



2016

ANNUAL REPORT

AMERICAN ASTRONOMICAL SOCIETY



AAS MISSION AND VISION STATEMENT

The mission of the American Astronomical Society is to enhance and share humanity's scientific understanding of the universe.

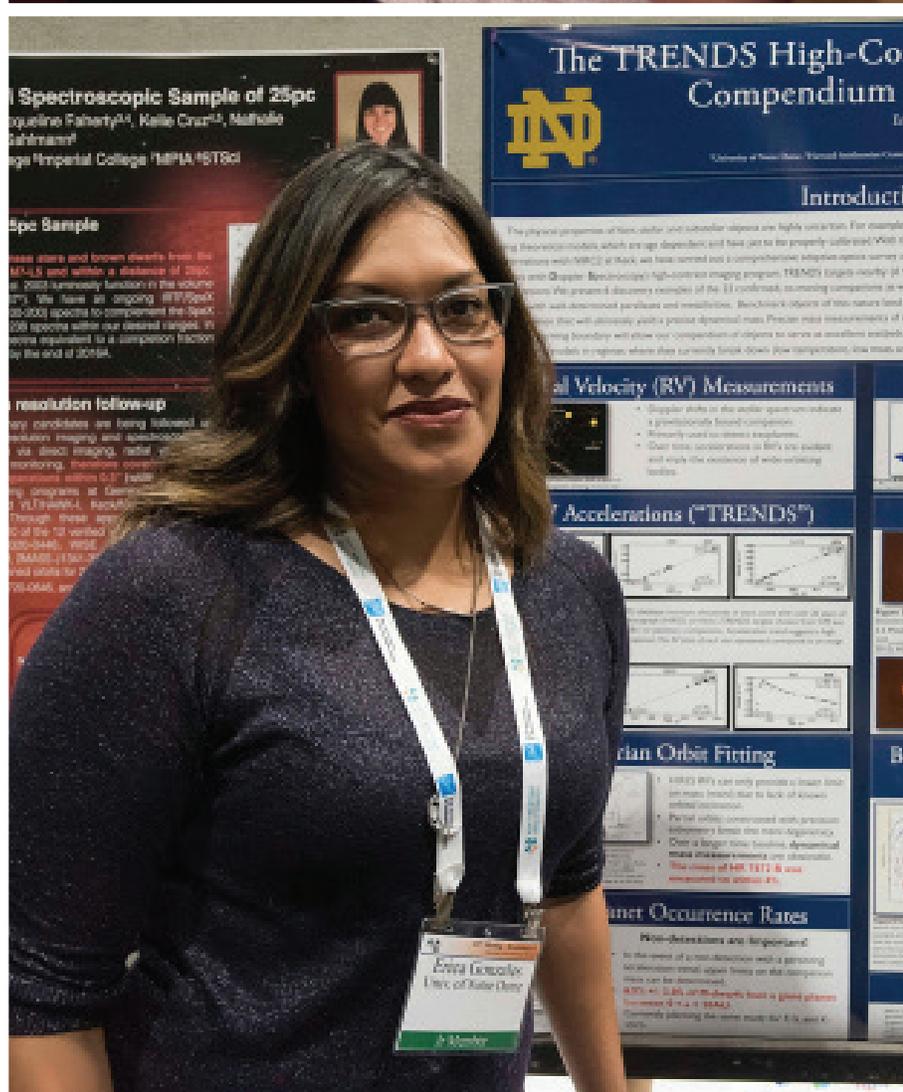
The Society, through its publications, disseminates and archives the results of astronomical research. The Society also communicates and explains our understanding of the universe to the public.

The Society facilitates and strengthens the interactions among members through professional meetings and other means. The Society supports member divisions representing specialized research and astronomical interests.

The Society represents the goals of its community of members to the nation and the world. The Society also works with other scientific and educational societies to promote the advancement of science.

