Knots, and Gems: The Role of Swallowtails and Caustics in Triggering Star Formation in Interacting Galaxies**
Beverly J. Smith[1], M. L. Giroux[1], C. Struck[2]
[1]East Tennessee State Univ., [2]Iowa State University.

334 Young Stellar Objects, Very Young Stars, T-Tauri Stars, H-H Objects

Tuesday, 9:00 am - 6:30 pm, Exhibit Hall, Dena'ina Center

334.01 **SOFIA Follow-up to Spitzer Observations of the North America Nebula**
David M. Cole[1], L. Rebull[2]
[1]IPAC, [2]Spitzer Science Center.

334.02 **Spectro-astrometry Of H2O And OH In A Protoplanetary Disk**
Logan R. Brown[1], E. L. Gibb[1], M. R. Troutman[1]
[1]University of Missouri - St. Louis.

334.03 **WISE Photometry of Young Stellar Object Candidates in the Canis Major Star-Forming Region**
Deborah Padgett[1], W. Liu[2], L. Rebull[2], D. Leisawitz[1]
[1]NASA/Goddard Space Flight Center, [2]California Institute of Technology.

334.04 **Infrared Variations in NGC 1333**
Luisa M. Rebull[1], YSOVAR team
[1]Caltech.

334.05 **X-rays from Jets in Accreting T Tauri Stars**
Steve L. Skinner[1], M. Guedel[2], A. Liebhart[2], M. Audard[3], K. Briggs[2]
[1]Univ. Of Colorado, [2]Univ. of Vienna, Austria, [3]Univ. of Geneva, Switzerland.

334.06 **Searching for Prebiotically Important Molecules in Protoplanetary Disks**
Erika L. Gibb[1], L. R. Brown[1], E. Sudholt[1]
[1]Univ. of Missouri - St. Louis.

335 AGN, QSO, Blazars

Tuesday, 9:00 am - 6:30 pm, Exhibit Hall, Dena'ina Center

335.01 **Polarimetry as a Probe of the Physical Conditions in the Gamma-ray-flaring Blazar PKS 1510-089**
Margo F. Aller[1], H. D. Aller[1], P. A. Hughes[1], A. P. Marscher[2], S. G. Jorstad[2], T. Hovatta[3], P. S. Smith[4]
[1]Univ. of Michigan, [2]Boston University, [3]California Institute of Technology, [4]University of Arizona.

335.02 **The Stellar Environments of Supermassive Black Holes in Nearby Seyfert 2 Galaxies**
Alexandra Truebenbach[1], E. C. Moran[1]
[1]Wesleyan University.

335.03 **Characterizing the Iron Kalpha Line Equivalent Width in Heavily Obscured AGN**
Laura Trouille[1], R. Hickox[2], D. Alexander[3]
[1]Northwestern University CIERA Postdoctoral Fellow, [2]Dartmouth College, [3]Durham University, United Kingdom.

335.04 **Where The Active Galaxies Live: A Panchromatic View Of AGN In The Akari-NEP Field**
Marios Karouzos[1], M. Im[1], T. Takagi[2], H. Shim[3], J. Ko[4], H. Matsuhara[2], R. Braun[5], G. White[6], S. Serjeant[6]
[1]CEOU-Seoul National University, Korea, Republic of, [2]ISAS-Japanese Aerospace Exploration Agency, Japan, [3]Kyung-Pook National University, Korea, Republic of, [4]Yonsei University, Korea, Republic of, [5]CSIRO-Astronomy and Space Science, Australia, [6]The Open University, United Kingdom.

335.05 **Results of a Survey of X-ray Emission From 100 kpc Radio Jets**
Daniel A. Schwartz[1]
[1]Harvard-Smithsonian, CfA.

335.06 **Correlation Between Galaxy Mergers and AGN Activity**
Jueun Hong[1]
[1]Seoul National University, Korea, Republic of.

335.07 **Gamma-ray Bright Narrow Line Seyfert 1s: Their Host Galaxies and Origin**
Timothy S. Hamilton[1], L. Foschini[2]
[1]Shawnee State Univ., [2]National Institute for Astrophysics—Astronomical Observatory of Brera, Italy.

335.08 **Herschel Observations Of A Very Hard X-ray Selected Sample Of Agn In The Local Universe**
Marcio Melendez[1], R. Mushotzky[1], A. Barger[2], L. Cowie[3], W. Baumgartner[4], M. Koss[3]
[1]University of Maryland, [2]University of Wisconsin, [3]University of Hawaii, [4]NASA/Goddard.

335.09 **Characterizing Quasar Outflows I: Sample, Spectral Measurements**
Rajib Ganguly[1], D. H. Christenson[1], J. M. Richmond[1], J. A. Derseweh[1], J. M. Robbins[1], S. L. Townsend[1], M. A. Stark[1]
[1]Univ. of Michigan-Flint.

335.10 **Characterizing Quasar Outflows II: The Incidence of the Highest Velocity Outflows**
Michele A. Stark[1], R. Ganguly[1], D. H. Christenson[1], J. M. Richmond[1], J. A. Derseweh[1], J. M. Robbins[1], S. L. Townsend[1]
[1]University of Michigan - Flint.

335.11 **Characterizing Quasar Outflows III: SEDs, and Bolometric Luminosity Estimates**
Joseph Richmond[1], J. M. Robbins[1], R. Ganguly[1], M. A. Stark[1], D. H. Christenson[1], J. A. Derseweh[1], S. L. Townsend[1]
[1]University of Michigan - Flint.

335.12 Characterizing Quasar Outflows IV: Regulating Outflows Through X-ray and EUV Absorption
Jeffrey Derseweh[1], R. Ganguly[2], J. M. Richmond[2], M. A. Stark[2], D. H. Christenson[2], J. M. Robbins[2], S. L. Townsend[2]
[1]UMFlint, [2]University of Michigan - Flint.

335.13 Quasar Spectral Energy Distributions As A Function Of Physical Property
Shonda Townsend[1], R. Ganguly[1], M. A. Stark[1], J. A. Derseweh[1], J. M. Richmond[1]
[1]University of Michigan - Flint.

335.14 VLA/EVLA Monitoring of Planck Sources
Noah Kurinsky[1], A. Sajina[1], B. Partridge[2], S. Myers[3]
[1]Tufts University, [2]Haverford College, [3]National Radio Astronomy Observatory.

335.15 The Energetics of Quasar Broad Absorption Line Outflows
Daniel M. Capellupo[1], F. Hamann[1], K. Leighly[2], D. Terndrup[3], M. Dietrich[3], S. Gallagher[4], J. C. Shields[5]
[1]University of Florida, [2]Univ. of Oklahoma, [3]Ohio State Univ, [4]Univ of Western Ontario, Canada, [5]Ohio University.

335.16 EVLA Observations of FR II Radio Sources with Candidate Relativistic Hotspots
Alexander M. Chartrand[1], B. P. Miller[2], W. N. Brandt[3], M. P. Gawronski[4], S. E. Cederbloom[5]
[1]Bryn Mawr College, [2]University of Michigan, [3]Pennsylvania State University, [4]Nicolaus Copernicus University, Poland, [5]University of Mount Union.

335.17 The Unique Diagnostic Infrared Colors of Blazars: The WISE Blazar Strip
Howard Alan Smith[1], F. Massaro[2], R. D'Abrusco[1], M. Ajello[2], D. Gasparrini[3], J. E. Grindlay[1]
[1]Harvard-Smithsonian, CfA, [2]SLAC National Laboratory and Kavli Institute for Particle Astrophysics and Cosmology, [3]ASI Science Data Center, ESRIN, Italy.

335.18 Magnetic Domination of Recollimation Boundary Layers in Relativistic Jets
Susanna Kohler[1], M. C. Begelman[1]
[1]JILA, University of Colorado and NIST.

335.19 Monte Carlo Simulations of the Clumpy Torus: Implications for X-ray and Optical Obscuration
Karen T. Lewis[1], K. Ramic[1]
[1]College of Wooster.

335.20 A Decade of Circular Polarization Measurements at Centimeter Wavelengths
Hugh D. Aller[1], M. F. Aller[1]
[1]Univ. of Michigan.

335.21 Evolution of Quasar Spectral Energy Distributions
Amanda Schilling[1], J. Kennefick[1], A. Mahmood[1]
[1]University of Arkansas, Fayetteville.

335.22 BVRI Observations Of Fermi-detected Blazars
Daryl J. Macomb[1], J. P. Norris[1]
[1]Boise State Univ..

335.23 Optical And Near-infrared Variability Among Distant Galactic Nuclei Of The CANDELS COSMOS Field
Norman A. Grogin[1], A. Rajan[1], J. L. Donley[1], J. S. Kartaltepe[2], A. M. Koekemoer[1], R. A. Lucas[1], D. J. Rosario[3], M. Salvato[3]
[1]Space Telescope Science Institute, [2]National Optical Astronomy Observatory, [3]Max Planck Institute for Extraterrestrial Physics, Germany.

335.24 **Galaxy Zoo: Testing the Relationship between AGN Identification and Host Galaxy Inclination**
Stephanie M. LaMassa[1], K. Schawinski[1], J. Parejko[1], C. Urry[1], K. Masters[2], W. Keel[3], C. Lintott[4]
[1]Yale University, [2]University of Portsmouth, United Kingdom, [3]University of Alabama, [4]Oxford University, United Kingdom.

336 Evolution of Galaxies

Tuesday, 9:00 am - 6:30 pm, Exhibit Hall, Dena'ina Center

336.01 **Tensor Smoothed Particle Hydrodynamics**
Brandt Gaches[1]
[1]University of Arizona.

336.02 **Galactic Disks in Triaxial Dark-Matter Halos and the Bulge-Halo Connection**
Clayton H. Heller[1], H. Seddiqi[1]
[1]Georgia Southern Univ..

336.03 **The Fine Structure in the Low Column Density HI Bridge between M31 and M33**
Spencer Wolfe[1], D. Pisano[1], F. J. Lockman[2], S. McGaugh[3], E. Shaya[3]
[1]West Virginia University, [2]NRAO, [3]University of Maryland.

336.04 **The Zurich Environmental Study (ZENS): Galaxy Evolution in Groups in the Nearby Universe**
Craig Rudick[1], M. Carollo[1], A. Cibinel[1], A. Pipino[1], T. Lu[1], E. Cameron[1], S. Lilly[1], Y. Peng[1], F. Miniati[1], S. Bonoli[2], J. Silverman[3], J. van Gorkum[4]
[1]ETH Zurich, Switzerland, [2]MPA, Germany, [3]IPMU, Japan, [4]Columbia.

336.05 **Investigating Massive Outflow from Radio Loud AGN**
Hsin-Yi Shih[1]
[1]University of Hawaii.

336.06 **The Emission Line Objects At 0<z<1.7 As Seen By PEARS**
Norbert Pirzkal[1], S. Malhotra[2], J. J. E. Rhoads[2], C. Ly[1], B. Rothberg[3], T. Dahlen[1]
[1]STScI, [2]ASU, [3]George Mason.

336.07 **The Mass-Metallicity Relation of Emission Line Selected Galaxies from HST Slitless Spectroscopy**
James E. Rhoads[1], L. Xia[1], S. Malhotra[1], N. Pirzkal[2], A. Straughn[3], S. Finkelstein[4], S. Cohen[1], H. Kuntschner[5], M. Kuemmel[5], J. Walsh[5], R. A. Windhorst[1], R. O'Connell[6]
[1]Arizona State Univ., [2]Space Telescope Science Institute, [3]NASA GSFC, [4]University of Texas, [5]European Southern Observatory, Germany, [6]University of Virginia.

336.08 **Searching for the Progenitors of High-redshift Compact Elliptical Galaxies**
Christina Williams[1], M. Giavalisco[1], P. Cassata[2], Y. Guo[1]
[1]University of Massachusetts, Amherst, [2]Laboratoire d'Astrophysique de Marseille, France.

Wednesday, 13 June 2012

Invited Session 400 SPD Parker Lecture: How to Observe (Rather Than Model) The Interiors of Stars

Wednesday, 8:30 am - 9:20 am, Ballroom B, Dena'ina Center

400.00C **Chair**
Shadia R. Habbal[1]
[1]Univ. of Hawaii at Mano.

400.01 **How to Observe (Rather Than Model) The Interiors of Stars**
Yvonne Elsworth[1]
[1]University of Birmingham, United Kingdom.

401 Bridging Laboratory and Astrophysics: Plasmas

Wednesday, 10:00 am - 11:30 am, Summit Hall 1, Egan Center

Laboratory astrophysics is the Rosetta Stone that enables astronomers to understand and interpret the cosmos. This session will focus on the interplay between astrophysics with theoretical and experimental studies into the underlying plasma processes which drive our cosmos.

401.00C **Chair**
R. Paul Drake[1]
[1]Univ. of Michigan.

401.01 **What is a Jet? Experimental, Observational and Theoretical Studies of Astrophysical Outflows**
Adam Frank[1]
[1]Univ. of Rochester.

401.02 **Magnetic Reconnection in Solar, Space, and Laboratory Plasmas**
Nicholas Arnold Murphy[1]
[1]Harvard-Smithsonian Center for Astrophysics.

401.03 **Study of Angular Momentum Transport in Laboratory Flows Relevant to Accretion Disks**
Hantao Ji[1]
[1]Princeton Plasma Physics Laboratory.

402 Wide-Field IR Space Telescope Science: Exoplanet Science

Wednesday, 10:00 am - 11:30 am, Summit Hall 3, Egan Center

The Astro2010 Decadal Survey gave its highest recommendation in the large-scale space mission category to WFIRST, a Wide-Field Infrared Survey Telescope with both imaging and spectroscopy capabilities. The science made possible by such a facility reaches across many disciplines from dark energy to exoplanets to deep surveys. The exoplanet studies will be done using the microlensing technique. Observing campaigns will be made of regions in the galactic bulge with dense star fields. Exoplanets will be found by microlensing amplifications of planetary systems and isolated free-floating planets. The exoplanet science aspects of WFIRST will be discussed in this session.

402.00C **Chair**
B. Scott Gaudi[1]
[1]Ohio State Univ..

402.01 **Space Microlensing Exoplanet Survey with WFIRST**
Takahiro Sumi[1]
[1]*Osaka University, Japan.*

402.02 **WFIRST Planetary Microlensing Capabilities and Hardware Accommodations**
Edward S. Cheng[1]
[1]*Conceptual Analytics.*

402.03 **Detection and Mass Determination for the Host Stars of Exoplanets Found by WFIRST**
David P. Bennett[1]
[1]*Univ. of Notre Dame.*

403 Galaxy Mergers from the Largest to the Smallest Scales: Dual and Binary AGN

Wednesday, 10:00 am - 11:30 am, Room 2, Dena'ina Center

Gas-rich galaxy mergers likely represent the phase in evolution during which major, rapid SMBH growth occurs. If accretion activity is triggered on both SMBHs, we observe dual AGN (wide pairs) and binary AGN (advanced stage of merging). These systems allow us to study accretion activity in the course of merging. In particular, this stage of evolution sets the conditions which later determine both the electromagnetic signals of SMBH binaries upon coalescence, and the magnitude of gravitational-wave induced recoil. After a decade-long search for dual AGN, the last ~2 years have seen many new discoveries, and this session summarizes these observations in the radio, optical, and X-ray bands.

403.00C **Chair**
Jimmy Irwin[1]
[1]*Univ. Of Alabama.*

403.01 **Dual and Binary AGN**
Stefanie Komossa[1]
[1]*Max-Planck-Institut fuer Radioastronomie.*

403.02 **Resolving AGN in Close Pairs with Chandra Imaging Spectroscopic Observations**
Junfeng Wang[1]
[1]*Harvard-Smithsonian CfA/SAO.*

403.03 **Exploring Dual and Binary AGN via Radio Emission**
Sarah Burke Spolaor[1], J. Lazio[1]
[1]*Jet Propulsion Laboratory.*

403.04 **Multiwavelength Observations of Dual AGN**
Julia M. Comerford[1]
[1]*The University of Texas.*

404 Lyman Alpha Emitters as Probes of Galaxy Formation and Cosmology: Observed Properties

Wednesday, 10:00 am - 11:30 am, Summit Hall 2, Egan Center

Three 20+5 minute talks will be given summarizing observational knowledge of Lyman Alpha Emitting galaxies. Lyman Alpha Emitting galaxies represent galaxies in the early stages of bursts of star formation, and some may be primeval galaxies undergoing intitial starbursts. They have the lowest bolometric luminosity of any high-redshift population. Their correspondingly low dark matter halo masses imply that many are progenitors of typical present- day galaxies like the Milky Way. The session will conclude with a 15-minute moderated discussion of outstanding questions and how to resolve them.

404.00C **Chair**
C. Gronwall[1]
[1]*Penn State Univ..*

404.01 **The Observed Properties of Lyman Alpha Emitting Galaxies from Redshift z = 0 to 7**
Esther M. Hu[1]
[1]*Univ. of Hawaii, Institute for Astronomy.*

404.02 **The Physical Nature of Lyman-alpha galaxies**
Sangeeta Malhotra[1]
[1]*Arizona State Univ..*

404.03 **Using Lyman Alpha Galaxies as Tracers of the High-Redshift Universe**
Steven L. Finkelstein[1]
[1]*University of Texas.*

405 Einstein vs Schwinger: Who is Right about Gravity? I

Wednesday, 10:00 am - 11:30 am, Summit Hall 4, Egan Center

For some time General Relativity, the Standard Model of Cosmology, and the Standard Model of Particle Physics have been mutually supportive. Particle physicists have always known that their model is incomplete; something else is needed – perhaps the Higgs Boson and related supersymmetric particles. Early results from the Large Hadron Collider have not yet supported physics beyond the Standard Model. A hoped-for candidate for dark matter, the lightest supersymmetric particle is still missing.

The standard model of cosmology relies on Einstein, and specific values for five parameters. Yet there is a competitor to Einstein. Julian Schwinger did not like the warping of space and time. Schwinger's Source theory is a modern one that uses the general requirements of a tensor source to explain first and second- order relativistic effects, even including the precession of the perihelion of Mercury or the precession of the gyroscopes in the Gravity Probe B experiment. According to general relativity the geodetic effect in this experiment comes from the gravitational analogue of spin-orbit coupling (1/3) and from the curvature of space (2/3). Schwinger reached the same conclusion. He predicted that 4/3 rds of the geodetic effect is spin-orbit and minus 1/3 rd is Thomas Precession.

This difference is academic, but a genuine difference appears in the extensions of Einstein's and Schwinger's theories. In 1917 Einstein extended his real theory with the cosmological constant. In contrast, the extension of Schwinger's complex theory leads naturally to a massive graviton (Newton's potential becomes the Yukawa potential) or even a graviton of imaginary mass (Newton's potential becomes the cosinusoidal potential). This session will explore evidence for lambda-CDM cosmology and for an alternative, the Cosinusoidal Potential, V=-GMCos[koR]/R.