The Society, through its members, trains, mentors, and supports the next generation of astronomers. The Society supports and promotes increased participation of historically underrepresented groups in astronomy.

The Society assists its members to develop their skills in the fields of education and public outreach at all levels. The Society promotes broad interest in astronomy, which enhances science literacy and leads many to careers in science and engineering.



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Established in 1899, the American Astronomical Society (AAS) is the major organization of professional astronomers in North America. The membership also includes physicists, mathematicians, geologists, engineers, and others whose research interests lie within the broad spectrum of subjects now comprising contemporary astronomy.

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PRESIDENT'S MESSAGE: CHRISTINE JONES

Before describing some of the ways that the AAS has worked during the past year to improve the demographics of our Society so that it better resembles that of our larger national community, let me begin with a little history. George Ellery Hale led the effort to found the AAS in 1899 along with George Comstock, Edward Morley, Simon Newcomb, and Edward Charles Pickering, who wrote the Society's constitution. Simon Newcomb became the first AAS President. Although the [AAS online listing of AAS officers](#) is incomplete prior to 1945, it shows that the first woman on the AAS Council was Yale astronomer Ida Barney (1946-1949) and that the first woman AAS President was E. Margaret Burbidge (1976-1978), who had previously served as the first woman AAS Vice-President. The composition of the Council has changed significantly over time, even since I served first as a Councilor in 1989. For example, since 2010 three of the four AAS Presidents have been women. And while on the [current Council](#) all three Vice-Presidents are men, six of the nine currently serving Councilors are women.

Much of the effort to increase diversity in our Society is due to the work of our four Diversity Committees (Committee on the Status of Women in Astronomy [CSWA]; Committee on the Status of Minorities in Astronomy [CSMA]; Committee for Sexual-Orientation and Gender Minorities in Astronomy [SGMA], formerly Working Group on LGBT Equality [WGLE]; and Working Group on Accessibility and Disability [WGAD], which was formed in late 2015). These committees participated in organizing the Inclusive Astronomy Conference in 2015, which produced the [Nashville Recommendations](#). These are now available on the AAS wiki, where individuals, institutions, and organizations can register their endorsement of specific recommendations and commit to their implementation. Please see the past post on the recommendations for more information, and please encourage your home institutions to support and implement the Nashville Recommendations.

The AAS also recently adopted a new [Code of Ethics](#), which I drafted with Jack Burns and Dara Norman and which was then improved with input from numerous Society members. Each person who wants to attend AAS or Division meetings or to

become an AAS member is required to agree to abide by the Code. The intent of the Code is to be educational and corrective. A guide to our [Code of Ethics](#) can be found on the AAS website.

Now a few highlights from the most recent AAS meetings. The [2017 AAS winter meeting](#), held in Grapevine, Texas, featured a Town Hall on Racism in Astronomy, organized and sponsored by the CSMA. This very well attended Town Hall began the Society-wide conversation on the problem of racism in astronomy. Reactions were very positive, with many of those in attendance saying they felt energized to do more to confront racism at their home institutions. For those who missed the event or who would like more information, the Astronomy in Color blog features a [summary of the Town Hall](#) and a list of resources and ideas to confront and eliminate racism in astronomy.

A highlight of the summer AAS meeting in Austin (Texas again!) was [Professor Hernán Quintana's plenary talk](#) and receipt of the AAS Education Prize for his devotion to increasing opportunities to obtain astronomy degrees at Chilean universities. An official policy had limited admissions to bachelor's and master's programs to the number of future positions available. Coupled with the economic crises of the 1980s, this policy severely limited growth in astronomy higher education. Professor Quintana's vision has led to Chile now having one of the fastest-growing astronomy communities in the world, with significant growth in both postdoctoral and faculty positions.

Following the AAS Austin meeting was the conference "[Women in Astronomy IV: The Many Faces of Women Astronomers](#)." It focused on addressing challenges specific to women and what institutions can do to create welcoming, equitable workplaces. The opening talk on privilege by Peggy McIntosh, from the Wellesley Centers for Women, appropriately set the tone for the first day. Other topics included implicit bias and sexual harassment. Possible topics for white papers to be submitted to the forthcoming decadal survey include "Best Practices Around Graduate Education" and "Policies Around Family Leave and Caretaking." The conference included lots of networking by the participants and the sharing of experiences, along with many



concrete action items the attendees are taking back to their home institutions.

I would like to mention the impact that the Women in Astronomy conferences have had on our profession. The first conference (“Women at Work: A Meeting on the Status of Women in Astronomy”) was held in September 1992 at the Space Telescope Science Institute. One of the important results from this meeting was the now well-known [Baltimore Charter for Women in Astronomy](#), which included five important recommendations and a “Call to Action” that says, “Women want and deserve the same opportunity as their male colleagues to achieve excellence in astronomy.” The second conference, “Women in Astronomy II: Ten Years After,” was held in 2005 and produced the document “[Equity Now: The Pasadena Recommendations for Gender Equity in Astronomy](#).” “Women in Astronomy III: Meeting the Challenges of an Increasingly Diverse Workforce” was held in 2009 and hosted by the University of Maryland and NASA’s Goddard Space Flight Center. The [proceedings from this meeting](#) are available as a PDF.

After more than 50 years of basically the same governance structure for the AAS, the Council appointed a governance task force led by former AAS President David Helfand in early 2016 to determine if the governance of the AAS should be updated. The recommendations of the task force were presented to the AAS Council in January 2017 and were unanimously approved. A [PDF of the full report of the governance task force](#) is online.

In summary, the governance task force recommended that the current 20-member Council that meets twice a year be replaced by an 11-member Board of Trustees that meets monthly, with four face-to-face meetings and eight telecons each year. To involve a broader community in setting strategic directions for the AAS, the Board and the chairs of the 11 Standing Committees as well as Division representatives would meet together twice a year with the goals of 1) fostering collaboration, 2) improving communication, and 3) guiding the strategic thinking of the Society. In addition each Committee and Division chair would attend from two to four Board meetings each year for discussions of issues related to their Committee or Division.

The AAS membership is now being asked to vote on whether to approve these recommendations. If you have not already cast your ballot, please do so before 31 July; see the [post about the vote on these recommendations](#) for more information.

Following the recommendations of the [AAS Journals Futures Task Force](#), in February 2016 a single manuscript-submission site was opened for three of our research journals (the *Astronomical Journal*, the *Astrophysical Journal*, and the *Astrophysical Journal Supplement Series*). The *Astrophysical Journal Letters* retains its separate manuscript-submission site and editorial team. Papers can now be submitted to one of seven topical corridors (Galaxies and Cosmology; High-Energy Phenomena and Fundamental Physics; Stars and Stellar Physics; The Solar System, Exoplanets, and Astrobiology; Interstellar Matter and the Local Universe; The Sun and the Heliosphere; and Instrumentation, Software, Laboratory Astrophysics, and Data). More information and detailed instructions for submitting papers is available at [journals.aas.org](#). In addition, the Society publishes [AAS Nova](#), with concise research highlights from the AAS journals. During AAS meetings, the AAS Nova team has been partnering with [Astrobites](#) bloggers to provide daily summaries of plenary talks, press conferences, and other conference activities.

Finally, I know you’re aware that on Monday, 21 August 2017, a total eclipse of the Sun will cross the United States for the first time in nearly a century. The 70-mile-wide path of totality extends from Oregon to South Carolina, starting at about 10:15 am Pacific time on the West Coast and ending about 90 minutes later on the East Coast. Within that path the total phase of the eclipse lasts up to 2 minutes 40 seconds; outside it the rest of the continent gets a partial eclipse — but we’re all heading for totality, right? Be sure to check the local weather forecast before choosing a final viewing spot. And remember that to watch the partial phases of the eclipse you will need proper eye protection, as described on the [wonderful website created by the AAS Solar Eclipse Task Force](#). I’ve been to only one total solar eclipse, and it wasn’t clear. Hopefully this year will be better!