405.00C **Chair**
Nicholas B. Suntzeff[1]
[1]*Texas A&M University.*

405.01 **Gravity Before Einstein and Schwinger Before Gravity**
Virginia L. Trimble[1]
[1]*UC, Irvine.*

405.02 **The Discovery of Maxwell's Equations**
C.w. Francis Everitt[1]
[1]*Stanford University.*

405.03 **A Massive Photon and a Graviton of the same, but Imaginary Mass?**
David F. Bartlett[1], J. P. Cumulat[1]
[1]*Univ. of Colorado.*

406 Astrophysics with Kepler - Binary Stars

Wednesday, 10:00 am - 11:30 am, Ballroom C, Dena'ina Center

Kepler's precision and time coverage offer a unique opportunity for astrophysical studies of stars, from detailed analyses of individual sources, to ensemble studies at unprecedented precision. Kepler's Guest Observer program and the Kepler Asteroseismic Science Consortium offer opportunities for observers to both select targets and to collaborate on results from existing targets. Talks in the two sessions will cover asteroseismic results from stars across the HR diagram, Red Giant Oscillations, eclipsing and interacting binary stars, stellar activity and rotation, variable stars, results from non-stellar sources, and extragalactic sources.

406.00C **Chair**
Sarbani Basu[1]
[1]Yale Univ..

406.01 **Eclipsing Binaries with the Kepler Mission**
Andrej Prsa[1], Kepler Eclipsing Binary Working Group
[1]Villanova University.

406.02 **A Catalog of Eclipse Times for Kepler Eclipsing Binaries**
Jerome A. Orosz[1]
[1]San Diego State Univ..

406.03 **Eclipse Timing Variations of Short-Period Binaries in the Kepler Field**
Kyle E. Conroy[1], A. Prsa[1], J. Orosz[2], W. Welsh[2], Kepler team
[1]Villanova University, [2]San Diego State University.

406.04 **Spot Migration and Pulsation in the Interacting Binary WX Draconis**
Geraldine J. Peters[1], R. E. Wilson[2]
[1]Univ. of Southern California, [2]Univ. of Florida.

406.05 **Kepler and Red Giants in the Old Open Cluster NGC 6791**
Ruth Peterson[1]
[1]Astrophysical Advances.

407 Evolved Stars and Supernova Remnants

Wednesday, 10:00 am - 11:30 am, Room 1, Dena'ina Center

407.00C **Chair**
Peter R. Young[1]
[1]George Mason University.

407.01 **Binary Effects in Mass Flow Variations in AGB Envelopes**
Hyosun Kim[1], R. E. Taam[1]
[1]ASIAA, Taiwan.

407.02 **The Cooling and Pulsation of the White Dwarf in GW Lib after its 2007 Outburst**
Paula Szkody[1], A. S. Mukadam[1], B. T. Gaensicke[2], A. Henden[3], E. M. Sion[4], D. Townsley[5], P. Chote[6], E. J. Harpe[7], J. J. Hermes[8], D. J. Sullivan[9], D. E. Winget[8]
[1]Univ. of Washington, [2]University of Warwick, United Kingdom, [3]AAVSO, [4]Villanova University, [5]University. of Alabama, [6]Victoria University, New Zealand, [7]Heritage High School, [8]Univ. of Texas, [9]Univ. of Victoria, New Zealand.

407.03 **Time-resolved Spectroscopy and Multi-color Photometry Of The Pulsating and Short-period Binary Subdwarf B Star Feige 48**
Mike Reed[1], A. Baran[1], S. O'Toole[2]
[1]Missouri State Univ., [2]Australian Astronomical Observatory, Australia.

407.04 **New Radio Continuum, Hi, And X-ray Observations Of The Old Supernova Remnant Ctb80**
Denis A. Leahy[1]
[1]*Univ. of Calgary, Canada.*

407.05 **A Broadband Study of the Emission from the Composite Supernova Remnant MSH 11-62**
Patrick O. Slane[1], J. P. Hughes[2], T. Temim[3], R. Rousseau[4], D. Castro[5], D. Foight[1], B. M. Gaensler[6], S. Funk[7], M. Lemoine-Goumard[4], J. D. Gelfand[8], D. A. Moffett[9], R. G. Dodson[10], J. P. Bernstein[11]
[1]*Harvard-Smithsonian, CfA,* [2]*Rutgers University,* [3]*NASA/GSFC,* [4]*Universite de Bordeaux, France,* [5]*MIT,* [6]*University of Sydney, Australia,* [7]*SLAC,* [8]*NYU Abu Dhabi, United Arab Emirates,* [9]*Furman University,* [10]*University of Western Australia, Australia,* [11]*Argonne National Laboratory.*

407.06 **On The Expansion Rate, Age, Distance, And Gamma-ray Emission Mechanism Of The Supernova Remnant G266.2-1.2**
Glenn E. Allen[1], T. DeLaney[2], M. D. Filipovic[3], J. C. Houck[1], T. G. Pannuti[4], M. D. Stage[5]
[1]*MIT,* [2]*West Virginia Wesleyan College,* [3]*University of Western Sydney, Australia,* [4]*Morehead State University,* [5]*Mount Holyoke College.*

407.07 **The Collapse Of A Massive Star: Observing SNR G296.1-0.5 With Magellan**
Daniel Castro[1], E. Helder[2], J. Raymond[3], P. Slane[3], S. Trowbridge[1]
[1]*MIT Kavli Institute,* [2]*Pennsylvania State University,* [3]*Harvard-Smithsonian Center for Astrophysics.*

407.08 **Flares in the Crab Nebula Driven by Untwisting Magnetic Fields**
Peter A. Sturrock[1], M. J. Aschwanden[2]
[1]*Stanford Univ.,* [2]*Lockheed Martin AdvancedTechnology Center.*

407.09 **On Theoretical Models For Magnetic Field Amplification At Shocks**
Federico Fraschetti[1]
[1]*University of Arizona.*

408 AGN, QSO, Blazars II

Wednesday, 10:00 am - 11:30 am, Ballroom B, Dena'ina Center

408.00C **Chair**
C. Megan Urry[1]
[1]*Yale Univ..*

408.01 **The (Super Massive Black Hole)-(Host Bulge) Mass Relation**
Alister Graham[1]
[1]*Swinburne Univ., Australia.*

408.02 **Do Agn And Non-agn Galaxies Follow The Same M-sigma Relation?**
Jong-Hak Woo[1], D. Park[1], W. Kang[1]
[1]*Seoul National University, Korea, Republic of.*

408.03 **HST WFC3/IR Observations of Active Galactic Nucleus Host Galaxies at z ~ 2: Supermassive Black Holes Grow in Disk Galaxies**
Kevin Schawinski[1], E. Treister[2], C. Urry[1], C. Cardamone[3], B. Simmons[1], S. Yi[4]
[1]*Yale University,* [2]*Universidad de Concepcion, Chile,* [3]*Brown University,* [4]*Yonsei University, Korea, Republic of.*

408.04 **Probing Black Hole-Host Galaxy Relations Using Dust Reddened QSOs**
Gabriela Canalizo[1], M. Wold[2], K. D. Hiner[1], M. Lazarova[1], M. Lacy[3], K. Aylor[1]
[1]*Univ. of California, Riverside,* [2]*Dark Cosmology Centre, Univ, of Copenhagen, Denmark,* [3]*North American ALMA Science Center, NRAO.*

408.05 **What triggers AGN? Results from Host Galaxy Studies**
Carolin Villforth[1], F. Hamann[1], A. Koekemoer[2]
[1]University of Florida, [2]Space Telescope Science Institute.

408.06 **Investigating the Gas Kinematics of High-Redshift Active Galactic Nuclei with Double-Peaked Narrow Emission Lines**
Robert S. Barrows[1], D. Stern[2], C. H. S. Lacy[1], J. Kennefick[1], D. Kennefick[1], M. Seigar[1]
[1]University of Arkansas, [2]JPL/Caltech.

408.07 **Constraining The Abundance Of Massive Black Hole Binaries By Spectroscopic Monitoring Of Quasars With Offset Broad Emission Lines**
Xin Liu[1], Y. Shen[2]
[1]Harvard College Observatory, [2]Smithsonian Astrophysical Observatory.

409 Evolution of Galaxies I

Wednesday, 10:00 am - 11:30 am, Room 3, Dena'ina Center

409.00C **Chair**
Felix J. Lockman[1]
[1]NRAO.

409.01 **Hydride Molecules in the Local Universe and Beyond**
Raquel Monje[1]
[1]Caltech.

409.02 **NGC4342, An Optically Faint But X-ray Gas-Rich Early-type Galaxy**
Akos Bogdan[1], W. R. Forman[1], I. Zhuravleva[2], C. Mihos[3], R. P. Kraft[1], P. Harding[3], Q. Guo[4], E. Churazov[2], A. Vikhlinin[1], P. E. J. Nulsen[1], S. Schindler[5], C. Jones[1]
[1]Smithsonian Astrophysical Observatory, [2]Max-Planck-Institut fur Astrophysik, Germany, [3]Department of Astronomy, Case Western Reserve University, [4]Partner Group of the Max Planck Institute for Astrophysics, National Astronomical Observatories, Chinese Academy of Sciences, China, [5]Institut fur Astro- und Teilchenphysik, Universitat Innsbruck, Austria.

409.03 **HI Absorption in Merger Remnants**
Stacy H. Teng[1], S. Veilleux[2], A. J. Baker[3]
[1]NASA/GSFC, [2]UMD, [3]Rutgers.

409.04 **The Role of Bars in Shaping Disk Breaks as Probed by S4G**
Juan Carlos Munoz-Mateos[1], S4G Team
[1]National Radio Astronomy Observatory.

409.05 **A Plausible Explanation for the Steep Redshift Decline in Barred Spirals: Dynamically Hot Disks**
Kartik Sheth[1], J. Melbourne[2], S. Kassin[3], D. M. Elmegreen[4], B. G. Elmegreen[5], E. Athanassoula[6], R. G. Abraham[7], R. S. Ellis[2], B. Weiner[8]
[1]NRAO / ALMA, [2]Caltech, [3]NASA/GSFC, [4]Vassar College, [5]IBM T.J. Watson Center, [6]LAM / OAMP, France, [7]University of Toronto, Canada, [8]University of Arizona.

409.06 **The Rotation Measure Distribution of Radio Galaxies**
Timothy Robishaw[1], A. Hammond[2], B. Gaensler[2]
[1]Dominion Radio Astrophysical Observatory, Canada, [2]The University of Sydney, Australia.

409.07 **Hubble Infrared Pure Parallel Imaging Extragalactic Survey (HIPPIES)**
Haojing Yan[1]
[1]University of Missouri - Columbia.

410 Solar Energetic Events I

Wednesday, 10:00 am - 11:30 am, Room 4, Dena'ina Center

410.00C **Chair**
Robert P. Lin[1]
[1]UC, Berkeley.

410.01 **Understanding Solar Flares**
Spiro K. Antiochos[1], J. T. Karpen[1], C. R. DeVore[2]
[1]NASA GSFC, [2]NRL.

410.02 **Global Energetics of Large Solar Eruptive Events**
Brian R. Dennis[1], A. G. Emslie[2], P. C. Chamberlin[1], R. A. Mewaldt[3], C. S. Moore[4], G. H. Share[5], A. Y. Shih[1], A. Vourlidas[6], B. Welsch[7]
[1]NASA's GSFC, [2]Department of Physics and Astronomy, Western Kentucky University, [3]California Institute of Technology, [4]Center for Astrophysics and Space Astronomy, University of Colorado, [5]Department of Astronomy, University of Maryland, [6]Code 7663, Naval Research Laboratory, [7]Space Sciences Laboratory, University of California.

410.03 **The Focusing Optics X-ray Solar Imager (FOXSI)**
Steven Christe[1], S. Krucker[2], L. Glesener[2], S. Ishikawa[2], B. Ramsey[3], T. Takahashi[4], R. Lin[2]
[1]NASA GSFC, [2]Space Sciences Lab, UC Berkeley, [3]NASA MSFC, [4]Department of Physics, University of Tokyo, Japan.

410.04 **Measurements of the Super-Hot Flare Component Using the Fe XXV and Fe XXVI Lines Near 1.8 Å**
George A. Doschek[1]
[1]NRL.

410.05 **Why an Advanced UV/EUV Imaging Spectrometer is needed to Study Energy Release in Solar Eruptive Events**
Gordon Dean Holman[1]
[1]NASA's GSFC.

410.06 **UV Spectroscopy of Coronal Mass Ejections**
John C. Raymond[1], N. A. Murphy[1], A. Ciaravella[2]
[1]Harvard-Smithsonian, CfA, [2]INAF-Osservatorio Astronomico di Palermo, Italy.

411 Coronal B Fields II

Wednesday, 10:00 am - 11:30 am, Room 5, Dena'ina Center

411.00C **Chair**
Paulett C. Liewer[1]
[1]JPL.

411.01 **Are Polar Field Magnetic Flux Concentrations Responsible for Missing Interplanetary Flux?**
Jon A. Linker[1], C. Downs[1], Z. Mikic[1], P. Riley[1], C. J. Henney[2], C. N. Arge[2]
[1]Predictive Science Inc, [2]Air Force Research Laboratory.

411.02 **Evolution of Coronal Relative Magnetic Helicity and Current Helicity in NOAA Active Region 11158**
Ju Jing[1], S. Park[2], C. Liu[1], T. Wiegelmann[3], Y. Xu[1], N. Deng[1], H. Wang[1]
[1]New Jersey Institute of Technology, [2]Korea Astronomy and Space Science Institute, Korea, Republic of, [3]Max Planck Institut f\"ur Sonnensystemforschung (MPS), Germany.

411.03 **Force-Free Magneto-Stereoscopy of Coronal Loops**
Markus J. Aschwanden[1], A. Malanushenko[1], J. Wuelser[1], N. Nitta[1], J. R. Lemen[1], M. DeRosa[1]
[1]Lockheed Martin ATC.

411.04 **Topology of Coronal Fields from Evolving Magnetofrictional Models**
Marc L. DeRosa[1], M. Cheung[1]
[1]Lockheed Martin.

411.05 **The Effect of Flux Cancellation on Building Sigmoidal Flux Ropes**
Antonia Savcheva[1], L. Green[2], A. van Ballegooijen[3], E. DeLuca[3]
[1]Boston Univ., [2]Mullard Space Science Laboratory, University College London, United Kingdom, [3]Harvard-Smithsonian Center for Astrophysics.

411.06 **Full Surface Automated Coronal Hole Detection and Characterization to Constrain Global Magnetic Field Models**
Chris Lowder[1], J. Qiu[1], R. Leamon[1], Y. Liu[2]
[1]Montana State University, [2]Stanford University.

WED

Invited Session 412 Warner Prize: Bubble, Bubble, Toil, And Trouble: A Theorist's Romp Through The Cosmic Dawn

Wednesday, 11:40 am - 12:30 pm, Ballroom B, Dena'ina Center

412.00C **Chair**
Debra M. Elmegreen[1]
[1]Vassar College.

Helen B. Warner Prize
For his theoretical work in the field of high-redshift cosmology, including groundbreaking work on the epoch of reionization and its observational signatures, opening up new pathways to the study of reionization in the redshifted 21 cm hydrogen line.

412.01 **Bubble, Bubble, Toil, And Trouble: A Theorist's Romp Through The Cosmic Dawn**
Steven R. Furlanetto[1]
[1]UCLA.

413 WGLE Town Hall

Wednesday, 12:45 pm - 1:45 pm, Ballroom C, Dena'ina Center

The Working Group on LGBTIQ Equality (WGLE) is tasked with promoting equality for lesbian, gay, bisexual, transgender, intersex, and questioning (LGBTIQ) individuals within our profession. Its goals include the elimination of workplace discrimination and inequalities in pay and benefits. This town hall will explore the anti-discrimination practices, workplace climate, and pay and benefit policies in four employment sectors: industry, the federal government, private colleges, and public universities. Presentations will be given by Rolf Danner (Northrop Grumman Aerospace Systems), Jane Rigby (Goddard Space Flight Center), Steve Lawrence (Hofstra University), and Scott Gaudi (Ohio State University), and time will be provided for comments and questions from the audience.

413.00C **Chair**
Laura A. Lopez[1]
[1]MIT.

439 LAD Business Meeting

Wednesday, 12:45 pm - 1:45 pm, Summit Hall 1, Egan Center

The Steering Committee of the Laboratory Astrophysics Division (LAD) invites you to attend the inaugural LAD Business Meeting. We will describe the functioning of LAD during the start-up period and discuss plans and activities for the future of the division. We also want to hear any suggestions that you may have for the LAD and answer any questions that people may have. Elections will be held after this transition period in the near future and your voices need to be heard. The session will be collectively chaired by the LAD Steering Committee.

Organizer
Daniel Wolf Savin[1]
[1]*Columbia Astrophysics Lab..*

Characterization of Exoplanet Atmospheres

Wednesday, 1:00 pm - 2:00 pm, Summit Hall 7-10, Egan Center

With hundreds of exoplanets now known scientific interest is building for detection and characterization of their atmospheres. This public splinter session will include a panel discussion with experts in the field reviewing theoretical expectations for atmospheres and opportunities for detection and analysis. Observers will discuss capabilities of photometric and spectroscopic instrumentation, both space and ground-based. Results from observations with the Hubble Space Telescope and Spitzer will be reviewed, and future opportunities with the James Webb Space Telescope will be considered. NASA's budget outlook for the next decade places serious constraints on opportunities for developing large new missions, but small and medium sized missions, including stratospheric balloons, Explorers and possibly Probe-class payloads, may be possible. This splinter session will encourage discussion within the scientific community about how to best apply our limited resources to the most productive and exciting approaches to advancing our understanding of exoplanet atmospheres in the next decade.

Organizer
Dennis Ebbets[1]
[1]*Ball Aerospace & Tech. Corp..*

414 Bridging Laboratory and Astrophysics: Planetary

Wednesday, 2:00 pm - 3:30 pm, Summit Hall 1, Egan Center

Laboratory astrophysics is the Rosetta Stone that enables astronomers to understand and interpret the cosmos. This session will focus on the interplay between astrophysics with theoretical and experimental studies into the underlying planetary science processes which drive our cosmos.

414.00C **Chair**
Murthy Gudipati[1]
[1]*Jet Propulsion Laboratory.*

414.01 **Far-ultraviolet Spectroscopy of the Atmospheres of Planets, Satellites, and Comets**
Paul D. Feldman[1]
[1]*Johns Hopkins Univ..*

414.02 **Modeling Atmospheres of Brown Dwarfs and Extrasolar Giant Planets**
Ivan Hubeny[1]
[1]*University of Arizona.*

414.03 **Laboratory Analyses Of Samples Returned From a Comet, an Asteroid and The Sun**
Donald E. Brownlee[1]
[1]*Univ. of Washington.*

415 Wide-Field IR Space Telescope Science: Mission Capabilities

Wednesday, 2:00 pm - 3:30 pm, Summit Hall 3, Egan Center

The Astro2010 Decadal Survey gave its highest recommendation in the large-scale space mission category to WFIRST, a Wide-Field Infrared Survey Telescope with both imaging and spectroscopy capabilities. The science made possible by such a facility reaches across many disciplines from dark energy to exoplanets to deep surveys. The Interim Design Reference Mission (IDRM) configuration of the observatory has a 1.3m aperture telescope in an off-axis TMA design. The focal plane has imaging and spectroscopy channels using HgCdTe detectors. The wavelength range is 0.6 - 2.0 microns. The design of observatory and operations plan will be discussed in this session.