EXECUTIVE OFFICER'S MESSAGE: KEVIN B. MARVEL

I have been the AAS Executive Officer for 10 years. When I began, we had a staff of 13 people. Now we have 26. Our journals were published by the University of Chicago Press, now they are published by Institute of Physics Publishing. We had offices in the American Geophysical Union building near Dupont Circle and now we are located in new offices that we share with the Association for Women in Science just a few blocks from the White House. Our reserve funds were too low and now they are approaching acceptable levels. Our meetings regularly lost money and now we perform much better with only occasional significant losses. We organized our winter and summer meetings and occasionally a Division meeting, now we regularly organize our own and others' topical conferences and help with all of our Division meetings on a regular basis. We had separate editorial structures for each journal and they have now been unified, resulting in significant efficiencies and savings. Our Council meetings have been reinvented to provide more time for dialogue and discussion, with less time taken up receiving oral reports and more time for strategic thinking. To top off this incomplete list of accomplishments, we are in the process of establishing completely revised Bylaws and Articles of Incorporation. We've even formed a wholly-owned subsidiary corporation to undertake new commercial activities such as the new eBooks program and a partnership with our speaker presentation system provider. We have had a decade of change, a decade of growth, and a decade of improvement.

Looking back at 2016, I have to say it was my best year ever, especially as my wife and I welcomed our son, Graham, to the world on 6 December. I am very thankful for the Society's family leave policy, which allowed me to take a few months to focus on my family. Other staff members have also taken advantage of this family-positive policy for the births of their own children, and the office feels renewed with baby pictures being shared regularly along with updates on developmental progress discussed daily in our break room.

During the rest of 2016, we completed a number of important efforts. First and foremost, the Council accepted the report and recommendations of the Meetings Task Force led by Council member Stephen Unwin. This important effort started in 2014 to look at how our meetings operate from top to bottom. Supported by AAS Staff and our Deputy Executive Officer, Joel Parriott, this task force produced a wide range of recommendations that we began implementing immediately and which continue to guide our efforts going forward. Although not all recommendations can immediately be put into place due to existing contracts with venues, future meetings will significantly benefit from the efforts of the task force members. We met in Kissimmee, Florida, in January and San Diego, California, in June. Attendance was good for both meetings, but could have been better for the San Diego meeting. We adjusted some of the logistics and services for the Kissimmee meeting based on both attendee surveys and early input from the Meetings Task Force.

Two other task forces operated during 2016: the Governance Task Force and the Education Task Force. Their recommendations were accepted by the Council at the January 2017 AAS meeting in Grapevine, Texas.

The Governance Task Force, chaired by former President David Helfand, was tasked with looking at how the AAS governance operated. After careful consideration, the task force recommended a complete overhaul of our Articles of Incorporation and our Bylaws, as well as the creation of a policy handbook. This structure of documentation allows for more rapid changes to policies than if they were included in the Bylaws, as currently. More permanent rules for how we operate are contained

in the Bylaws, while the Articles of Incorporation document the most fundamental, unchanging guidance and legal requirements for the Society under DC law, where we are incorporated. Voting for acceptance by the members of these changed documents is currently under way. Depending on the outcome of the vote, which we anticipate to be positive, the policy handbook will be crafted and approved by the new Board of Trustees, formerly the Council.