415.00C **Chair**
Alan Dressler[1]
[1]*Carnegie Observatory.*

415.01 **WFIRST Observatory Performance**
Jeffrey Kruk[1]
[1]*NASA - GSFC.*

415.02 **WFIRST Science Requirements Flowdown and Integrated System Modeling**
Michael D. Seiffert[1]
[1]*JPL.*

415.03 **WFIRST as an Observatory**
George Helou[1]
[1]*Caltech.*

416 Galaxy Mergers from the Largest to the Smallest Scales: Binary SMBHs and SMBH Coalescence

Wednesday, 2:00 pm - 3:30 pm, Room 2, Dena'ina Center

This session focuses on SMBH binaries and their final coalescence. In these systems, the SMBHs are bound together at separations typically ~ 1 pc or smaller; at late times, the binaries coalesce to form a single SMBH due to gravitational wave emission. We open with an observational talk on candidate SMBH binaries. We then examine the astrophysics of gravitational wave emission from SMBH binaries with orbital periods of ~ years, and SMBH binaries undergoing final coalescence. We also survey possible electromagnetic emission that may be triggered by SMBH binaries and their coalescence.

416.00C **Chair**
Joan Centrella[1]
[1]*NASA's GSFC.*

416.01 **SMBH Binaries - candidates and electromagnetic signatures**
Fukun Liu[1]
[1]*Peking University, China.*

416.02 **Binary Super-Massive Black Holes, Gravitational Waves, and Pulsar Timing Arrays**
Fredrick Jenet[1]
[1]*Univ. of Texas at Brownsville.*

416.03 **Going Out with a Bang: Gravitational Waves from Coalescing SMBHs**
Tyson Littenberg[1]
[1]GSFC/UMD.

416.04 **Electromagnetic Signatures of SMBH Coalescence**
Jeremy Schnittman[1]
[1]NASA/GSFC.

417 Lyman Alpha Emitters as Probes of Galaxy Formation and Cosmology: Their Place in the High-redshift Galaxy Zoo

Wednesday, 2:00 pm - 3:30 pm, Summit Hall 2, Egan Center

Three 20+5 minute talks will be given comparing Lyman Alpha Emitters (LAEs) to the other denizens of the high-redshift galaxy zoo, including Lyman break galaxies (LBGs), Distant red galaxies (DRGs), BzK-selected galaxies, and Sub- millimeter galaxies (SMGs). After correcting for the biases of various observational selection techniques, these populations reveal significant overlap along with differences in typical star formation rates, stellar masses, dark matter halo masses, dust content, and morphologies. The session will conclude with a 15-minute moderated discussion of outstanding questions and how to resolve them.

417.00C **Chair**
Eric J. Gawiser[1]
[1]Rutgers University.

417.01 **Lyman Alpha Emitters as Tracers of Young Galaxies**
Lennox Cowie[1]
[1]Univ. of Hawaii, Institute for Astronomy.

417.02 **Lyman Alpha Emitters as Formation Sites for Globular Clusters**
Bruce Elmegreen[1]
[1]IBM Research Div..

417.03 **The Physical Nature of Lyman Alpha Emitters**
Viviana Acquaviva[1]
[1]Rutgers, The State University of New Jersey.

418 Einstein vs Schwinger: Who is Right about Gravity? II

Wednesday, 2:00 pm - 3:30 pm, Summit Hall 4, Egan Center

For some time General Relativity, the Standard Model of Cosmology, and the Standard Model of Particle Physics have been mutually supportive. Particle physicists have always known that their model is incomplete; something else is needed – perhaps the Higgs Boson and related supersymmetric particles. Early results from the Large Hadron Collider have not yet identified physics beyond the Standard Model. A hoped-for candidate for dark matter, the lightest supersymmetric particle has yet to be obseved.

The Standard Model of Cosmology relies on both dark matter and dark energy. Can it be maintained without either?

Dark matter apparently is needed to bind clusters of galaxies and explain flat rotation curves. What must the characteristics of this dark matter be? Why is dark matter not everywhere, or is it? Are there plausible dark matter candidates? Is modified Newtonian Dynamics (MOND) viable?

Speakers: Nicholas Suntzeff, Kimball Milton, and Stacy McGaugh

418.00C **Chair**
Virginia L. Trimble[1]
[1]UC, Irvine.

418.01 **TBD**
Nicholas B. Suntzeff[1]
[1]*Texas A&M University.*

418.02 **Schwinger's Approach to Einstein's Gravity**
Kim Milton[1]
[1]*Oklahoma University.*

418.01 **Galactic Rotation and Natural Law**
Stacy S. McGaugh[1]
[1]*Univ. of Maryland.*

419 Astrophysics with Kepler - Stellar Structure

Wednesday, 2:00 pm - 3:30 pm, Ballroom A, Dena'ina Center

Kepler's precision and time coverage offer a unique opportunity for astrophysical studies of stars, from detailed analyses of individual sources, to ensemble studies at unprecedented precision. Kepler's Guest Observer program and the Kepler Asteroseismic Science Consortium offer opportunities for observers to both select targets and to collaborate on results from existing targets. Talks in the two sessions will cover asteroseismic results from stars across the HR diagram, Red Giant Oscillations, eclipsing and interacting binary stars, stellar activity and rotation, variable stars, results from non-stellar sources, and extragalactic sources.

419.00C **Chair**
Thomas Barclay[1]
[1]*NASA Ames Research Center.*

419.01 **Stellar Astrophysics with Kepler from an Extended Mission Baseline**
Martin D. Still[1]
[1]*NASA Ames Research Center.*

419.02 **Ensemble Asteroseismology: How Kepler is Changing Stellar Astrophysics**
Sarbani Basu[1]
[1]*Yale University.*

419.03 **A Survey of Surveys of the Kepler Field**
Steve B. Howell[1]
[1]*NASA ARC.*

419.04 **Studying the Evolution of Stars (and their Planets) beyond the Helium Core Flash via Kepler Asteroseismology**
Steven D. Kawaler[1]
[1]*Iowa State Univ..*

419.05 **Kepler Observations and Asteroseismology of θ Cyg, the Brightest StarObservable in the Kepler Field of View**
Joyce A. Guzik[1], G. Houdek[2], W. J. Chaplin[3], D. Kurtz[4], R. L. Gilliland[5], F. Mullally[6], J. F. Rowe[6], M. R. Haas[7], S. T. Bryson[7], M. D. Still[8]
[1]*LANL,* [2]*Institute of Astronomy, University of Vienna, Austria,* [3]*University of Birmingham, United Kingdom,* [4]*University of Central Lancashire, United Kingdom,* [5]*STScI,* [6]*SETI Institute/NASA Ames Research Center,* [7]*NASA Ames Research Center,* [8]*NASA Ames Research Center/Bay Area Environmental Research Insitute* **.**

419.06 **Ultracool dwarfs in the Kepler field**
Eduardo L. Martin[1], R. Tata[2], E. Martioli[3], S. Hodgkin[4]
[1]*INTA-CSIC Centro de Astrobiologia, Spain,* [2]*Instituto de Astrofísica de Canarias, Spain,* [3]*CFHT,* [4]*IoA, United Kingdom.*

420 AGN, QSO, Blazars III

Wednesday, 2:00 pm - 3:30 pm, Room 1, Dena'ina Center

420.00C **Chair**
Erin Wells Bonning[1]
[1]Yale University.

420.01D **X-ray View Of Obscured Agn And Its Connection With Galaxy Evolution**
Jianjun Jia[1]
[1]The Johns Hopkins University.

420.02 **Composition Of Gas And Dust In Obscured And Unobscured Agn In The Boötes Field**
Shawn Usman[1], S. S. Murray[1], R. C. Hickox[2], M. Brodwin[3]
[1]Johns Hopkins University, [2]Dartmouth College, [3]University of Missouri-Kansas City.

420.03 **Dust-reddened Quasars In First And Ukidss**
Eilat Glikman[1], M. Lacy[2], T. Urrutia[3]
[1]Yale University, [2]NRAO, [3]Leibniz Institut fr Astrophysik, Germany.

420.04 **A Wise View Of The Non-thermal Gamma-ray Sky**
Francesco Massaro[1], R. D'Abrusco[2], A. Paggi[2], G. Tosti[3], M. Ajello[4], D. Gasaparrini[5]
[1]Stanford University, [2]Harvard-Smithsonian Center for Astrophysics, [3]University of Perugia, Italy, [4]SLAC/KIPAC, [5]ASDC, Italy.

420.05 **Highlights From Recent Observations Of Gamma-ray Blazars With VERITAS**
Luis C. Reyes[1], VERITAS Collaboration
[1]Cal Polytechnic State University San Luis Obispo.

420.06 **Synchrotron Emission from Pair Cascades in AGN Environments**
Parisa Roustazadeh[1], M. Boettcher[1]
[1]Ohio University.

421 Evolution of Galaxies II

Wednesday, 2:00 pm - 3:30 pm, Room 3, Dena'ina Center

421.00C **Chair**
Eileen D. Friel[1]
[1]Indiana University.

421.01 **Galaxy Star Formation Histories From Deep Surveys: Why We Still Need A Patchwork Of Star Formation Tracers**
Kai Noeske[1]
[1]ESA/STScI.

421.02 **Spitzer And Herschel-based Seds Of 24um-bright z~ 1110.3- 3.0 Starbursts And Obscured Quasars**
Anna Sajina[1], L. Yan[2], D. Fadda[3], K. Dasyra[4], M. Huynh[5]
[1]Tufts University, [2]Caltech, [3]Herschel Science Center/Caltech, [4]Observatoire de Paris, France, [5]University of Western Australia, Australia.

421.03 **Far-infrared Seds Of Extremely Luminous Infrared Galaxies at z~2 Discovered By Wise**
Lin Yan[1], E. Donoso[1], T. Chao-wei[1], P. Eisenhardt[2], R. Assef[2], D. Stern[2], J. Wu[2]
[1]Caltech, [2]Jet Propulsion Lab..

421.04 **Ultraviolet Observations of the Hubble Ultra Deep Field**
Marc Rafelski[1], H. Teplitz[1], N. Grogin[2], A. Koekemoer[2], B. Siana[3], H. Atek[1], N. A. Bond[4], T. M. Brown[2], D. Coe[2], J. Colbert[1], H. C. Ferguson[2], S. L. Finkelstein[5], J. P. Gardner[4], E. Gawiser[6], M. Giavalisco[7], C. Gronwall[8], D. Hanish[1], P. Kurczynski[6], K. Lee[9], S. Ravindranath[10], C. Scarlata[11], E. Voyer[12], A. Wolfe[13], D. F. de Mello[14]
[1]IPAC / Caltech, [2]Space Telescope Science Institute, [3]UC Riverside, [4]NASA Goddard Space Flight Center, [5]University of Texas at Austin, [6]Rutgers the State University of New Jersey, [7]University of Massachusetts, [8]The Pennsylvania State University, [9]Purdue University, [10]Inter-University Centre for Astronomy and Astrophysics, India, [11]University of Minnesota, [12]CNRS, Laboratoire d'Astrophysique de Marseille, France, [13]University of California - San Diego, [14]Catholic University of America.

421.05 **The Herschel Lensing Survey (HLS): A Bright Lensed Submillimeter Galaxy in the Field of Abell 773**
Tim Rawle[1], E. Egami[1], M. Rex[1], F. Combes[2], F. Boone[3], I. Smail[4], Herschel Lensing Survey
[1]University of Arizona, [2]Observatoire de Paris, France, [3]Universite de Toulouse, France, [4]Durham University, United Kingdom.

WED

422 Reionization, CMB, and the IGM

Wednesday, 2:00 pm - 3:30 pm, Ballroom C, Dena'ina Center

422.00C **Chair**
Jack O. Burns[1]
[1]Univ. of Colorado at Boulder.

422.01 **The Escape of Ionizing Radiation from Early Galaxies**
Aparna Venkatesan[1], A. Benson[2]
[1]Univ. of San Francisco, [2]Caltech.

422.02 **He II Quasars: Studying Helium Reionization with a Statistical Sample**
David Syphers[1], S. F. Anderson[2], W. Zheng[3]
[1]University of Colorado, [2]University of Washington, [3]Johns Hopkins University.

422.03 **The Physics Of The Z~20 21cm Signal**
Matthew McQuinn[1]
[1]University of California Berkeley.

422.04 **Probing the Inflationary Era with the POLARBEAR Experiment**
Nathan Stebor[1]
[1]University of California, San Diego.

422.05 **An Efficient Algorithm for Separating Cosmic Microwave Background Polarization Maps into E, B, and Ambiguous Components**
Emory F. Bunn[1]
[1]Univ. of Richmond.

422.06 **The Most Gas-rich Damped Lyman-alpha QSO Absorber Known So far**
Varsha P. Kulkarni[1], J. Meiring[2], D. Som[1], C. Peroux[3], D. York[4], P. Khare[5], J. Lauroesch[6]
[1]Univ. Of South Carolina, [2]Univ. Of Massachusetts, Amherst, [3]Laboratoire d'Astrophysique de Marseille, France, [4]Univ. Of Chicago, [5]IUCAA, India, [6]Univ. Of Louisville.

422.07 **Detecting Lyman Alpha Emission from Circum-Galactic and Intergalactic Gas with the Palomar Cosmic Web Imager**
Christopher D. Martin[1], M. Matuszewski[1], P. Morrissey[1], S. Rahman[1], A. Moore[1]
[1]Caltech.

423 Corona & Heliosphere

Wednesday, 2:00 pm - 3:30 pm, Room 5, Dena'ina Center

423.00C **Chair**
James A. Klimchuk[1]
[1]NASA GSFC.

423.01 **Observation of Hyperfine Channels of Solar Corona Heating**
Wenda Cao[1], H. Ji[2], P. R. Goode[1]
[1]Big Bear Solar Observatory, [2]Purple Mountain Observatory, China.

423.02 **Understanding Coronal Heating with Emission Measure Distributions**
James A. Klimchuk[1], D. Tripathi[2], S. J. Bradshaw[3], H. E. Mason[4]
[1]NASA GSFC, [2]Inter-University Centre for Astronomy and Astrophysics, India, [3]Rice University, [4]University of Cambridge, United Kingdom.

423.03 **Coordinated Visible, EUV and White Light Observations of the Extended Corona During the 2010 July 11 Total Solar Eclipse**
Shadia R. Habbal[1], E. Landi[2], H. Morgan[3], M. Druckmuller[4], A. Ding[5]
[1]Univ. of Hawaii at Manoa, [2]University of Michigan, [3]Aberystwyth University, United Kingdom, [4]Brno University of Technology, Czech Republic, [5]Institute of Technical Physics, Germany.

423.04 **Origin of Rapid Blueshifted Events in Coronal Holes**
Vasyl B. Yurchyshyn[1], K. Ahn[1], V. Abramenko[1], P. Goode[1], W. Cao[1]
[1]Big Bear Solar Obs..

423.05 **The EUV Emission from Sun-Grazing Comets**
Paul Bryans[1], W. D. Pesnell[1]
[1]NASA Goddard Space Flight Center.

423.06 **Results and Analysis of 10 Years of RHESSI/SAS Observations of the Optical Solar Limb**
Martin Fivian[1], H. S. Hudson[1], R. P. Lin[1]
[1]Space Sciences Lab/ UC Berkeley.

424 Solar Energetic Events II

Wednesday, 2:00 pm - 3:30 pm, Room 4, Dena'ina Center

424.00C **Chair**
Brian R. Dennis[1]
[1]NASA's GSFC.

424.01 **Understanding Solar Energetic Events Using the Next Generation Coronagraph: High-resolution Imaging with Diagnostic Capability**
Joseph M. Davila[1]
[1]Goddard Space Flight Center.

424.02 **Comparison between Major Confined and Eruptive Flares**
N. Gopalswamy[1], S. Yashiro[1], P. Mäkelä[1], B. R. Dennis[1]
[1]NASA GSFC.

424.03 **Fermi LAT Observation of Highly Energetic Impulsive Solar Flares**
Nicola Omodei[1], F. Longo[2], G. Share[3], M. Briggs[4], D. Gruber[5], Fermi LAT and GBM Collaborations
[1]Stanford University, [2]INFN Trieste, Italy, [3]University of Maryland, [4]University of Alabama in Huntsville, [5]Max-Planck-Institut, Germany.

424.04 **Analysis and Theoretical Interpretation of Fermi-LAT and RHESSI Observations of Solar Flares with Gamma-ray Emission >100 MeV**
Vahe Petrosian[1], Q. Chen[1], N. Giglietto[2], N. Omodei[1], G. Share[3], Y. Tanaka[4], Fermi Collaboration
[1]Stanford Univ., [2]INFN, Italy, [3]Univiversity of Maryland, [4]IAS/JAXA, Japan.

424.05 **Future Gamma-Ray Imaging of Solar Eruptive Events**
Albert Y. Shih[1], R. P. Lin[2], G. J. Hurford[2], N. A. Duncan[2], P. Saint-Hilaire[2], H. M. Bain[2], D. M. Smith[3]
[1]NASA/GSFC, [2]UC Berkeley, [3]UC Santa Cruz.

424.06 **Energetic Neutral Atoms (ENAs): A new window on Solar Energetic Particle (SEP) acceleration**
Robert P. Lin[1], L. Wang[1], H. Hudson[1], G. Hurford[1], N. Duncan[1], G. Li[2], A. Y. Shih[3], R. A. Mewaldt[4]
[1]UC, Berkeley, [2]Univ. of Alabama, Huntsville, [3]NASA Goddard Space Flight Center, [4]Caltech.

Inivited Session 425 Under the Radar: The First Woman in Radio Astronomy, Ruby Payne-Scott

Wednesday, 3:40 pm - 4:30 pm, Ballroom B, Dena'ina Center

425.00C **Chair**
Edward B. Churchwell[1]
[1]Univ. of Wisconsin.

425.01 **Under the Radar: The First Woman in Radio Astronomy, Ruby Payne-Scott**
W. Miller Goss[1]
[1]NRAO.

Invited Session 426 SkyMapper: Surveying the Southern Sky

Wednesday, 4:30 pm - 5:20 pm, Ballroom B, Dena'ina Center

426.00C **Chair**
Debra M. Elmegreen[1]
[1]Vassar College.

426.01 **SkyMapper: Surveying the Southern Sky**
Brian P. Schmidt[1]
[1]RSAA, ANU, Australia.

427 AAS Members' Meeting

Wednesday, 5:30 pm - 6:30 pm, Ballroom C, Dena'ina Center

You may think you belong to the AAS, but it's actually the other way around: the Society belongs to you. So please come to the Annual Business Meeting in Anchorage to hear about what is up, nominate members to serve on the the very important Nominating Committee and tell us how we can serve you better. To help encourage attendance, we are providing beer, soft drinks and snacks to all attendees. As you sip some local brew, you'll hear a report on the Society's finances, learn about new initiatives from the AAS Council, and have a chance to raise and comment on issues of concern to you personally and to the astronomical community more generally. Finally, we'll welcome our newly elected leaders to their new positions of service for the coming year. Also, the AAS leadership is especially interested in

receiving feedback from members on the current metrics established to guide our efforts in accomplishing our strategic goals and mission (http://aas.org/about/strategic_plan).

427.00C Chair
Debra M. Elmegreen[1]
[1]*Vassar College.*

SPD Banquet

Wednesday, 7:00 pm - 9:00 pm, Anchorage Museum at Rasmuson Center

Located in downtown Anchorage and walking distance of the convention center and conference hotels, the Museum is home to the Alaska History Gallery, Smithsonian Arctic Studies Center, and science exhibits. One of the top 10 most visited attractions in Alaska; the Anchorage Museum is a world-class art, history and science museum. Its collections offer an overview of the Alaska's rich history and an introduction to its varied culture. Displays in the Alaska History Gallery delve into Russian occupation, the gold rush, the Exxon Valdez oil spill and more. The Smithsonian Arctic Studies Center gives visitors a glimpse of the diverse culture of the Alaska Native peoples, while the Imaginarium Discovery Center will ignite the child in everyone with hands-on science exhibits. A unique experience!

Admission to the museum and the opportunity to tour the galleries is included in the price of the banquet. Visit the museum's website: anchoragemuseum.org

Film Screening: "Space Junk 3D"

Wednesday, 7:15 pm - 10:00 pm, Regal Tikahtnu Stadium 16 IMAX Theater

The AAS Committee on Light Pollution, Radio Interference, and Space Debris invites attendees at the 220th AAS meeting in Anchorage, Alaska, to join us for a special screening of the new IMAX film "Space Junk 3D" at the Regal Tikahtnu Stadium 16 IMAX Theater on Wednesday evening, June 13th. Round-trip transportation between the convention center and the theater will be provided.

"Space Junk 3D" tells the story of how the increasing number of objects in Earth orbit could be leading to a tipping point, potentially jeopardizing space exploration for future generations. Low Earth orbit contains an estimated 6,000 tons of space debris including dead satellites, rocket bodies, and smaller pieces such as aperture covers. This junk poses a genuine threat to current and future space telescopes, and produces streaks in astronomical images that can complicate image processing and data analysis. In addition 400 dead satellites, formerly operating in geostationary orbit, are now parked in higher graveyard orbits where they'll remain for millions of years.

"Space Junk 3D" is narrated by Academy Award nominee Tom Wilkinson. Among the film's scientific advisors is Don Kessler, founding director of NASA's Orbital Debris Program Office and often called the Father of Space Junk. Harnessing the beautiful imagery of 3D IMAX, "Space Junk 3D" takes viewers from the stunning depths of Meteor Crater to unprecedented views of our increasingly crowded orbits 22,000 miles above Earth. The film's message is a cautionary tale -- what goes up doesn't always come down! -- but it also seeks to inspire a new age of innovation through an education program developed in partnership with the Franklin Institute. After all, today's students are tomorrow's scientists and engineers who will forge the future of space exploration and discovery.

"Space Junk 3D", directed by Melissa Butts, is a production of Melrae Pictures. For more information, or to watch the trailer, see http://www.spacejunk3d.com.

Buses leave Dena'ina Center Lobby at 7:15pm.
Program start time 8:00pm.
Reservations required.
Limited number of tickets available at Onsite Registration.

Wednesday Posters, 13 June 2012

428 Dwarf and Irregular Galaxies

Wednesday, 9:00 am - 7:30 pm, Exhibit Hall, Dena'ina Center

428.01 **Faint and Ultra-Faint Dwarf Galaxies in the M81 Group**
Kristin Chiboucas[1], B. A. Jacobs[2], R. B. Tully[2], L. Rizzi[3], I. D. Karachentsev[4]
[1]Gemini Observatory, [2]IfA, University of Hawaii, [3]W.M. Keck Observatory, [4]Special Astrophysical Observatory, Russian Federation.

428.02 **Deep LBT+LBC Imaging of Andromeda dSphs**
Rachael Beaton[1], S. R. Majewski[1], R. J. Patterson[1], LBT Science Center
[1]Univ. of Virginia.

428.03 **Extremely Metal-poor Stars In The Ultra-faint Dwarf Galaxies And Their Relation To The First Galaxies**
Anna Frebel[1]
[1]Massachusetts Institute of Technology.

428.04 **A Fresh Look at the Detectability of Milky Way Satellites in SDSS**
Maya Barlev[1], B. Willman[1]
[1]Haverford College.

428.05 **The Formation History of the Ultra-Faint Dwarf Galaxies**
Thomas M. Brown[1], J. Tumlinson[1], M. C. Geha[2], R. Munoz[3], E. Kirby[4], J. S. Kalirai[1], D. A. VandenBerg[5], R. Avila[1], J. D. Simon[6], H. C. Ferguson[1], P. GuhaThakurta[7]
[1]STScI, [2]Yale, [3]University of Chile, Chile, [4]CalTech, [5]University of Victoria, Canada, [6]Observatories of the Carnegie Institution of Washington, [7]UCO/Lick.

428.06 **Star Formation In LITTLE THINGS: A First Look With Herschel**
Phil Cigan[1], L. Young[1], D. Hunter[2]
[1]New Mexico Tech, [2]Lowell Observatory.

429 Lyman Alpha Emitters as Probes of Galaxy Formation and Cosmology

Wednesday, 9:00 am - 7:30 pm, Exhibit Hall, Dena'ina Center

429.01 **Average Metallicity and Star Formation Rate of Lyα Emitters Probed by a Triple Narrowband Survey**
Kimihiko Nakajima[1], M. Ouchi[1], K. Shimasaku[1], Y. Ono[1], J. C. Lee[2], T. Hashimoto[1], S. Foucaud[3], C. Ly[2], D. A. Dale[4], S. Salim[5], R. Finn[6], O. Almaini[7], S. Okamura[1]
[1]The University of Tokyo, Japan, [2]Space Telescope Science Institute, [3]National Taiwan Normal University, Taiwan, [4]University of Wyoming, [5]Indiana University, [6]Siena College, [7]University of Nottingham, United Kingdom.

429.02 **Can Gas Outflows Explain The Strong Lyα Emission Of Lyman Alpha Emitters?**
Takuya Hashimoto[1], M. Ouchi[1], K. Shimasaku[1], K. Nakajima[1], Y. Ono[1], M. Rauch[2]
[1]The Unversity of Tokyo, Japan, [2]Observatories of the Carnegie Institution of Washington.

429.03 **Spectroscopic Confirmation of Three z-Dropout Galaxies at z = 6.844-7.213: Demographics of Lya Emission in z ~ 7 Galaxies**
Yoshiaki Ono[1], M. Ouchi[1], B. Mobasher[2], M. Dickinson[3], K. Penner[4], K. Shimasaku[1], B. J. Weiner[5], J. S. Kartaltepe[3], K. Nakajima[1], H. Nayyeri[2], D. Stern[6], N. Kashikawa[7], H. Spinrad[8]
[1]University of Tokyo, Japan, [2]University of California, Riverside, [3]National Optical Astronomical Observatories, [4]University of Arizona, [5]Steward Observatory, University of Arizona, [6]Jet Propulsion Laboratory, California Institute of Technology, [7]National Astronomical Observatory of Japan, Japan, [8]University of California, Berkeley.

429.04 **Stellar Population Properties of z=4.5 and z=5.7 Lyman Alpha Emitters based on Spitzer Observations**
Keely D. Finkelstein[1], S. L. Finkelstein[1], V. Tilvi[2], S. Malhotra[3], J. E. Rhoads[3], N. A. Grogin[4], N. Pirzkal[4], A. Dey[5], B. T. Jannuzi[5], B. Mobasher[6], S. Pakzad[5], J. Wang[7]
[1]University of Texas at Austin, [2]Texas A&M University, [3]Arizona State University, [4]Space Telescope Institute, [5]National Optical Astronomy Observatory, [6]University of California at Riverside, [7]University of Science and Technology of China, China.

429.05 **A Search for Diffuse Ly-alpha Emitting Halos around z~2.1 and z~3.1 Ly-alpha Emitting Galaxies**
Alex Hagen[1], J. J. Feldmeier[2], R. Ciardullo[1], C. Gronwall[1], MUSYC Collaboration
[1]Pennsylvania State University, [2]Youngstown State University.

429.06 **Cosmic Variance in the Physical Properties of Ly-alpha Emitting Galaxies at 2 < z < 3**
Caryl Gronwall[1], A. Matkovic[2], R. Ciardullo[1], J. J. Feldmeier[3], J. Hay[1], MUSYC Collaboration
[1]Penn State Univ., [2]Swarthmore College, [3]Youngstown State Univ..

429.07 **HETDEX and the Evolution of The Physical Properties of Lyman-Alpha Emitting Galaxies**
Robin Ciardullo[1], C. Gronwall[1], G. Blanc[2], S. Finkelstein[3], E. Gawiser[4], K. Gebhardt[3], HETDEX Collaboration
[1]Penn State Univ., [2]Carnegie Observatories, [3]University of Texas, [4]Rutgers University.

429.08 **Lyman Alpha Tomography**
Eric J. Gawiser[1], G. Kanarek[2], R. Ciardullo[3], C. Gronwall[3], MUSYC Collaboration
[1]Rutgers University, [2]Columbia University, [3]Penn State University.

429.09 **The Reddening Curve below 1200 Angstroms**
Aida Wofford[1], C. Leitherer[1]
[1]STScI.

430 Relativistic Astrophysics, Black Holes, Neutron Stars, White Dwarfs, Gravitational Waves

Wednesday, 9:00 am - 7:30 pm, Exhibit Hall, Dena'ina Center

430.01 **Synthetic Spectral Analysis of the Far Ultraviolet Spectra of the Old Nova HR Del**
Jordan Robertson[1], E. Sion[1]
[1]Villanova University.

430.02 **The Distribution of Spectroscopic Subtypes and Kinematics of White Dwarfs within 25 pc of the Sun**
Janine Myszka[1], E. M. Sion[1], J. B. Holberg[2], T. D. Oswalt[3], G. P. McCook[1], R. Wasatonic[1]
[1]Villanova University, [2]University of Arizona, [3]Florida Institute of Technology.

430.03 **A Marvelous Star in M33**
Elisha Polomski[1], R. D. Gehrz[2], K. McQuinn[2], F. Paffel[1], C. E. Woodward[2]
[1]Univ. of Wisconsin-Eau Claire, [2]Minnesota Institute for Astrophysics.

430.04 **Status Report On The Wise Infrared Excesses around Degenerates (WIRED) Survey**
D. W. Hoard[1], J. H. Debes[2], S. Wachter[1], D. T. Leisawitz[3], M. Cohen[4]
[1]California Institute of Technology, [2]Space Telescope Science Institute, [3]NASA's Goddard Space Flight Center, [4]Monterey Institute for Research in Astronomy.

430.05 **Magnetic Fields And Self-gravity In Gravitational Wave Emission From Magnetars**
Shane L. Larson[1], P. Purdue[2]
[1]*Utah State University,* [2]*Colorado College.*

430.06 **Dispersion Measure Variations In The Direction Of The High Galactic Latitude Pulsars PSR B1257+12 And PSR B1534+12**
Brett Scheiner[1], *A. Wolszczan*[1]
[1]*Pennsylvania State University.*

430.07 **Regular and Chaotic Motion in General Relativity. Case of Magnetized Black Hole and a Massive Magnetic Dipole**
Vladimir Karas[1], J. Kovar[2], O. Kopacek[1], Y. Kojima[3], P. Slany[2], Z. Stuchlik[2]
[1]*Astronomical Institute, Academy of Sciences, Czech Republic,* [2]*Institute of Physics, Faculty of Philosophy and Science, Silesian University, Czech Republic,* [3]*Department of Physics, Hiroshima University, Japan.*

430.08 **The Local Black Hole - Mass Function Derived from Spiral Galaxies**
Benjamin L. Davis[1], J. C. Berrier[1], L. Johns[2], D. W. Shields[1], D. Kennefick[1], J. Kennefick[1], M. S. Seigar[3], C. H. S. Lacy[1]
[1]*University of Arkansas,* [2]*Reed College,* [3]*University of Arkansas at Little Rock.*

430.09 **Busting Up Binaries: Stellar Interactions With Galactic Supermassive Black Holes**
Eric Addison[1], S. Larson[1], P. Laguna[2]
[1]*Utah State University,* [2]*Georgia Institute of Technology.*

430.10 **Pitch Angles Of Artificially Redshifted Galaxies**
Douglas W. Shields[1], B. Davis[1], L. Johns[2], J. C. Berrier[1], D. Kennefick[1], J. Kennefick[1], M. Seigar[3]
[1]*University of Arkansas,* [2]*Reed College,* [3]*University of Arkansas Little Rock.*

430.11 **Gravitational-Wave Extraction by the Characteristic Method**
Maria Babiuc-Hamilton[1]
[1]*Marshall University.*

431 Planetary Nebulae, Supernova Remnants

Wednesday, 9:00 am - 7:30 pm, Exhibit Hall, Dena'ina Center

431.01 **A Dust Twin of Cas A: 21-micron Dust Feature and Cold Dust in the Supernova Remnant G54.1+0.3**
Jeonghee Rho[1], S. Park[2], A. Boogert[3], H. Gomez[4], W. Reach[5], D. Dowell[5], P. Lagage[6]
[1]*SETI Institute and SOFIA Science Center/NARC,* [2]*NASA Ames Research Center,* [3]*NHSC/Caltech,* [4]*Cardiff U.,* [5]*SOFIA Science Center/USRA,* [6]*Saclay, France.*

431.02 **An Archival X-ray Study of the Large Magellanic Cloud Supernova Remnant N132D**
Paul P. Plucinsky[1], A. R. Foster[1], T. J. Gaetz[1], D. Jerius[1], D. J. Patnaude[1], R. J. Edgar[1], R. K. Smith[1], W. P. Blair[1]
[1]*Harvard-Smithsonian, CfA.*

431.03 **The Chandra Planetary Nebula Survey (ChanPlaNS): Diffuse X-ray Emission from Hot Bubbles**
Kevin Christiansen[1], J. Kastner[1], R. Montez[1], ChanPlaNS Team
[1]*Rochester Institute of Technology.*

431.04 **High-Energy Emission From the Composite Supernova Remnant MSH 15-56**
Tea Temim[1], P. Slane[2], P. Plucinsky[2], J. Gelfand[3], D. Castro[4]
[1]*NASA GSFC/ORAU,* [2]*Harvard-Smithsonian Center for Astrophysics,* [3]*New York University Abu Dhabi, United Arab Emirates,* [4]*MIT Kavli Institute.*

431.05 **Are Pulsar Velocities Correlated with Supernova Remnant Ejecta Asymmetries?**
Laura A. Lopez[1], E. Ramirez-Ruiz[2]
[1]MIT, [2]University of California Santa Cruz.

431.06 **SN 1957D in M83: A Young Supernova Remnant Emerges**
P. Frank Winkler[1], K. S. Long[2], W. P. Blair[3], R. Soria[4], L. E. H. Godfrey[4], K. D. Kuntz[3], P. P. Plucinsky[5], B. C. Whitmore[2]
[1]Middlebury College, [2]STScI, [3]Johns Hopkins University, [4]Curtin University, Australia, [5]Smithsonian Astrophysical Observatory.

431.07 **Detailed X-Ray Study of O-Rich Supernova Remnant 0049-73.6 in the Small Magellanic Cloud**
Andrew Schenck[1], K. J. Borkowski[2], D. Burrows[3], J. P. Hughes[4], J. Lee[5], K. Mori[6], S. Park[1], S. P. Reynolds[7], P. Slane[8]
[1]University of Texas at Arlington, [2]NC State University, [3]Penn State Univ., [4]Rutgers University, [5]Korea Astronomy and Space Science Institute, Korea, Republic of, [6]Univ of Miyazaki, Japan, [7]North Carolina State University, [8]Harvard-Smithsonian, CfA.

431.08 **The Rapid Growth of the Fingertips of Preplanetary Nebula CRL618**
Bruce Balick[1], A. Frank[2], M. Huarte-Espinosa[2], T. Gomez[3], R. Corradi[4], J. Alcolea[5]
[1]Univ. of Washington, [2]Univ. of Rochester, [3]Univ. of Texas at Austin, [4]Instituto de Astrofísica de Canarias, Spain, [5]Observatorio Astronomico Nacional, Spain.

431.09 **Compact Disks Inside Pre-Planetary Nebulae**
Stacey N. Bright[1], O. De Marco[1], O. Chesneau[2], E. Lagadec[3], H. van Winckel[4], B. Hrivnak[5]
[1]Macquarie University, Australia, [2]Observatoire de la Côte d'Azur, France, [3]European Southern Observatory, Germany, [4]Instituut voor Sterrenkunde, Belgium, [5]Valparaiso University.

431.10 **Using Hubble Space Telescope Images to Test Theoretical Models of Planetary Nebulae**
Kelsey M. Braxton[1], B. Balick[1], R. Jacob[2], M. Steffen[2], D. Schonberner[2]
[1]University of Washington, [2]Leibniz Institute for Astrophysics Potsdam, Germany.

431.11 **X-ray Observations of Vela Supernova Remnant Ejecta Fragments**
Terrance J. Gaetz[1]
[1]Smithsonian Astrophysical Observatory.

431.12 **The Nature of the H2 Emitting Gas in the Crab Nebula**
Chris T. Richardson[1], J. A. Baldwin[1], G. J. Ferland[2], E. D. Loh[1], C. A. Kuehn[1], C. R. O'Dell[3], A. C. Fabian[4], P. Salome[5]
[1]Michigan State University, [2]University of Kentucky, [3]Vanderbilt University, [4]University of Cambridge, United Kingdom, [5]Observatoire de Paris, France.

431.13 **SOFIA/FORCAST Mid-Infrared Observations of the Ultra Compact H II Region W3(OH) and Three Nearby Protostars in W3**
Joseph D. Adams[1], L. Hirsch[1], T. L. Herter[1], S. T. Megeath[2], J. L. Hora[3], J. M. De Buizer[4], G. E. Gull[1], C. P. Henderson[1], L. D. Keller[5], J. Schoenwald[1], W. Vacca[4]
[1]Cornell University, [2]U. Toledo, [3]Harvard-Smithsonian Center for Astrophysics, [4]SOFIA/USRA, [5]Ithaca Coll..

432 Supernovae

Wednesday, 9:00 am - 7:30 pm, Exhibit Hall, Dena'ina Center

432.01 **SN2011ht -- Supernova or Impostor?**
Kris Davidson[1], R. M. Humphreys[1], C. S. Kochanek[2], R. W. Pogge[2], J. S. Prieto[3], P. W. A. Roming[4], K. Z. Stanek[2]
[1]Univ. of Minnesota, [2]Ohio State University, [3]Princeton University, [4]Southwest Research Institute.

432.02 **Optical and Infrared Analysis of Type II SN 2006bc**
Joseph S. Gallagher[1], B. E. Sugerman[2], G. C. Clayton[3], J. E. Andrews[4], J. Clem[3], M. J. Barlow[5], B. Ercolano[6], J. Fabbri[5], M. Otsuka[7], R. Wesson[5], M. Meixner[8]
[1]University of Cincinnati Blue Ash College, [2]Goucher College, [3]Louisiana State University, [4]University of Massachusetts, Amherst, [5]University College London, United Kingdom, [6]University Observatory Munich, Germany, [7]Academia Sinica, Institute of Astronomy and Astrophysics, Taiwan, [8]Space Telescope Science Institute.

432.03 **The All Sky Automated Survey for Supernovae (ASsAS-SiN)**
Benjamin Shappee[1], K. Stanek[1], C. Kochanek[1], J. Beacom[1], D. Szczygiel[1], J. Prieto[2], G. Pojmański[3], W. Rosing[4], E. Hawkins[4], R. Ross[4], M. Elphick[4], D. Mullins[4], Z. Walker[4]
[1]The Ohio State University, [2]Princeton University, [3]Warsaw University Observatory, Poland, [4]Las Cumbres Observatory.