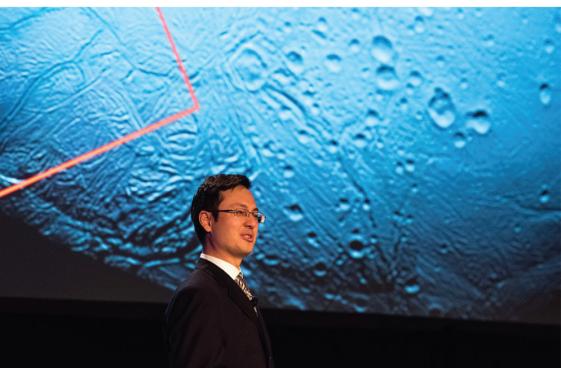
The Education Task Force, chaired by Astronomy Education Board Chair Charles Liu, produced a comprehensive report on the Society's current education activities and developed a prioritized portfolio of education-related activities for the Society to pursue. The Council accepted the recommendations and is figuring out how to implement them over time. Already up and running is a small grants program for education projects proposed by members. Additional efforts will include the formation of a graduate education task force to review graduate education in the US. There is significant community support for such an effort, demonstrated by the 81 white papers submitted to the **Education Task Force** during its review. More details are available on the AAS website, including the **report itself**.

In addition to our core activities of publishing and organizing scientific conferences, we undertake a wide range of other activities, many detailed in this report. We also help out the field in a number of other ways that are less visible. In 2016, we continued developing a strong partnership with the **Astrobites** team. In addition to incorporating some of their pieces in our journal highlights website, AAS Nova, we also helped the founders of Astrobites with a great effort to teach graduate students how to communicate better

with the public. The workshop, called ComSciCon, has now expanded to regional events in addition to the annual event in Boston. AAS Nova received an American Institute of Physics (AIP) Member Society partnership grant under AAS auspices. This grant will allow the successful ComSciCon model to branch out to other member societies of the AIP.

A second project we've been supporting for a while is the gathering of oral histories. AAS member Jarita Holbrook has been leading this activity, building off of a special project with the American Institute of Physics several years ago. We are now regularly interviewing astronomers about their life and work, and submitting transcriptions of the interviews to AIP's Center for the History of Physics. It is very interesting to hear from the many people recorded so far, and continuing this activity will expand the range of backgrounds and experiences represented in the archive. Check out the interviews at aip.org/history-programs/niels-bohr-library/oral-histories. An excellent interview with Vera Rubin, who passed in December 2016, is currently highlighted on the site.

This annual report only allows us to highlight a small fraction of the Society's activities. Our staff, elected leaders, and engaged volunteers work together to accomplish a tremendous amount each year, helping us achieve our mission to enhance and share humanity's scientific understanding of the universe. I remain deeply engaged in my role as Executive Officer, helping where I can and attempting to keep everything running smoothly. I deeply value working with everyone, especially the AAS staff and our members. Keep looking up!



FINANCIAL REPORT

The Annual Audit for 2016 was completed by BDO. As with past years, the audit report received an unqualified opinion. In 2016, there was an overall decrease in net assets of \$986,986 dollars; resulting in a total assets of \$15,937,866 as of 31 December 2016.

The unrestricted net assets, which are comprised of operating reserves, were \$13,334,754 as of 31 December 2016. This amount decreased overall by \$1,164,877 in 2016. This loss was offset by investment portfolio value increases for the Journal operating reserves and the General Fund operating reserves in the amount of \$989,764. Excluding the portfolio value, the loss was actually \$2,154,641. This decrease is directly attributed to the 2016 budgeted deficits. The largest losses occurred in the journals program which experienced a deficit of \$1,049,478 in 2016, the journal development expenses reached \$675,783, we expensed \$70,000 in hotel attrition, and the general fund produced a deficit of \$18,490. These deficits resulted in a \$1,450,000 draw from the investment portfolio in 2016 and an additional \$400,000 in January of 2017.

Overall, the financial results exceeded our budgeted estimates. In 2016, we budgeted an overall deficit in the journals program of \$1,461,930; the actual deficit was \$1,049,478. This represents only the second overall deficit for the journal programs since 2008.

The AAS General Fund produced a deficit of \$18,490, exclusive of the beginning balance. Financial losses, budgeted or not, will deplete the Society's reserves. Council must exercise care as the Society's fiduciaries in overseeing and managing the Society's finances in perpetuity. Management recommends careful attention to reserve balances and encourages ongoing discussion as to what level of reserves is prudent and justified.