432.04 **The Final Word on the Progenitor of the Type II-Plateau Supernova SN 2006my**
Douglas C. Leonard[1], Y. Green[2], A. Gal-Yam[2], D. B. Fox[3]
[1]San Diego State University, [2]Weizmann Institute of Science, Israel, [3]Pennsylvania State University.

433 Spiral Galaxies and the Milky Way

Wednesday, 9:00 am - 7:30 pm, Exhibit Hall, Dena'ina Center

433.01 **The Catalog of Edge-on Disk Galaxies Found in SDSS**
Stefan J. Kautsch[1], D. Bizyaev[2], A. V. Mosenkov[3], N. Y. Sotnikova[4], V. P. Reshetnikov[4], R. W. Hillyer[5], N. V. Yablokova[4]
[1]Nova Southeastern UniversityFarquhar College of Arts and Sciences, [2]Apache Point Observatory / NMSU, [3]St. Petersburg State University and Central Astronomical Observatory of RAS, Russian Federation, [4]St. Petersburg State University, Russian Federation, [5]Christopher Newport University.

433.02 **Dynamical Models Of Ngc 3124: A Galaxy With An Apparent Counter-winding Bar-spiral Hybrid**
Patrick M. Treuthardt[1], M. Seigar[1], H. Salo[2], D. Kennefick[3], J. Kennefick[3], C. H. S. Lacy[3]
[1]University of Arkansas at Little Rock, [2]University of Oulu, Finland, [3]University of Arkansas.

433.03 **Constraints on Disk Heating Agents Across the Hubble Sequence**
Kristen L. Shapiro[1], J. Gerssen[2]
[1]Northrop Grumman Aerospace Systems, [2]Leibniz-Institut fuer Astrophysik Potsdam, Germany.

433.04 **Determination of Resonance Locations in a sample of Barred Spiral Galaxies**
Amber Sierra[1], M. S. Seigar[1], P. Treuhardt[1], T. Mears[1], I. Puerari[2]
[1]University of Arkansas at Little Rock, [2]Instituto Nacional de Astrofisica, Optica y Electronica, Mexico.

433.05 **Systematic Problems With Stellar Halo Modelling**
Jeremy Bailin[1]
[1]University of Michigan.

433.06 **A Comparison of Four Methods for Measuring Supermassive Black Hole Masses**
Ismaeel Ahdulla Akhlite Al-Baidhany[1], M. S. Seigar[1], P. Treuthardt[1], D. Kennefick[2], J. Kennefick[2], C. H. S. Lacy[2], B. Davis[2]
[1]University of Arkansas at Little Rock, [2]University of Arkansas at Fayetteville.

433.07 **Bars And Agn Activity**
Myung Gyoon Lee[1], G. Lee[1], J. Woo[1], H. Hwang[2], J. Lee[3], J. Sohn[1], J. Lee[1]
[1]Seoul National Univ., Korea, Republic of, [2]Smithsonian Astrophysical Observatory, [3]Korea Astronomy and Space Science Institute, Korea, Republic of.

433.08 **The EDGES Survey: Searching for Faint Stellar Distributions**
Liese van Zee[1], D. A. Dale[2], K. L. Barnes[1], S. Staudaher[2], D. Calzetti[3], J. J. Dalcanton[4], J. S. Bullock[5], R. Chandar[6]
[1]Indiana Univ., [2]University of Wyoming, [3]University of Massachusetts, [4]University of Washington, [5]University of California, Irvine, [6]University of Toledo.

433.09 **An Update of HIGGS: The Herschel Inner Galaxy Gas Survey**
Allison P. M. Towner[1], C. L. Martin[2], HIGGS Team
[1]The University of Arizona, [2]Oberlin College.

433.10 **The Smith Stream: A High Velocity Cloud crossing the Milky Way Disk**
Felix J. Lockman[1]
[1]NRAO.

434 Starburst Galaxies

Wednesday, 9:00 am - 7:30 pm, Exhibit Hall, Dena'ina Center

434.01 **Star formation in Kiso measle galaxies**
Debra M. Elmegreen[1], B. G. Elmegreen[2]
[1]Vassar College, [2]IBM T.J. Watson Research Ctr..

434.02 **Kinematics of Cool Clouds in Realistic Galaxy Winds**
Edward Cheng[1], M. Wojtaszek[1], J. Everett[1]
[1]University of Wisconsin - Madison.

434.03 **Cosmic Rays in M82: Testing the Calorimeter Model**
Tova Yoast-Hull[1], J. Everett[1], J. S. Gallagher, III[1], E. Zweibel[1]
[1]University of Wisconsin-Madison.

434.04 **Predicting Neutral-Cloud Absorption Line Profiles in Galactic Winds**
Michelle Wojtaszek[1], E. Cheng[1], J. Everett[1]
[1]UW Madison.

434.05 **Probing the Ionized Medium in Early Universe with ZEUS(1 & 2)**
Carl Ferkinhoff[1], D. Brisbin[1], T. Nikola[1], S. Parshley[1], G. Stacey[1], S. Hailey-Dunsheath[2], T. G. Phillips[3], E. Falgarone[4], D. Benford[5], J. Staghun[5], K. Irwin[6], S. Cho[6], M. Niemack[6]
[1]Cornell University, [2]JPL, [3]Caltech, [4]3 LERMA, CNRS, Observatoire de Paris and ENS, France, [5]Goddard Space Flight Center, [6]NIST Boulder.

435 Galaxy Clusters

Wednesday, 9:00 am - 7:30 pm, Exhibit Hall, Dena'ina Center

435.01 **The Outskirts Of Galaxy Clusters: To r200 And Beyond With Suzaku, Xmm-newton And Chandra**
Jithin V. George[1], R. Mushotzky[2], E. D. Miller[3], M. Bautz[3], D. Davis[4], J. Henry[5]
[1]University of Maryland, [2]University of Maryland / GSFC, [3]MIT Kavli Institute for Astrophysics and Space Research, [4]CRESST and X-ray Astrophysics Laboratory, NASA/ GSFC, [5]University of Hawaii.

435.02 **A Spectroscopic Study of Fossil Group Systems: Are Fossil Groups Truly Fossilized?**
Hanna Herbst[1], E. Wilcots[1], K. Hess[1], C. Gerhartz[1], J. Kaczmarek[1]
[1]University of Wisconsin.

435.03 **The Masses and Bulk Velocities of Galaxy Clusters in Simulations of Structure Formation with QMOND**
Stacy S. McGaugh[1], H. Katz[1], P. Teuben[1], G. Angus[2]
[1]Univ. of Maryland, [2]Univ. of Cape Town, South Africa.

435.04 **The Metal Abundance of High-Redshift Galaxy Clusters with Suzaku**
Eric D. Miller[1], M. Bautz[1], W. Forman[2], C. Jones[2], B. Benson[3], D. Marrone[4], C. Reichardt[5], F. W. High[3], M. Brodwin[6], J. Carlstrom[3]
[1]MIT, [2]SAO/CfA, [3]U. Chicago, [4]U. Arizona, [5]UC Berkeley, [6]U. Missouri, Kansas City.

435.05 **A Recent Cluster Merger Bent the Radio Source in Abell 562**
Percy L. Gomez[1]
[1]Gemini Obs., Chile.

435.06 **Enhanced Specific Star Formation along the Filament feeding the Cluster Abell 85**
Dario Fadda[1], F. Durret[2], L. Edwards[3]
[1]Caltech, [2]IAP, France, [3]Mount Allison University, Canada.

435.07 **Chandra Study of the Ultra-Steep Spectrum Radio Relic Cluster Abell 2443**
Tracy E. Clarke[1], S. Randall[2], C. Sarazin[3], E. Blanton[4]
[1]Naval Research Lab., [2]CFA, [3]University of Virginia, [4]Boston University.

435.08 **The Importance of High-Mass Stars for Metal Enrichment in Galaxy Clusters**
Caitlin Heath[1], B. J. Morsony[2], J. C. Workman[1]
[1]Colorado Mesa University, [2]University of Wisconsin.

435.09 **Cool Cores In Galaxy Clusters: How Do They Work?**
Jack O. Burns[1], S. Skory[1], E. Hallman[1], S. Skillman[1]
[1]Univ. of Colorado at Boulder.

435.10 **Matter Substructure in High Redshift Clusters of Galaxies**
Paul M. Huwe[1]
[1]Brown University.

436 Cosmology & Cosmic Microwave Background

Wednesday, 9:00 am - 7:30 pm, Exhibit Hall, Dena'ina Center

436.01 **Weak Lensing Magnification using a Photometric Fundamental Plane**
Genevieve Graves[1], E. M. Huff[1]
[1]Univ. of California at Berkeley.

436.02 **Refsdal's Dream Frustrated by Cosinusoidal Potential?**
David F. Bartlett[1], J. P. Cumalat[1]
[1]Univ. of Colorado.

436.03 **Faraday Rotation due to Magnetic Fields in the Cosmic Web**
Dongsu Ryu[1], T. Akahori[2]
[1]Chungnam National University, Korea, Republic of, [2]Korea Astronomy and Space Science Institute, Korea, Republic of.

436.04 **Intergalactic Magnetic Field and Arrival Direction of Ultra-High-Energy Iron Nuclei**
Hyesung Kang[1], S. Das[2], D. Ryu[3]
[1]Pusan National Univ., Korea, Republic of, [2]Indian Institute of Technology Guwahati, India, [3]Chungnam National Univ., Korea, Republic of.

436.05 **CANDELS Results on High-Redshift Active Galactic Nuclei**
Anton M. Koekemoer[1], J. Donley[1], N. A. Grogin[1], N. P. Hathi[2], D. D. Kocevski[3], R. A. Lucas[1], K. P. Nandra[4], J. Trump[3], C. Conselice[5], S. M. Faber[3], H. C. Ferguson[1], R. R. Chary[6], CANDELS Team
[1]STScI, [2]OCIW, [3]UCSC, [4]MPE, Germany, [5]University of Nottingham, United Kingdom, [6]Caltech.

436.06 **Simulation of Cosmic Microwave Background Map Reconstruction with Large Asymmetric Beams**
Robert Lee[1], E. F. Bunn[1]
[1]*University of Richmond.*

436.07 **Polarization Predictions for Cosmological Models with Broken Isotropy**
Qingyang Xue[1], E. F. Bunn[1]
[1]*University of Richmond.*

437 Astronomy Education & Public Outreach

Wednesday, 9:00 am - 7:30 pm, Exhibit Hall, Dena'ina Center

437.01 **Astrobites: The Astro-ph Reader's Digest For Undergraduates**
Susanna Kohler[1], L. M. Weiss[2], C. M. Faesi[3], Astrobites Team
[1]*University of Colorado Boulder,* [2]*UC Berkeley,* [3]*Harvard University.*

437.02 **Undergraduate Research at SETI in Astrobiology**
Monika Kress[1], C. Phillips[2], E. DeVore[2], O. Hubickyj[1]
[1]*San Jose State Univ.,* [2]*SETI Institute.*

437.03 **Using Group Research Projects to Stimulate Undergraduate Astronomy Major Learning**
Allison M. McGraw[1], K. K. Hardegree-Ullman[1], J. D. Turner[1], Y. L. Shirley[1], A. M. Walker-LaFollette[1], A. N. Robertson[1], T. M. Carleton[1], B. M. Smart[1], A. P. M. Towner[1], S. C. Wallace[1], C. W. Smith[1], L. C. Small[1], M. J. Daugherty[1], B. C. Guvenen[1], B. E. Crawford[1], C. L. Austin[1], W. M. Schlingman[1]
[1]*The University of Arizona.*

437.04 **Changing the Face of Astronomy Through Authentic Research Experiences**
Kimberly A. Coble[1], K. Bell[2], J. Jafri[3], G. Lyon[3], M. Hammergren[4]
[1]*Chicago State University,* [2]*Mother McAuley High School,* [3]*Project Exploration,* [4]*Adler Planetarium.*

437.05 **Open Your Eyes to the Skies: An Innovative and Interdisplinary Astronomy/ Astrochemistry Teaching Laboratory**
Leslie Looney[1], B. McCall[1], N. Glumac[1]
[1]*University of Illinois.*

437.06 **The APSU 0.5m Telescope - A Hands-On Learning Environment for Secondary Teachers**
J. Allyn Smith[1], S. L. Buckner[1], S. F. Pirkle[1]
[1]*Austin Peay State Univ..*

437.07 **Teach Astronomy: An Online Textbook for Introductory Astronomy Courses and Resources for Informal Learners**
Kevin Hardegree-Ullman[1], C. D. Impey[1], A. Patikkal[1]
[1]*University of Arizona.*

437.08 **Astr 101 Students' Attitudes Towards Essays On Transits, Eclipses And Occultations**
Noella L. D'Cruz[1]
[1]*Joliet Junior College.*

437.09 **Introducing the 'Science Myths Revealed' Misconception Video Series**
Bonnie Eisenhamer[1], R. Villard[1], M. Estacion[1], J. Hassan[1], H. Ryer[1]
[1]*STScI.*

437.10 **Gravitational Wave Astronomy in the High School Classroom**
Benjamin F. Farr[1], G. Schelbert[2], L. Trouille[1]
[1]*Northwestern University,* [2]*Evanston Township High School.*

437.11 **Big Explosions and Strong Gravity: A Framework for Astronomy Outreach at a University**
Sarah E. Eyermann[1], A. E. Hornschemeier[1]
[1]NASA GSFC.

437.12 **New Planetarium Show: "Max Goes To The Moon"**
Matthew Benjamin[1]
[1]University of Colorado, Boulder.

437.13 **Snapshots of the Universe: A Multi-Lingual Astronomy Art Book**
Rachael Beaton[1], L. Jackson[1], J. Carlberg[2], K. Johnson[1], R. Marchand[3], G. Sivakoff[3], I. Czekala[4], G. Damke[1], J. Dean[1], M. Drosback[5], N. Gugliucci[1], O. Martinez[4], A. Wong[1], G. Zasowski[1], Dark Skies, Bright Kids
[1]Univ. of Virginia, [2]Carnegie DTM, [3]Univ. of Alberta, Canada, [4]Harvard/CfA, [5]AAAS/AIP Congressional Fellow.

437.14 **Training Families To Learn Science Together Using Astronomical Topics**
Jacob Noel-Storr[1], G. Wyllie[1], D. Lierheimer[1]
[1]Rochester Inst. Of Technology.

437.15 **The IRIS Mission: A Colorful EPO Program**
Deborah K. Scherrer[1]
[1]Stanford Univ..

POSTERS: WED

438 Star Clusters

Wednesday, 9:00 am - 7:30 pm, Exhibit Hall, Dena'ina Center

438.01 **Cluster Membership, Binarity and Stellar Rotation in the Young Open Cluster M37**
Aaron M. Geller[1], S. Meibom[2], S. Barnes[3], R. D. Mathieu[4], J. Hartman[5], M. Holman[2]
[1]Northwestern University, [2]Harvard-Smithsonian Center for Astrophysics, [3]Space Science Institute, [4]University of Wisconsin - Madison, [5]Princeton University.

438.02 **H-alpha and H-beta Photometry of Selected Open Clusters**
Michael D. Joner[1], E. G. Hintz[1]
[1]Brigham Young Univ..

438.03 **A New Analysis of Multiple Main-Sequence Turn-Offs in Intermediate-Age Star Clusters**
Vera Kozhurina-Platais[1], A. Dotter[1], S. E. de Mink[1], I. Platais[2], P. Goudfrooij[1]
[1]STScI, [2]JHU.

438.04 **A High Resolution Spectroscopic Investigation of Near-Turnoff Stars in M67**
Courtney McGahee[1], J. R. King[1], C. P. Deliyannis[2], R. M. Maderak[2]
[1]Clemson University, [2]Indiana University.

438.05 **Searching for Metallicity Spread in Star Clusters using HST/WFC3 Multiband Photometry**
Daniel Oravetz[1], J. Holtzman[1]
[1]New Mexico State University.

438.06 **A New Explanation of Globular Cluster Color Bimodality: 6-year Results and Implications**
Suk-Jin Yoon[1]
[1]Yonsei Univ., Korea, Republic of.

438.07 **The Structural Parameters of the Globular Clusters in M31 with PAndAS**
Kristin Woodley[1], The Pan-Andromeda Archaeological Survey (PAndAS)
[1]University of British Columbia, Canada.

438.08 **Characterizing Globular Clusters Using a Bayesian Approach**
Roger Cohen[1], T. von Hippel[2], A. Sarajedini[1]
[1]Univ. Of Florida, [2]Embry-Riddle Aeronautical University.

438.09 **Stellar Debris Streams in the WISE All-Sky Data Release**
Carl J. Grillmair[1], R. Cutri[1], F. Masci[1], T. Jarrett[1]
[1]Caltech.

438.10 **WITHDRAWN: A Study Of Sub-galactic Structure Formation Using A New Cosmological Hydrodynamic Code**
Jihye Shin[1], J. Kim[2], S. S. Kim[1], S. Yoon[3], C. Park[2]
[1]Kyung Hee University, Korea, Republic of, [2]Korea Institute for Advanced Study, Korea, Republic of, [3]Yonsei University, Korea, Republic of.

Thursday, 14 June 2012

Invited Session 500 SPD Parker Lecture: Solar Twins and Stellar Maunder Minima

Thursday, 8:30 am - 9:20 am, Ballroom B, Dena'ina Center

500.00C **Chair**
Shadia R. Habbal[1]
[1]*Univ. of Hawaii at Manoa.*

500.01 **Solar Twins and Stellar Maunder Minima**
Jeffrey C. Hall[1]
[1]*Lowell Obs..*

501 Bridging Laboratory and Astrophysics: Nuclear

Thursday, 10:00 am - 11:30 am, Summit Hall 1, Egan Center

Laboratory astrophysics is the Rosetta Stone that enables astronomers to understand and interpret the cosmos. This session will focus on the interplay between astrophysics with theoretical and experimental studies into the underlying nuclear processes which drive our cosmos.

501.00C **Chair**
Nancy S. Brickhouse[1]
[1]*Harvard-Smithsonian, CfA.*

501.01 **Nuclear Physics Input for Supernova Explosion and Nucleosynthesis**
Yong-Zhong Qian[1]
[1]*University of Minnesota.*

501.02 **Nuclear and Computational Physics for Predictive Simulations of the S Process**
Falk Herwig[1]
[1]*University of Victoria, Canada.*

501.03 **Measuring Nuclear Reactions to Understand Astrophysical Processes**
Artemis Spyrou[1]
[1]*Michigan State University.*

502 Galaxy Mergers from the Largest to the Smallest Scales: Post-Merger Signatures and Recoiling SMBHs

Thursday, 10:00 am - 11:30 am, Room 2, Dena'ina Center

The final black hole produced from the coalescence of SMBHS with unequal masses and/or spins can recoil at velocities exceeding 3000 km/s, due to the asymmetric emission of gravitational waves. In this session, we present the latest predictions for recoil velocities as calculated by numerical simulations. We then examine possible electromagnetic signatures of recoil, including its influence on any surrounding accretion disk. We conclude by examining astrophysical implications of recoil, with potential implications for galaxy evolution at the epoch of structure formation, as a new tracer of the merger history in clusters of galaxies, and effects on the nuclear structure of AGN. This session links back to the earlier sessions, re-emphasizing the various and tight links between different stages of galaxy mergers from large to small scales.

502.00 **Chair**
Jeremy Schnittman[1]
[1]*NASA/GSFC.*

502.01 **Numerical Relativity Calculations of Black Hole Recoils**
Manuela Campanelli[1]
[1]Rochester Institute of Technology.

502.02 **Observational Signatures of Recoiling Supermassive Black Holes**
Andrew Robinson[1]
[1]RIT.

502.03 **Recoiling Massive Black Holes in Galaxy Mergers**
Piero Madau[1]
[1]University of California, Santa Cruz.

502.04 **Electromagnetic Emission from Supermassive Black Hole Mergers**
Zoltan Haiman[1]
[1]Columbia University.

503 Lyman Alpha Emitters as Probes of Galaxy Formation and Cosmology: Measuring Large-Scale Structure

Thursday, 10:00 am - 11:30 am, Summit Hall 2, Egan Center

Three 20+5 minute talks will be given summarizing the extent to which Lyman Alpha Emitters (LAEs) can be used as reliable tracers of the dark matter distribution. Large surveys of LAEs plan to use their spatial clustering to probe the properties of dark energy and dark matter. This requires a deep understanding of the correspondence between observed LAEs and the underlying dark matter halos. The requirement for significant Lyman Alpha emission to escape a galaxy for it to enter a sample of LAEs makes radiative transfer a key ingredient in developing this understanding, and radiative transfer effects on both local and cosmological scales will be described. Furthermore, the study of rare overdense regions in large Ly alpha surveys gives clues to the formation of galaxy clusters and brightest cluster galaxies. The session will conclude with a 15-minute moderated discussion of outstanding questions and how to resolve them.

503.00C **Chair**
Karl Gebhardt[1]
[1]Univ. of Texas at Austin.

503.01 **Large-Scale Structure of Lyman-Alpha Emitters from Radiative Transfer Modeling**
Zheng Zheng[1], R. Cen[2], H. Trac[3], J. Miralda-Escude[4]
[1]University of Utah, [2]Princeton University, [3]Carnegie Mellon University, [4]Institucio Catalana de Recerca i Estudis Avancats, Spain.

503.02 **How Lyman Alpha Scattering Through Small-Scale Outflows Affects the Large Scale Clustering of Lyman Alpha Selected Galaxies**
Mark Dijkstra[1], S. Wyithe[2], R. Angulo[1]
[1]Max Planck Institute for Astrophysics, Germany, [2]University of Melbourne, Australia.

503.03 **The First Galaxy Clusters**
Roderik Overzier[1]
[1]University of Texas at Austin.

504 Einstein vs Schwinger: Who is Right about Gravity? III

Thursday, 10:00 am - 11:30 am, Summit Hall 4, Egan Center

For some time General Relativity, the Standard Model of Cosmology, and the Standard Model of Particle Physics have been mutually supportive. Particle physicists have always known that their model is incomplete; something else is needed – perhaps the Higgs Boson and related supersymmetric particles. Early results from the Large Hadron Collider have not

yet identified physics beyond the Standard Model. A hoped-for candidate for dark matter, the lightest supersymmetric particle has yet to be observed.

In the fall of 2011, a new challenge to Einstein appeared: a tachyonic neutrino tunneling from CERN to Gran Sasso. This challenge sharpens an earlier result from MINOS which has a baseline from Fermilab to a mine in northern Minnesota. New results are expected by Spring, 2012. This session will explore evidence for New Physics and New Astronomy. The latter includes the Dark Ages and the peaks in the Cosmic Microwave Background observed by the Wilkinson Microwave Anisotropy Probe and the South Pole Telescope.

504.00C **Chair**
David F. Bartlett[1]
[1]Univ. of Colorado.

504.01 **A View From a Particle Experimentalist**
John Perry Cumalat[1], D. F. Bartlett[1]
[1]University of Colorado, Boulder.

504.02 **The Relationship Between WMAP (ILC) Small-scale Features and Nearby Galactic HI Structure**
Gerrit L. Verschuur[1]
[1]University of Memphis.

504.03 **The Cosmic Microwave Background Radiation - A Unique Window on the Early Universe**
Gary Hinshaw[1]
[1]University of British Columbia.

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505 Solar Systems II

Thursday, 10:00 am - 11:30 am, Ballroom C, Dena'ina Center

505.00C **Chair**
Edward F. Guinan[1]
[1]Villanova Univ..

505.01 **A New Spitzer IRAC Technique to Characterize Exoplanet Atmospheres**
Jessica Krick[1], J. Ingalls[1], S. Carey[1], K. von Braun[1]
[1]Caltech.

505.02 **Exploring the Smallest Planet Candidates from Kepler**
Thomas Barclay[1], J. Rowe[1], Kepler Science Team
[1]NASA Ames Research Center.

505.03 **A Non-detection Of Star-Planet Interaction In The Extreme Wasp-18 System**
Brendan P. Miller[1], E. Gallo[1], J. T. Wright[2], A. K. Dupree[3]
[1]University of Michigan, [2]Pennsylvania State University, [3]Harvard-Smithsonian Center for Astrophysics.

505.04 **Kepler-22 b and Gl 667C c: A Comparison In Habitability**
Rory Barnes[1], V. S. Meadows[1]
[1]University of Washington.

505.05 **The FINESSE Mission**
Mark R. Swain[1]
[1]JPL.

505.06 **Exoplanets, Cool Stars, and Interferometry**
Kaspar von Braun[1], T. S. Boyajian[2], S. R. Kane[1], G. T. van Belle[3], L. Hebb[4], J. Jones[2], D. R. Ciardi[1], S. Raymond[5], M. Lopez-Morales[6], H. A. Knutson[1], T. ten Brummelaar[7], C. Farrington[7], G. Schaefer[7], T. CHARA Group[7]
[1]Caltech, [2]Georgia State University, [3]Lowell Observatory, [4]Vanderbilt University, [5]Universite de Bordeaux, France, [6]Institut de Ciencies de L'Espai, Spain, [7]CHARA.

505.07 **The Effect of Planets Beyond the Ice Line on the Accretion of Volatiles by Habitable-Zone Rocky Planets**
Jack J. Lissauer[1], E. V. Quintana[1]
[1]NASA Ames Research Center.

506 Stars with Disks, Pre-Main Sequence and Main-Sequence Stars

Thursday, 10:00 am - 11:30 am, Room 1, Dena'ina Center

506.00C **Chair**
Mark S. Giampapa[1]
[1]NOAO.

506.01 **Dust and Gas Depletion in the Disk around Herbig Ae Star Oph IRS 48**
Joanna Brown[1], G. Herczeg[2], S. Andrews[1], E. van Dishoeck[3], D. Wilner[1], K. Rosenfeld[1], K. Pontoppidan[4]
[1]Harvard-Smithsonian Center for Astrophysics, [2]Kavli Institute for Astronomy and Astrophysics, China, [3]Leiden Observatory, Netherlands, [4]Space Telescope Science Institute.

506.02 **Model Images of Inclined Disks with Active Planet Formation**
Hannah Jang-Condell[1], N. J. Turner[2]
[1]University of Wyoming, [2]JPL/Caltech.

506.03 **An Eccentric Debris Ring around the Nearby G Star HD 202628**
Karl R. Stapelfeldt[1], J. E. Krist[2], G. C. Bryden[2], P. Plavchan[3]
[1]NASA Goddard Space Flight Center, [2]Jet Propulsion Laboratory, Caltech, [3]NASA Exoplanet Science Institute.

506.04 **Constraining Stellar Models With Extremely High-Precision Interferometric Measurements**
Anders M. Jorgensen[1], J. T. Armstrong[2], H. R. Schmitt[3], T. Hall[1], E. K. Baines[2], D. Mozurkewich[4], D. J. Hutter[5]
[1]New Mexico Tech, [2]Naval Research Laboratory, [3]Computational Physics, Inc., [4]Seabrook Enginering, [5]Naval Observatory Flagstaff Station.

506.05 **Studying the Gas in Circumstellar Disks with Dust Gaps and Holes**
Catherine Espaillat[1]
[1]Harvard-Smithsonian Center for Astrophysics.

506.06 **Radio Emission from YSOs : Tackling the (Reverse) Luminosity Problem**
Anna Scaife[1]
[1]University of Southampton, United Kingdom.

506.07 **Gravitational Slingshot of Young Massive Stars in Orion**
Jonathan Tan[1], S. Chatterjee[1]
[1]Univ. of Florida.

507 Galaxy Clusters I

Thursday, 10:00 am - 11:30 am, Ballroom A, Dena'ina Center

507.00C **Chair**
James D. Lowenthal[1]
[1]Smith College.

507.01 **Intrinsic and observed concentration-mass relation**
Elena Rasia[1], M. Meneghetti[2], S. Borgani[3], S. Ettori[2]
[1]University of Michigan, [2]Osservatorio di Bologna, Italy, [3]University of Trieste, Italy.

507.02 Joint SZ/X-Ray Deprojections and Nonthermal Pressure Profiles of Galaxy Clusters Using Bolocam
Jennifer Shitanishi[1], E. Pierpaoli[1], S. Ameglio[1], J. Sayers[2], S. Golwala[2], N. Czakon[2], A. Mantz[3], K. Umetsu[4], E. Medezinski[5], M. Nonino[6], A. Molino[7], M. Postman[8]
[1]University of Southern California, [2]California Institute of Technology, [3]NASA Goddard Space Flight Center, [4]Institute of Astronomy and Astrophysics, Academia Sinica, Taiwan, [5]John Hopkins University, [6]INAF Osservatorio Astronomico di Trieste, Italy, [7]Instituto de Astrofísica de Andalucía (CSIC), Spain, [8]Space Telescope Science Institute.

507.03 Calculating Cluster Masses via the Sunyaev-Zel'dovich Effect
Ashley Lindley[1], D. Landry[1], M. Bonamente[1], M. Joy[2], E. Bulbul[3], J. E. Carlstrom[4], T. L. Culverhouse[4], M. Gralla[4], C. Greer[4], D. Hawkins[5], J. W. Lamb[5], E. M. Leitch[5], D. P. Marrone[6], A. Miller[7], T. Mroczkowski[8], S. Muchovej[5], T. Plagge[4], D. Woody[5]
[1]University of Alabama Huntsville, [2]NASA Marshall Space Flight Center, [3]Harvard - Smithsonian Center for Astrophysics, [4]University of Chicago, [5]Owens Valley Radio Observatory, [6]University of Arizona, [7]Columbia University, [8]Jet Propulsion Laboratory/ California Institute of Technology.

507.04D Galaxy Cluster Scaling Relations Using Resolved Sunyaev-Zel'dovich Maps Observed with Bolocam
Niclole G. Czakon[1], J. Sayers[1], S. R. Golwala[1], A. Mantz[2], E. Pierpaoli[3], K. Umetsu[4], S. Molnar[4], K. Lin[4]
[1]Calif Institute of Technology, [2]Kavli Institute for Cosmological Physics, [3]University of Souther California, [4]Academica Sinica Institute of Astronomy and Astrophysics, Taiwan.

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507.05 Planck Intermediate Paper: Physics Of The Hot Gas In The Coma Cluster
Pasquale Mazzotta[1], Planck Collaboration
[1]CfA.

507.06 The Effects Of AGN On X-ray And SZ Galaxy Clusters
Camille Avestruz[1], D. Rudd[1], D. Nagai[1]
[1]Yale University.

507.07 A Comparison Of X-ray, Radio, And Lensing Results With GBT+MUSTANG Observations Of The Sunyaev-Zel'dovich Effect In Galaxy Clusters
Tony Mroczkowski[1], M. Devlin[2], S. Dicker[2], P. Korngut[1], B. Mason[3], E. Reese[2], C. Romero[4], C. Sarazin[4], M. Sun[4], A. Young[2], Cluster Lensing And Supernova survey with Hubble
[1]Jet Propulsion Lab / Caltech, [2]University of Pennsylvania, [3]NRAO, [4]University of Virginia.

507.08 Search for Galaxy-ICM Interaction in Rich Cluster of Galaxies
Liyi Gu[1], N. Inada[2], S. Konami[3], T. Kodama[4], K. Nakazawa[1], M. Kawaharada[5], K. Makishima[1]
[1]University of Tokyo, Japan, [2]Nara National College of Technology, Japan, [3]Tokyo University of Science, Japan, [4]National Astronomical Observatory of Japan, Japan, [5]Institute of Space and Astronautical Science, Japan.

508 CMEs I

Thursday, 10:00 am - 11:30 am, Room 4, Dena'ina Center

508.00C Chair
Stephen W. Kahler[1]
[1]Air Force Research Laboratory.

508.01 The Rayleigh-Taylor Instability In The Solar Corona: Prominence Coronal-cavity Interactions And The Evolution To Eruptive States
Thomas Berger[1]
[1]Lockheed Martin Adv. Tech. Ctr..

508.02 **Observations from SDO and Hinode of a Twisting and Writhing Start to a Solar-filament-eruption Cascade**
Alphonse C. Sterling[1], R. L. Moore[2]
[1]NASA's MSFC, Japan, [2]NASA's MSFC.

508.03 **Prior Flaring: A Complement to Free Magnetic Energy for Forecasting Solar Eruptions**
David Falconer[1], R. Moore[2], A. Barghouty[2], I. Khazanov[3]
[1]UAHuntsville/MSFC, [2]NASA's MSFC, [3]UAHuntsville.

508.04 **Radio Imaging Of Shock-accelerated Electrons Associated With An Erupting Plasmoid On The 3rd Of November 2010**
Hazel Bain[1], S. Krucker[1], L. Glesener[1], R. P. Lin[1]
[1]University of California, Berkeley.

508.05 **Signatures Of Tether-cutting Reconnections In Pre-eruption Coronal Flux Ropes**
Yuhong Fan[1]
[1]HAO/NCAR.

508.06 **Modeling Of Coronal Mass Ejection Generation And Acceleration With A High Fidelity Multi-fluid Code**
Vyacheslav Lukin[1], M. G. Linton[1]
[1]Naval Research Laboratory.

509 Flares I

Thursday, 10:00 am - 11:30 am, Room 5, Dena'ina Center

509.00C **Chair**
Hugh S. Hudson[1]
[1]UC, Berkeley.

509.01 **Analysis and Modeling of Two Flare Loops Observed by AIA and EIS**
Ying Li[1], J. Qiu[1]
[1]Montana State University.

509.02 **Flare Ribbons In The Early Phase Of An SDO Flare: Emission Measure And Energetics**
Lyndsay Fletcher[1], I. G. Hannah[1], H. S. Hudson[2], D. E. Innes[3]
[1]University of Glasgow, United Kingdom, [2]U. C. Berkeley, [3]Max-Planck Institute for Solar System Research, Germany.

509.03 **Investigating the Structure of Impulsive Phase Footpoints**
David Graham[1], I. Hannah[1], L. Fletcher[1], R. Milligan[2]
[1]University of Glasgow, United Kingdom, [2]Queen's University Belfast, United Kingdom.

509.04 **WITHDRAWN: Estimating Parameters For Multiple Flare Acceleration Regions Using Simultaneous X-ray And Radio Observations**
Hamish Reid[1], N. Vilmer[1], E. Kontar[2]
[1]Observatoire De Paris, France, [2]University of Glasgow, United Kingdom.

509.05 **Constraining Differential Emission Measure and Energy Estimates for Microflares and Active Regions by Combining SDO/AIA and RHESSI**
Andrew Inglis[1], S. Christe[1], M. Aschwanden[2]
[1]NASA Goddard Space Flight Center, [2]Lockheed Martin Advanced Technology Center.

509.06 **Evidence of 3-D Reconnection at Null Point from the Observations of Circular Flares and Homologous Jets**
Haimin Wang[1], C. Liu[1]
[1]NJIT.

Invited Session 510 Yup'ik Understandings of the Environment: "The World is Changing Following Its People"

Thursday, 11:40 am - 12:30 pm, Ballroom B, Dena'ina Center

510.00C **Chair**
Lee Anne M. Willson[1]
[1]Iowa State Univ..

510.01 **Yup'ik Understandings of the Environment: "The World is Changing Following Its People."**
Ann Fienup-Riordan[1]
[1]Arctic Studies Center.

511 Bridging Laboratory and Astrophysics: Particles

Thursday, 2:00 pm - 3:30 pm, Summit Hall 1, Egan Center

Laboratory astrophysics is the Rosetta Stone that enables astronomers to understand and interpret the cosmos. This session will focus on the interplay between astrophysics with theoretical and experimental studies into the underlying particle physics processes which drive our cosmos.

511.00C **Chair**
Daniel Wolf Savin[1]
[1]Columbia Astrophysics Lab..

511.01 **Theories of Dark Matter and Their Implications for Astrophysical Observables**
Kathryn Zurek[1]
[1]University of Michigan

511.02 **New Constraints on Temporal Variation of the Fine-Structure "Constant" from the Laboratory Search with Dy**
Dmitry Budker[1], N. Leefer[1], A. Cingöz[2], C. T. M. Weber[1]
[1]University of California, Berkeley, [2]JILA.

511.03 **Ultra-High Energy Cosmic Rays**
Christopher Williams[1]
[1]University of Chicago.

512 Lyman Alpha Emitters as Probes of Galaxy Formation and Cosmology: Studying Reionization

Thursday, 2:00 pm - 3:30 pm, Summit Hall 2, Egan Center

Three 20+5 minute talks will be given summarizing how Lyman Alpha Emitters (LAEs) are being used to characterize the epoch of reionization. The so-called "red damping wing" of a fully neutral IGM absorbs almost all Lyman Alpha photons that escape a galaxy, so very few LAEs should be found in neutral regions. This predicts strong observable features in terms of large-scale LAE clustering when the universe is only partially reionized and a rapid drop in the LAE luminosity function as the redshift of reionization is reached. Current observational constraints will be described. The session will conclude with a 15-minute moderated discussion of outstanding questions and how to resolve them.

512.00C **Chair**
Robin Ciardullo[1]
[1]Penn State Univ..

512.01 **Reionization History and Physical Processes Indicated from the Census of Lyα Emitters at z~7**
Masami Ouchi[1]
[1]University of Tokyo, Japan.

512.02 **Studying Reionization using Lyman Alpha Galaxies**
James E. Rhoads[1]
[1]Arizona State Univ..

512.03 **Probing Reionization with Deep Spectroscopy**
Daniel Stark[1]
[1]Caltech.

513 Star Clusters and the Milky Way

Thursday, 2:00 pm - 3:30 pm, Room 1, Dena'ina Center

513.00C **Chair**
Benjamin Brown[1]
[1]Univ. of Wisconsin - Madison.

513.01 **A Comparison Between the Universal and Environmental Models for the Formation and Destruction of Star Clusters**
Bradley C. Whitmore[1], R. Chandar[2]
[1]STScI, [2]U. of Toledo.

513.02 **Stellar-Mass Black Holes in Dense Star Clusters**
Meagan Morscher[1], F. Rasio[1]
[1]Northwestern University.

513.03 **Evidence for Gamma-ray Jets in the Milky Way**
Meng Su[1]
[1]Harvard University.

513.04 **Searching For Stellar Clusters in Extreme Environments**
Duilia F. De Mello[1]
[1]Catholic University of America.