AAS bylaws, Article VIII.3, mandate that each journal maintain a reserve fund equal or above the level of one-half of the annual operating expenses. In addition to the journal reserve funds, we have a segregated journal archive reserve fund to ensure the long-term maintenance of the electronic journals. As of 31 December 2016, the journal reserve fund balances reached \$7,860,752 representing 116% of the 2016 expenses.

In 2016, the AAS financially supported members through many different programs to facilitate attendance at our scientific meetings.

- Through the AAS FAMOUS (Funds for Astronomical Meetings: Outreach to Underrepresented Scientists) Travel Grants Program, we provided travel grants totaling \$10,000 to 12 individuals. Priority for these grants is given to members of historically

underrepresented groups, such as scientists at small colleges, minorities, non-traditional students, and veterans, among others.

- In 2016, the AAS awarded 15 child/dependent care grants in the amount of \$9,891 to 15 members. Additionally, we subsidized an on-site childcare program at AAS meetings in the amount of \$12,560.
- A research grant in the amount of \$15,000 was awarded through the Chrétien Grant Program.
- Thirty-five student travel grants were awarded in the amount of \$24,577 to attend AAS and Division meetings in 2016.
- The AAS and Divisions issued 27 prize awards in the amount of \$58,061 in 2017.

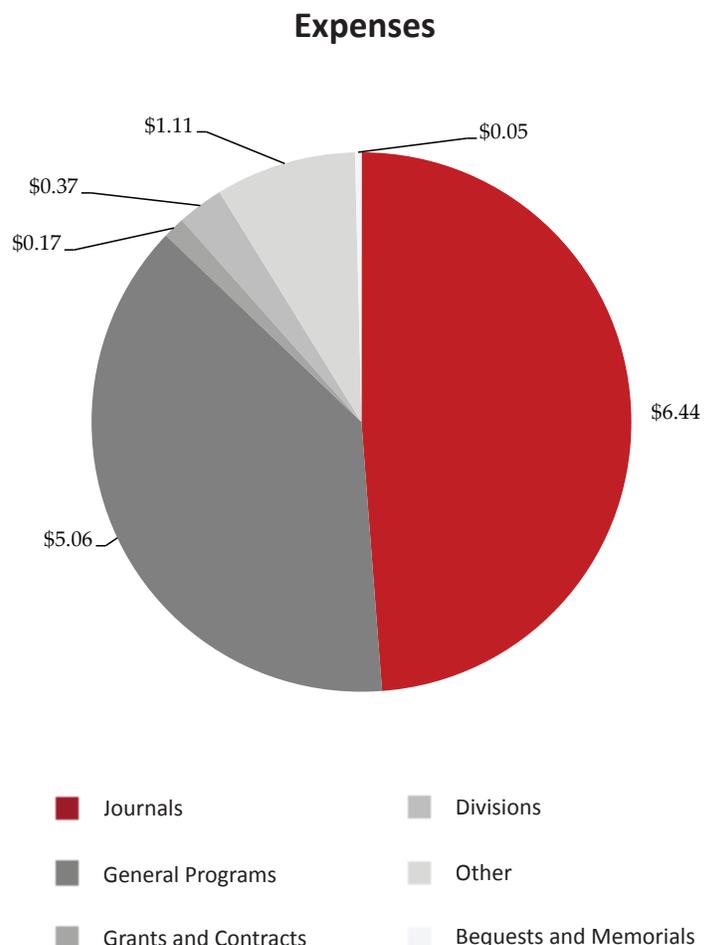
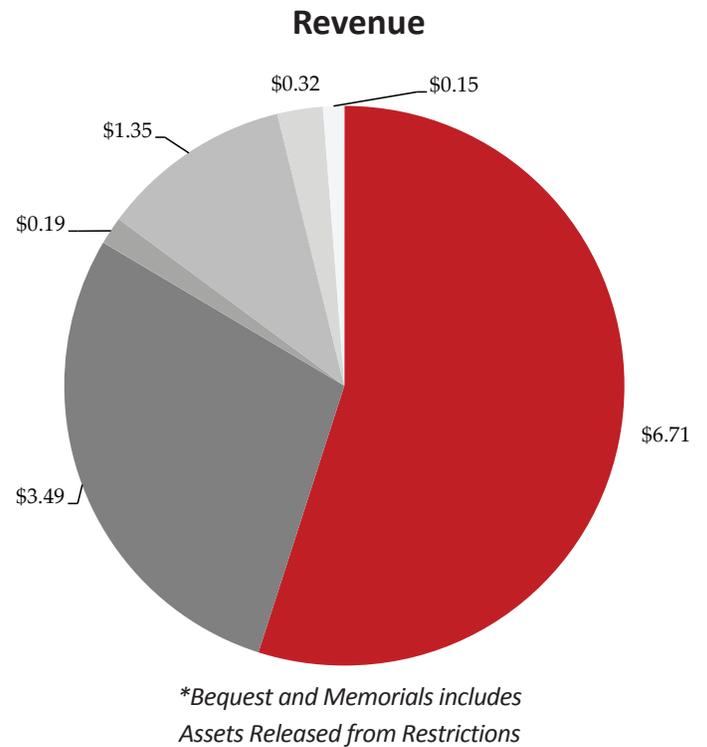
Through a National Science Foundation grant, we funded 49 individuals under the International Travel Grant in the amount of \$71,222.