513.05 **Proper Motions Of The Arches Cluster With Keck Lgs-adaptive Optics: The First Kinematic Mass Measurement Of The Arches**
Will I. Clarkson[1], A. Ghez[2], M. Morris[2], J. Lu[3], A. Stolte[4], N. McCrady[5], T. Do[6], S. Yelda[2]
[1]Indiana University, Bloomington, [2]University of California, Los Angeles, [3]University of Hawaii, [4]Argelander Institut fur Astronomie, Universitat Bonn, Germany, [5]University of Montana, [6]University of California, Irvine.

513.06 **Radial Velocities of Very Metal-Poor Stars as Probes of the Dual Halo Model of the Milky Way**
Timothy C. Beers[1], M. Juric[2], D. Carollo[3], Y. Lee[4], D. An[5], W. Aoki[6], J. E. Norris[7], D. Yong[7]
[1]NOAO/JINA, [2]LSST, [3]Macquarie Univ., Australia, [4]Michigan State Univ./JINA, [5]Ehwa Womans Univ., Korea, Republic of, [6]NAOJ, Japan, [7]RSAA, Australian National Univ., Australia.

513.07 **Vibrationally Excited HCN in the Galactic Center Circumnuclear Disk**
Elisabeth A. Mills[1], M. R. Morris[1], R. Güsten[2]
[1]UCLA, [2]Max-Planck-Institut für Radioastronomie, Germany.

514 Galaxy Clusters II

Thursday, 2:00 pm - 3:30 pm, Ballroom A, Dena'ina Center

514.00C **Chair**
Mark J. Devlin[1]
[1]Univ. of Pennsylvania.

514.01 **A3571, The Brightest Line of Sight Bullet?**
Renato A. Dupke[1], A. Elvas[2], J. Irwin[3]
[1]Univ. of Michigan / Univ. Alabama/ National Observatory Brazil/Eureka Scientific, [2]National Observatory, Brazil, Brazil, [3]Univ. of Alabama.

514.02 **WITHDRAWN: Baryon Content of Massive Galaxy Clusters at z=0-0.6**
Yen-Ting Lin[1], A. Stanford[2], P. Eisenhardt[3], A. Vikhlinin[4], B. Maughan[5], A. Kravtsov[6]
[1]Institute of Astronomy & Astrophysics, Academia Sinica, Taiwan, [2]UC Davis, [3]JPL, [4]CfA, [5]HH Wills Physics Lab, University of Bristol, United Kingdom, [6]KICP, University of Chicago.

514.03 **Using Numerical Simulations to Asses the Importance of High Resolution SZ Observations of Merging Galaxy Clusters**
Sandor M. Molnar[1]
[1]Leung Center for Cosmology and Particle Astrophysics, Taiwan.

514.04 **Suzaku Observations to the Virial Radius of Fossil Group ESO3060170**
Yuanyuan Su[1], R. White[1], E. Miller[2], L. Gu[3]
[1]University of Alabama, [2]MIT, [3]University of Tokyo, Japan.

514.05 **Initial Results from a Very Deep Chandra Observation of the Galaxy Group NGC 5813**
Scott W. Randall[1], P. Nulsen[1], T. Clarke[2], W. Forman[1], C. Jones[1], M. Donahue[3], S. Giacintucci[4], E. Blanton[5]
[1]Center for Astrophysics, [2]Naval Research Laboratory, [3]Michigan State University, [4]University of Maryland, [5]Boston University.

514.06 **The Virgo Cluster Through The AGES**
Rhys Taylor[1]
[1]NAIC, Arecibo Observatory.

515 CMEs II

Thursday, 2:00 pm - 3:30 pm, Room 4, Dena'ina Center

515.00C **Chair**
Sarah Gibson[1]
[1]NCAR.

515.01 **SDO/AIA Detection of Quasi-periodic Wave Trains Within Global EUV ("EIT") Waves and Their Coronal Seismology Implications**
Wei Liu[1], L. Ofman[2], M. J. Aschwanden[3], N. Nitta[3], C. J. Schrijver[3], A. M. Title[3], T. D. Tarbell[3]
[1]Stanford-Lockheed Institute for Space Research, [2]Catholic University of America and NASA Goddard Space Flight Center, [3]Lockheed Martin Solar and Astrophysics Laboratory.

515.02 **Large-scale Coronal Disturbances As Observed By SDO AIA**
Nariaki Nitta[1], C. Schrijver[1], A. title[1], W. Liu[2], J. Lemen[1]
[1]Lockheed Martin, ATC, [2]Lockheed Martin ATC/Stanford U.

515.03 **New High-Accuracy Methods for Automatically Detecting & Tracking CMEs**
Jason Byrne[1], H. Morgan[2], S. R. Habbal[1]
[1]Institute for Astronomy, [2]University of Aberystwyth, United Kingdom.

515.04 **Quantitative Imaging of the Solar Wind: CME Mass Evolution and the Interplanetary Magnetic Flux Balance**
Craig DeForest[1]
[1]Southwest Research Inst..

515.05 **On the Relationship Between Coronal Magnetic Decay Index and CME Speed**
Yan Xu[1], C. Liu[1], J. Jing[1], H. Wang[1]
[1]New Jersey Institute of Tech..

516 Flares II

Thursday, 2:00 pm - 3:30 pm, Room 5, Dena'ina Center

516.00C **Chair**
K. S. Balasubramaniam[1]
[1]USAF/AFRL.

516.01D **Determine the Heating Rate in Reconnection Formed Flare Loops of the M8.0 flare on 2005 May 13**
Wenjuan Liu[1], J. Qiu[1], D. W. Longcope[1], A. Caspi[2]
[1]Montana State University, [2]LASP, University of Colorado.

516.02 **Re-interpretation Of Supra-arcade Downflows In Solar Flares**
Sabrina Savage[1], D. E. McKenzie[2], K. K. Reeves[3]
[1]NASA Goddard/ORAU, [2]Montana State University, [3]Harvard-Smithsonian Center for Astrophysics.

516.03 **Do We Understand Why Most Solar Flares Do Not Generate Quakes?**
Alina Donea[1], C. Lindsey[2]
[1]Monash University, Australia, [2]CORA/North West Research Associates.

516.04 **Stochastic Particle Acceleration by Helical Turbulence in Solar Flares**
Gregory D. Fleishman[1], I. N. Toptygin[2]
[1]NJIT, [2]State Polytechnical University, Russian Federation.

516.05 **Rapid Changes of Photospheric Magnetic Field after Tether-cutting Reconnection and Magnetic Implosion**
Chang Liu[1], N. Deng[1], R. Liu[1], J. Lee[1], T. Wiegelmann[2], J. Jing[1], Y. Xu[1], S. Wang[1], H. Wang[1]
[1]New Jersey Institute of Technology, [2]Max Planck Institut fur Sonnensystemforschung (MPS), Germany.

516.06 **The Effect of Magnetic Topology on the Escape of Flare-accelerated Particles**
Sophie Masson[1], S. K. Antiochos[1], C. R. DeVore[2]
[1]NASA/GSFC, [2]NRL.

517 ALMA Early Science Results & Opportunities

Thursday, 2:00 pm - 3:30 pm, Ballroom B, Dena'ina Center

At the Atacama Large Millimeter/submillimeter Array (ALMA) Special Session in Austin this January, Cycle 0 Early Science results will be presented from the first months of science operations. This Special Session, for the Anchorage AAS meeting, will report scientific results from most of the 9 month Cycle 0 Early Science program (30 September 2011 - 30 June 2012). During this period, ALMA sensitivity, image fidelity, and resolution will greatly improve compared to existing facilities at wavelengths from 0.4 to 3.6 mm (720 - 84 GHz), enabling transformative science across many fields of astrophysics.

The ALMA Cycle 0 Early Science Call for Proposals resulted in an exceptional over-subscription rate of 9:1. A diverse set of 112 high priority programs from scientists

around the globe was granted observing time based on scientific merit as judged by an international review panel. North American PIs are leading 38 of these programs, with targets from Io's atmosphere to high-z quasar hosts.

This Special Session will describe highlights from the North American ALMA Early Science observing programs and will be the first public presentation of ALMA science results obtained by the general community. After an overview of Early Science capabilities and opportunities, users from the North American community will present first science results on topics including the Solar System, planet-forming disks, molecular clouds, star formation, and high-z galaxies. We will solicit contributed oral presentations for ~ 50% of this Special Session.

The timing for this Special Session is particularly advantageous for the community in that it coincides with completion of the first ALMA Early Science cycle, and precedes a major international ALMA science conference being planned for October 2012 in Chile. This Special Session will provide an excellent and timely opportunity for AAS members to discuss the first ALMA science results and plan for future opportunities.

517.00C **Chair**
Kartik Sheth[1]
[1]NRAO.

517.01 **ALMA in Early Science (Cycles 0 and 1)**
Kartik Sheth[1]
[1]NRAO.

517.02 **The Dynamics of Massive Starless Cores**
Jonathan Tan[1], P. Caselli[2], F. Fontani[3], S. Kong[1], M. J. Butler[1]
[1]Univ. of Florida, [2]University of Leeds, United Kingdom, [3]INAF - Osservatorio Astrofisico di Arcetri, Italy.

517.03 **ALMA's View of Molecular Gas in 30 Doradus**
Remy Indebetouw[1], C. Brogan[2], ALMA 30 Doradus Cycle 0 Team
[1]Univ. of Virginia, [2]NRAO.

517.04 **Probing the Molecular Outflows of the Coldest Known Object in the Universe: The Boomerang Nebula**
Raghvendra Sahai[1], W. Vlemmings[1], L. A. Nyman[1], P. Huggins[1]
[1]Caltech.

517.05 **Empirical Far Infrared Spectral Templates for High-z Galaxies**
Nicholas Scoville[1], N. Lee[2], E. LeFloch[3], D. Sanders[2]
[1]Caltech, [2]IFA, [3]CEA, France.

518 Polaris: Mysteries of the North Star

Thursday, 2:00 pm - 3:30 pm, Ballroom C, Dena'ina Center

Polaris (The North Star) is the best known star in the Northern Sky. It belongs to the rarest class of stars: those that have not only aided our understanding of the Universe, but have in fact aided the very progress of humankind, literally helping us find our place on this world. According to Virginia Trimble "Some stars are born great, some achieve greatness while others have greatness thrust upon them". Polaris, as the North Star, had greatness thrust upon it several hundred years ago when precession brought it close to the North Celestial Pole. Since that time, Polaris (alpha Ursae Minoris) serves as an important navigational reference point. Moreover, because of its brightness and special place in the sky, Polaris is frequently alluded to in literature (e.g. Shakespeare's Juluis Casear - as constant as the North Star...) and often plays important roles in legends and myths. For example, in Inuit sky lore Polaris is known as Nuuttuittuq - "the star that never moves". But Polaris, as the nearest Classical Cepheid (and also member of a multiple star system) is astrophysically important and interesting in its own right since its physical properties can be precisely determined.

For example, its distance provides a luminosity, pulsation mode and calibration for the Leavitt Law (Period-Luminosity relation). However, Polaris is full of surprises and mysteries. Over the last century Polaris has undergone rapid and large changes in its pulsation period (increasing at over 4 sec/yr.) and decreasing light and radial velocity amplitudes. During the early 1990s, Polaris nearly stopped pulsating and thus almost ceased being a Cepheid! More recently (and surprisingly) Polaris, and other Cepheids, have been found to have significant mass loss, and to even undergo X-ray and FUV-line emission variability in phase with their pulsations. This Session will highlight Polaris' place in history, and in the field of astronomy, and will also focus on the important role it now plays in the broader understanding of Cepheid structure and evolution.

518.00C1 Chair
Edward F. Guinan[1]
[1]Villanova Univ.

518.00C2 Chair
Massimo Marengo[1]
[1]Iowa State University.

518.01 Place in History and Astrophysics as the Pole Star and the Nearest Cepheid
Edward F. Guinan[1]
[1]Villanova Univ..

518.02 The Basics: Fundamental Properties - Polaris as a Classical Cepheid
Nancy Remage Evans[1]
[1]SAO.

518.03 Polaris: Evolutionary (and Other !) Period Changes and Clues to its Nature
David G. Turner[1]
[1]Saint Mary's Univ., Canada.

518.04 The HST/FGS Cepheid Period-Luminosity Calibration and Subsequent Uses
G. Fritz Benedict[1], B. E. McArthur[1]
[1]Univ. of Texas, Austin.

518.05 Mass Loss in Cepheids: Observational Evidence from IR and Radio Data
Massimo Marengo[1]
[1]Iowa State University.

518.06 The Life and Times of the North Star: What Evolution Models Are Saying about Polaris and Other Cepheids
Hilding Neilson[1]
[1]University of Bonn, Germany.

518.07 Shocking new Discoveries from Polaris and other Cepheids
Scott G. Engle[1]
[1]Villanova Univ..

Invited Session 519 Mix One-Part Astronomy Education Research with One-Part General Education Astronomy Course and You Get a Very Potent Science Literacy Transformation Cocktail

Thursday, 3:40 pm - 4:30 pm, Ballroom B, Dena'ina Center

519.00C Chair
Lee Anne M. Willson[1]
[1]Iowa State Univ..

519.01 **Mix One-Part Astronomy Education Research with One-Part General Education Astronomy Course and You Get a Very Potent Science Literacy Transformation Cocktail**
Edward E. Prather[1]
[1]*CAE/University of Arizona.*

Invited Session 520 AIP Gemant Award: Tycho to Kepler: Four Centuries and More of Astronomy and the Media

Thursday, 4:30 pm - 5:20 pm, Ballroom B, Dena'ina Center

520.00C **Chair**
Catherine O'Riordan[1]
[1]*American Institute of Physics.*

520.01 **Tycho to Kepler: Four Centuries and More of Astronomy and the Media**
Stephen P. Maran[1]
[1]*American Astronomical Society.*

521 The Sun & Solar Topics

Thursday 9:00am - 2:00pm, Exhibit Hall, Dena'ina Center

521.01 *Effects Of Langmuir Waves On Flare-accelerated Electrons In The Inhomogeneous Coronal Plasma*
Heather Ratcliffe[1], E. P. Kontar[1]
[1]University of Glasgow, United Kingdom.

521.02 **Diagnosing the Prominence-Cavity Connection**
Donald Schmit[1], S. Gibson[2]
[1]University of Colorado-Boulder, [2]High Altitude Observatory.

521.03 **Detection of the Horizontal Divergent Flow (HDF) as a Precursor of Sunspot Emergence**
Shin Toriumi[1], K. Hayashi[2], T. Yokoyama[1]
[1]University of Tokyo, Japan, [2]Stanford University.

521.04 **Evidence for Impulsive Heating of Active Region Coronal Loops**
Jeffrey Reep[1], S. Bradshaw[1]
[1]Rice University.

521.05 **Solar Flare Observations of the EUV Continua**
Ryan O. Milligan[1], P. Chamberlin[2], H. Hudson[3], T. Woods[4], M. Mathioudakis[1], L. Fletcher[5], A. Kowalski[6], F. Keenan[1]
[1]QUB, United Kingdom, [2]NASA/GSFC, [3]Space Science Lab, [4]LASP, [5]University of Glasgow, United Kingdom, [6]University of Washington.

521.06 **Stereo Observations Of Fast Magnetosonic Waves In The Extended Corona**
Ryun Young Kwon[1], J. M. Davila[2], L. Ofman[1]
[1]Catholic University of America/NASA Goddard Space Flight Center, [2]NASA Goddard Space Flight Center.

521.07 **Some Like it Hot: the Trajectory of Sungrazing Comet C/2011 W3 (Lovejoy) in the Solar Neighborhood**
Pascal Saint-Hilaire[1], P. W. Chodas[2], K. Battams[3], T. D. Tarbell[4], R. A. Shine[4], W. Liu[5], W. T. Thompson[6], Comet Lovejoy Collaboration Team
[1]Space Sciences Laboratory, University of California, Berkeley, [2]Jet Propulsion Laboratory, [3]Naval Research Laboratory, [4]Lockheed Martin Solar and Astrophysics Laboratory, [5]Stanford-Lockheed Institute for Space Research, [6]Adnet Systems, Inc., NASA Goddard Space Flight Center.

521.08 **Propagation Characteristics of CMEs Associated Magnetic Clouds and Ejecta**
Roksoon Kim[1], N. Gopalswamy[1], K. Cho[1], Y. Moon[2], S. Yashiro[1]
[1]NASA/GSFC, [2]Kyunghee University, Korea, Republic of.

521.09 **Waves and Flares**
Aleksandra Andic[1], R. McAteer[1], J. Jackiewicz[1], L. Boucheron[1], H. Cao[1], B. McNamara[1]
[1]New Mexico State University.

521.10 **WITHDRAWN: Seasonal Variation Of Aerosol Optical Properties Over The High Altitude Station Hanle In Ladakh, India**
Erik J. Larson[1], S. S. Ningombam[2], S. P. Bagare[2], N. Sinha[2], R. B. Singh[2]
[1]University of Colorado, [2]Indian Institude of Astrophysics, India.

521.11 **Structure and Dynamics of Quiescent Prominence Eruptions**
Muzhou Lu[1], Y. Su[2], A. Adriaan van Ballegooijen[2]
[1]Williams College, [2]Harvard-Smithsonian Center for Astrophysics.

521.12 Solar Hard X-ray Observations with NuSTAR
Andrew Marsh[1], D. M. Smith[1], S. Krucker[2], H. S. Hudson[2], G. J. Hurford[2], S. M. White[3], R. A. Mewaldt[4], F. A. Harrison[4], B. W. Grefenstette[4], D. Stern[5]
[1]UC Santa Cruz, [2]UC Berkeley, [3]AFRL, [4]Caltech, [5]JPL.

521.13 Temperature Structure of a Coronal Cavity and Streamer
Therese A. Kucera[1], S. E. Gibson[2], D. J. Schmit[3], E. Landi[4], D. Tripathi[5]
[1]NASA's GSFC, [2]NCAR/HAO, [3]University of Colorado, [4]University of Michigan, [5]Inter-University Centre for Astronomy and Astrophysics, India.

521.14 The Effect Of Phase-speed Filtering On Time-distance Analysis Of Meridional Flow In The Solar Convection Zone.
Sudeepto Chakraborty[1], T. L. Duvall, Jr[2], T. Hartlep[1]
[1]W. W. Hansen Experimental Physics Laboratory, Stanford University, [2]Solar Physics Laboratory, NASA Goddard Space Flight Center.

521.15 Estimate of Energy Release In a Major Flare Using Coronal Loops Data
Anna Malanushenko[1], C. J. Schrijver[2], M. L. DeRosa[2]
[1]LMSAL/MSU, [2]LMSAL.

521.16 Radiating Current Sheets in the Solar Chromosphere
Michael L. Goodman[1], P. G. Judge[2]
[1]West Virginia High Technology Consortium Foundation (MLG's work is supported by the National Science Foundation), [2]High Altitude Observatory, National Center for Atmospheric Research (NCAR - NCAR is sponsored by the National Science Foundation).

521.17 FISS Observations of Chromospheric Transient Brightenings associated with Canceling Magnetic Features
Soyoung Park[1]
[1]Korea Astronomy and Space Science Institute, Korea, Republic of

521.18 The Sun Has A Short Memory: Turbulent Pumping Of Magnetic Flux Reduces Solar Cycle Memory And Precludes Long-term Predictions
Dibyendu Nandi[1], B. B. Karak[2]
[1]Indian Institute of Science Education and Research, Kolkata, India, [2]Indian Institute of Science, India.

521.19 Spectropolarimetry of a Limb Active Region and its Cool Coronal Structures
Philip G. Judge[1], L. Kleint[1], R. Casini[1], T. Schad[2]
[1]HAO, NCAR, [2]Lunar and Planetary Lab, U. Arizona.

521.20 Observation of "Transmission" of an EUV Wave Through a Coronal Hole
Oscar Olmedo[1], A. Vourlidas[1], J. Zhang[2], X. Cheng[3]
[1]Naval Research Laboratory, [2]George Mason University, [3]Nanjing University, China.

521.21 Daily Coronal MHD Simulation Using HMI Near-Real-Time Magnetograms
Keiji Hayashi[1], HMI team
[1]Stanford University.

522 Instrumentation, Computation and Laboratory Astrophysics

Thursday 9:00am - 2:00pm, Exhibit Hall, Dena'ina Center

522.01 Current Status Of Our Work On Improved Uv Coatings
Matthew N. Beasley[1], S. Nikzad[2], H. Greer[2]
[1]University of Colorado at Boulder, CASA, [2]Jet Propulsion Laboratory.

522.02 First Light for MOSFIRE on Keck 1
Ian S. McLean[1]
[1]UCLA.

522.03 **ROBOSPECT: Automated Equivalent Width Measurement for Stellar Spectra**
Christopher Z. Waters[1], J. K. Hollek[2]
[1]Institute for Astronomy, [2]University of Texas.

522.04 **Serviceable Large Low Cost/Mass Infrared 4 Kelvin Telescope Passively Cooled**
Domenick Tenerelli[1], J. Tolomeo[1], A. Klavins[1], D. Putnam[1]
[1]Lockheed Martin Space Systems Company.

522.05 **Next-generation Technologies For Euv Solar Imagers**
Dennis S. Martinez-Galarce[1], P. Boerner[1], R. Stern[1], R. Soufli[2], M. Fernández-Perea[2], L. Shing[1], J. Lemen[1], E. Gullikson[3]
[1]Lockheed Martin Advanced Technology Center, [2]Lawrence Livermore National Laboratory, [3]Lawrence Berkeley National Laboratory.

522.06 **Medium Resolution "EUV" Observing With HST+COS In Cycle 20**
Steven V. Penton[1], J. Duval[1], K. France[2], D. Massa[1], C. Oliveira[1], S. Osterman[2], P. Sonnentrucker[1]
[1]Space Telescope Science Institute, [2]University of Colorado.

522.07 **SunPy: Python for Solar Physics Data Analysis**
V. Keith Hughitt[1], S. Christe[2], J. Ireland[1], A. Shih[2], F. Mayer[3], M. D. Earnshaw[4], C. Young[1], D. Perez-Suarez[5], R. Schwartz[6]
[1]NASA/ADNET SYSTEMS, [2]NASA GSFC, [3]Technische Universitat Wien, Austria, [4]Blackett Laboratory, Imperial College, United Kingdom, [5]Trinity College Dublin, Ireland, [6]NASA/ The Catholic University of America.

522.08 **How the Image Processing Pipeline Handles the Flood of Data from Pan-STARRS 1**
Heather Flewelling[1]
[1]University of Hawaii.

522.09 **Formation of interstellar anions**
Maria Luisa Senent[1]
[1]IEM-CSIC, Spain.

523 Stars, Star Formation, Supernovae, Etc.

Thursday 9:00am - 2:00pm, Exhibit Hall, Dena'ina Center

523.01 **The Relation Between Hydrogen Column Density and Optical Extinction for Supernova Remnants from the Chandra Archive**
Dillon Foight[1], P. Slane[1], T. Guver[2], F. Ozel[2]
[1]Smithsonian Astrophysical Observatory, [2]University of Arizona.

523.02 **Finding Short-Term Variability in Methanol Masers**
Samuel Bonin[1], W. C. Barott[2], T. Catanach[3]
[1]University of New Mexico, [2]Embry-Riddle Aeronautical University, [3]University of Notre Dame.

523.03 **bundances in Red Giant Stars in IC 4756**
Julie Djordjevic[1], J. King[1]
[1]Clemson Universit.y

523.04 **XMM-Newton And Chandra Observations Of The Galactic Mixed-morphology Supernova Remnant G352.7-0.1**
Thomas Pannuti[1], J. P. Napier[1]
[1]Morehead State University.

523.05 **Optical Monitoring and Period Analysis of High Mass X-Ray Binary System BD+53 2262**
Nathaly Zurita[1], E. G. Hintz[1]
[1]Brigham Young University.

523.06 The HETG Orion Legacy Project: Abundances in Trapezium Stars
Norbert S. Schulz[1], D. P. Huenemoerder[1], N. Shen[1], P. Testa[2], J. Nichols[2], C. R. Canizares[1]
[1]MIT, [2]CfA.

523.07 Weak Emission Lines in the NIR Spectrum of 3 Cen A
Glenn Michael Wahlgren[1], M. F. Nieva[2], N. Przybilla[2]
[1]NASA-HQ/CUA, [2]Univ. Erlangen-Nuremberg, Germany.

523.08 Complex Scattered Radiation Fields And Multiple Magnetic Fields In The Protostellar Cluster In NGC 2264
Jungmi KWON[1], M. Tamura[1], R. Kandori[2], N. Kusakabe[2], J. Hashimoto[2], Y. Nakajima[2], F. Nakamura[2], T. Nagayama[3], T. Nagata[4], J. H. Hough[5], M. W. Werner[6], P. S. Teixeira[7]
[1]NAOJ/GUAS, Japan, [2]NAOJ, Japan, [3]Nagoya University, Japan, [4]Kyoto University, Japan, [5]University of Hertfordshire, United Kingdom, [6]Jet Propulsion Laboratory, California Institute of Technology, [7]European Southern Observatory, Germany.

523.09 The Photometric Period and Variability of the Cataclysmic Variable V849 Herculis (PG 1633+115)
Fred Ringwald[1], G. D. Rude, II[1], J. J. Roveto[1], K. K. Khamvongsa[1]
[1]California State University, Fresno.

523.10 Warm H2O And OH Disk Emission In 1548c27
Greg Doppmann[1], J. Najita[2], J. Carr[3]
[1]W. M. Keck Observatory, [2]NOAO, [3]NRL.

523.11 Hidden Gems: Resolving M/L Dwarf + T Dwarf Binaries
Christopher R. Gelino[1], A. J. Burgasser[2]
[1]Caltech, [2]UCSD.

523.12 Photometric and Spectroscopic Analysis of Eclipsing Binary TY Tau
Jennifer Wojno[1], C. H. S. Lacy[2]
[1]University of Louisville, [2]University of Arkansas.

523.13 Two Different Sources of Water in Earth's Accretion Zone of the Solar Nebula
Ekkehard Kuehrt[1], C. Tornow[1], S. Kupper[1], P. Gast[1]
[1]DLR-German Aerospace Center, Germany.

523.14 Probing the Circumstellar Environment of the Herbig Ae Star MWC 325
Sam Ragland[1], K. Ohnaka[2], L. Hillenbrand[3], S. T. Ridgway[4], M. M. Colavita[5], R. Akeson[6], W. Cotton[7], W. C. Danchi[8], M. Hrynevych[1], R. Millan-Gabet[6], W. A. Traub[5]
[1]W. M. Keck Observatory, [2]Max-Planck-Institut für Radioastronomie, Germany, [3]California Institute of Technology, [4]National Optical Astronomy Observatories, [5]Jet Propulsion Laboratory, California Institute of Technology, [6]NExScI, California Institute of Technology, [7]National Radio Astronomy Observatory, [8]NASA Goddard Space Flight Center, Exoplanets and Stellar Astrophysics.

523.15 The Core Velocity Dispersion (CVD) for Taurus Dense Core Clusters
Di Li[1], L. Qian[2]
[1]California Institute of Technology, [2]National Astronomical Observatories, China.

523.16 Understanding Star Formation in the Rosette Molecular Complex: A Chandra View of the Embedded Young Clusters
Junfeng Wang[1]
[1]Harvard-Smithsonian CfA/SAO.

523.17 Spectropolarimetry and Type Ia Supernovae
Amber L. Porter[1], M. Leising[1]
[1]Clemson University.

523.18 The Properties and Kinematics of a New Sample of Cool Subdwarfs from SDSS
Antonia Savcheva[1], A. A. West[1], J. Bochanski[2]
[1]Boston Univ., [2]Pennsylvania State University.

523.19 Eclipsing Binaries through the Double Looking Glass of Kepler and Keck
Lauren M. Weiss[1], G. Marcy[1], J. Orosz[2], W. Welsh[2], A. Prša[3], J. Richards[1], S. Gegenheimer[1], J. S. Bloom[1]
[1]UC Berkeley, [2]San Diego State University, [3]Villanova U..

523.20 New Ultraluminous Supersoft Source in the Small Magellanic Cloud: MAXI J0158-744
Kwan Lok Li[1], T. Lu[1], A. Kong[1]
[1]National Tsing Hua University, Taiwan.

523.21 Chandra and HST Studies of the X-ray Sources in Galactic Globular Clusters
Ting-Ni Lu[1], A. Kong[1], S. F. Anderson[2], C. Bassa[3], W. H. G. Lewin[4], D. Pooley[5], F. Verbunt[3]
[1]National Tsing Hua University, Taiwan, [2]Department of Astronomy, University of Washington, [3]SRON, Netherlands Institute for Space Research, Netherlands, [4]Kavli Institute for Astrophysics and Space Research, Massachusetts Institute of Technology, [5]Eureka Scientific, Inc..

523.22 Evla Observations Of Thioxoethenylidene In The Taurus Molecular Cloud Complex
Nirupam Roy[1], A. Datta[2], E. Momjian[1], A. P. Sarma[3]
[1]National Radio Astronomy Observatory, [2]Center for Astrophysics & Space Astronomy, [3]DePaul University.

523.23 Mass Measurements of Black Holes in X-Ray Transients: Is There a Mass Gap?
Laura Kreidberg[1], C. D. Bailyn[2], W. M. Farr[3], V. Kalogera[3]
[1]University of Chicago, [2]Yale University, [3]Northwestern University.

523.24 The Supernova Spectropolarimetry Project; A Study of the Evolution of Aspherical Stellar Explosions
George Grant Williams[1], P. Smith[2], N. Smith[2], P. Milne[2], J. Hoffman[3], L. Huk[3], D. Leonard[4], L. Dessart[5]
[1]MMT Observatory, [2]Steward Observatory, [3]University of Denver, [4]SDSU, [5]OAMP, France.

524 Galaxies, Galaxy Clusters and Related Topics

Thursday 9:00am - 2:00pm, Exhibit Hall, Dena'ina Center

524.01 Star Formation History of Dwarf Galaxies at z>1 From HST Grism Spectroscopy
Hakim Atek[1]
[1]Caltech.

524.02 Spectroscopic Indicators Of The Ionizing Flux And Radius Of The BLR Of AGN
Gregory A. Shields[1], A. C. Stevens[1], K. L. Smith[2]
[1]Univ. of Texas, [2]Univ. of Maryland.

524.0 Star Formation Intensity, Gas Pressures, And Feedback
Sangeeta Malhotra[1], J. Monkiewicz[1]
[1]Arizona State Univ..

524.04 1.1 mm Observations of the MBM12 Molecular Cloud
Sungeun Kim[1], M. Kim[1], S. Youn[1], M. S. Yun[2], G. W. Wilson[2], I. Aretxaga[3], J. P. Williams[4], D. H. Hughes[3], A. Humphrey[3], J. E. Austermann[5], T. A. Perera[6], P. D. Mauskopf[7], L. Magnani[8]
[1]Sejong University, Korea, Republic of, [2]UMass, [3]INAOE, Mexico, [4]University of Hawaii, [5]University of Colorado, [6]Wesleyan University, [7]Cardiff University, United Kingdom, [8]The University of Georgia.

524.05 Highlights From The Comprehensive Analysis Of 650 Gamma Ray Bursts (nov 2004 - Dic 2010)
Guido Chincarini[1], R. Margutti[2], M. Bernardini[3], E. Zaninoni[4]
[1]University Milano Bicocca & Brera Observatory, Italy, [2]Harvard University & CfA, [3]Osservatorio Astronomico Brera - INAF, Italy, [4]Padua University and Osservatorio Astronomico - Brera - INAF, Italy.

524.06 Halo Occupation Properties of X-ray AGNs
Svetlana Starikova[1], R. Cool[2], D. Eisenstein[3], W. Forman[3], C. Jones[3], R. Hickox[4], C. Kochanek[3], A. Kravtsov[5], S. Murray[6], A. Vikhlinin[3]
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524.07 A Survey Of [CII] And Oxygen At z~1-2
Drew Brisbin[1], G. Stacey[1], C. Ferkinhoff[1], S. Hailey-Dunsheath[1], H. Spoon[1], T. Nikola[1]
[1]Cornell University.

524.08 First Results from the Spitzer Extended Deep Survey (SEDS)
Matthew Ashby[1], J. Huang[1], S. P. Willner[1], Z. Wang[1], G. G. Fazio[1], SEDS Team
[1]SAO.

524.09 Constraining SNe Enrichment Using X-ray Observations of Clusters of Galaxies
G. Esra Bulbul[1], R. Smith[1], M. Lowenstein[2]
[1]Center for Astrophysics, [2]NASA/GSFC.

524.10 Establishing New Black Hole Mass Estimators of Active Galactic Nuclei with Hydrogen Paschen lines
Dohyeong Kim[1], M. Im[1], M. Kim[2]
[1]Seoul National University, Korea, Republic of, [2]National Radio Astronomy Observatory.

524.11 The Atacama Cosmology Telescope Sunyaev-Zel'dovich Equatorial Galaxy Cluster Sample
Felipe Menanteau[1], Atacama Cosmology Telescope
[1]Rutgers University.

524.12 WITHDRAWN: Probing The Antennae Galaxy System Collision With Herschel Hifi And Pacs Spectroscopy
Steven D. Lord[1], E. Sturm[2]
[1]NASA Herschel Science Center, Caltech, [2]Max Planck, MPE, Germany.

524.13 High Resolution SZE Measurements Of CLASH Clusters With MUSTANG
Charles Romero[1], B. Mason[2], T. Mroczkowski[3], S. Dicker[4], A. Young[4], E. Reese[4], M. Devlin[4], P. Korngut[3], C. Sarazin[1], M. Sun[1], Cluster Lensing And Supernova survey with Hubble
[1]University of Virginia, [2]National Radio Astronomy Observatory, [3]Jet Propulsion Lab / Caltech, [4]University of Pennsylvania.

524.14 VIRUS-P Integral Field Spectroscopy of NGC 3310
Kathryn E. Powell[1], R. J. Dufour[1], K. B. Kwitter[2], P. Robertson[3]
[1]Rice University, [2]Williams College, [3]University of Texas.

524.15 Gamma-Ray Bursts in Circumstellar Shells: A Possible Explanation for Flares
Robert Mesler[1], D. J. Whalen[2], N. M. Lloyd-Ronning[2], C. L. Fryer[2], Y. M. Pihlstrom[1]
[1]Unversity of New Mexico, [2]Los Alamos National Laboratory.

524.16 Why Do Galaxies Keep Their Form, But Clusters Of Galaxies Do Not?
John Perry Cumalat[1], D. F. Bartlett[1]
[1]University of Colorado, Boulder.

524.17 **The Luminosity Profile And Structural Parameters Of M31 (Andromeda Galaxy**
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[1]Queen's University, Canada, [2]MIT, [3]UCSC, [4]Harvard University, [5]University of Virginia.

524.18 **Enhanced Star Formation In The Abell 2199 Supercluster Based On Wise**
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[1]Seoul National University, Korea, Republic of.

524.19 **An HI and Optical Study of Interacting Galaxies NGC 672 and IC 1727**
Sara Stanchfield[1], E. Wilcots[1], M. Prescott[2]
[1]UW Madison, [2]UC Santa Barbara.

524.20 **Constraining the Metallicity and Escape Fraction of Two z≈3.1 Lyman-Alpha Emitting Galaxies**
Mark L. A. Richardson[1], E. M. McLinden[1], S. Malhotra[1], J. E. Rhoads[1], E. M. Levesque[2]
[1]Arizona State University, [2]University of Colorado at Boulder.

524.21 **The AGN Fraction in the Local Universe**
Edward C. Moran[1], K. Shahinyan[2]
[1]Wesleyan Univ., [2]Univ. Minnesota.

524.22 **Herschel Pacs Spectroscopy Of Stephan's Quintet: Extreme C+/pah Ratio In The Shocked Gas**
Philip N. Appleton[1], P. Guillard[1], M. Cluver[2], F. Boulanger[3], P. Ogle[1], E. Strurm[4], Herschel OT1_pappleto_1 Team
[1]Caltech, [2]AAO, Australia, [3]IAS, France, [4]MPE, Germany.

524.23 **The Mildly Non-Linear Regime of Structure Formation**
Svetlin V. Tassev[1], M. Zaldarriaga[2]
[1]Harvard University, [2]Institute for Advanced Study.

525 Extrasolar Planets, the Solar System and Other Topics

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525.01 **Transit Model Fitting in the Kepler Science Operations Center Pipeline**
Jie Li[1], C. J. Burke[1], J. M. Jenkins[1], E. V. Quintana[1], J. F. Rowe[1], S. E. Seader[1], P. Tenenbaum[1], J. D. Twicken[1]
[1]SETI Institute/NASA Ames Research Center.

525.02 **On the Relationship Between a High-frequency Type II Solar Radio Burst and Coronal Mass Ejection on February 13, 2011**
Kyung-Suk Cho[1], N. Gopalswamy[2], R. Kwon[3], R. Kim[3], S. Yashiro[3]
[1]KASI, NASA/GSFC & CUA, [2]NASA/GSFC, [3]NASA/GSFC & CUA.

525.03 **Radiogenic heating in exoplanet systems**
Bryce Carande[1], P. Young[1], A. McNamara[1]
[1]Arizona State University.

525.04 **Habitability In Close Binary Systems: Conditions For An Earth-Analog**
Paul A. Mason[1], J. Clark[1]
[1]New Mexico State University.

525.05 **Finding Kepler's Exoearths**
Erik Petigura[1], G. Marcy[1]
[1]UC Berkeley.

525.06 **Determining Exoplanetary Mass From Atmospheric Transmission**
Patricia A. Carroll[1]
[1]University of Washington.

525.07 The Journey of Sungrazing Comet Lovejoy

Paul Bryans[1], M. A'Hearn[2], K. Battams[3], D. Biesecker[4], D. Bodewits[2], D. Boice[5], J. Brown[6], A. Caspi[7], P. Chodas[8], H. Hudson[9], Y. Jia[10], G. Jones[11], H. U. Keller[12], M. Knight[13], J. Linker[14], C. Lisse[15], W. Liu[16], S. McIntosh[17], W. D. Pesnell[1], J. Raymond[18], S. Saar[18], P. Saint-Hilaire[9], C. Schrijver[19], M. Snow[7], T. Tarbell[19], W. Thompson[1], P. Weissman[8], Comet Lovejoy Collaboration Team

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525.08 The Astronomy Workshop

Douglas P. Hamilton[1]

[1]Univ. of Maryland.

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