Figure 1. AAS Balance Sheet

Assets	2016	2015
Cash and Cash Equivalents	332,788	774,748
Accounts Receivable	621,489	528,307
Prepaid Expenses	622,233	644,063
Investments	18,704,350	19,194,100
Deposits	97,849	70,463
Assets Held for Deferred Compensation	110,480	71,683
Property and Equipment	418,351	385,929
Tenant Improvement Assets	539,336	0
Totals Assets	\$21,446,876	\$21,669,293
Liabilities and Net Assets		
Accounts Payable and Accrued Expenses	1,437,236	1,399,492
Deferred Revenue	3,307,876	3,252,117
Deferred Rent	653,418	21,149
Deferred Compensation	110,480	71,683
Total Liabilities	\$5,509,010	\$4,744,441
Net Assets		
Unrestricted	13,334,754	14,499,631
Temporarily Restricted	2,037,124	1,859,833
Permanently Restricted	565,988	565,388
Total Net Assets	\$15,937,866	\$16,924,852
Total Liabilities and Net Assets	\$21,446,876	\$21,669,293

Figure 2. AAS Statement of Activities		
Unrestricted Activities	2016	2015
Revenues		
Journals	6,698,728	5,834,481
General Programs	3,487,480	3,116,978
Grants and Contracts	183,186	345,348
Divisions	1,335,390	791,711
Other	320,166	2,705,635
Bequests and Memorials	59,706	2,948
AstronomyCom, Inc.	29,985	22,900
Net Assets Released from Restrictions	90,314	60,681
Total Unrestricted Income	\$12,204,955	\$12,880,682
Expenses		
Journals	6,439,668	4,948,577
General Programs	5,063,329	5,496,973
Grants and Contracts	173,929	340,801
Divisions	366,853	343,430
Other	1,108,899	3,538,085
Bequests and Memorials	50,965	48,745
AstronomyCom, Inc.	166,189	160,955
Total Expenses	\$13,369,832	\$14,877,566
Change in Unrestricted Net Assets	(\$1,164,877)	(\$1,996,884)
Temporary Restricted Net Assets		
Divisions	52,334	(4,998)
Bequests and Memorials	98,690	(20,398)
Contributions and Other	116,581	(9,896)
Net Assets Released from Restrictions	(90,314)	(60,681)
Change in Temporarily Restricted Net Assets	\$177,291	(\$95,973)
Permanently Restricted Net Assets		
Contributions and Other	600	300
Change in Permanently Restricted Net Assets	\$600	\$300
Change in Net Assets	(\$986,986)	(\$2,092,557)
Net Assets Beginning of Year	16,924,852	19,017,409
Net Assets End of Year	\$15,937,866	\$16,924,852

Figure 3. Annual Revenues and Expenses (in millions of dollars)



MEMBERSHIP

With more than 5,700 members in the US and more than 800 based elsewhere, the AAS membership is geographically diverse, with many members from countries beyond North America. The AAS is proud to draw members from countries all around the world as astronomy is clearly a global endeavor that knows no borders... after all, *one sky connects us all*.

Of course, we know that by growing our membership internationally through, for example, our International Affiliate membership class, we can expand the diversity of our membership to better represent the global astronomical enterprise. Already, many of our services know no boundaries, such as the *AAS Job Register*, *AAS Wall Calendar*, and *AAS Membership Directory*, and we work actively to ensure a focus in these publications beyond just North America. The directory, for example, is recognized as the most comprehensive and accurate listing of international astronomy institutions, and we are working with the International Astronomical Union to ensure that our list and theirs are consistent, accurate, and complete.

Our journals draw authors from all around the world, and even our meetings are showing steadily increasing participation from astronomers working outside North America. We need this diversity to achieve our core mission to enhance and share humanity's scientific understanding of the universe.

5,731 US MEMBERS

CA	1048	NJ	93	MT	21
MD	627	IN	87	LA	19
MA	436	WI	85	KS	18
AZ	344	CT	71	WY	18
NY	264	TN	67	ME	17
CO	215	MN	63	RI	16
VA	213	AL	49	NV	14
TX	202	NC	45	ID	12
PA	201	OR	42	VT	12
FL	164	MO	41	DE	11
IL	160	NH	34	AR	9
NM	157	KY	32	NE	9
DC	119	UT	31	AK	5
GA	114	IA	24	MS	5
HI	113	PR	24	ND	4
MI	107	SC	24	VI	2
OH	99	OK	23		
WA	98	WV	23		

867 NON-US MEMBERS



CANADA	157	FINLAND	4
GERMANY	89	POLAND	4
UNITED KINGDOM	84	UNITED ARAB EMIRATES	4
JAPAN	72	HOLY SEE (VATICAN CITY)	3
AUSTRALIA	50	HONG KONG	3
REPUBLIC OF KOREA	45	RUSSIAN FEDERATION	3
FRANCE	37	BAHRAIN	2
CHILE	31	ICELAND	2
NETHERLANDS	31	LEBANON	2
ITALY	28	ARGENTINA	1
CHINA	24	COLOMBIA	1
SPAIN	23	COSTA RICA	1
SWITZERLAND	23	CYPRUS	1
MEXICO	19	EGYPT	1
TAIWAN	17	ESTONIA	1
SWEDEN	12	GEORGIA	1
ISRAEL	11	LATVIA	1
BRAZIL	9	LUXEMBOURG	1
NORWAY	9	NEPAL	1
SOUTH AFRICA	9	NEW ZEALAND	1
BELGIUM	7	PORTUGAL	1
CZECH REPUBLIC	7	ROMANIA	1
DENMARK	5	SERBIA	1
GREECE	5	SINGAPORE	1
INDIA	5	URUGUAY	1
IRELAND	5	VENEZUELA	1
TURKEY	5		
AUSTRIA	4		

In 2013 we upgraded our membership database software, which improved our reporting accuracy. The numbers accurately reflect the geographic distribution of our membership.

DONOR RECOGNITION

CHARITABLE DONORS: We are grateful for all charitable contributions to the Society and are pleased to provide special recognition of our donors.

HYPERNOVA **\$5,000 or more**

Ari Buchalter
William Romanishin

QUASAR **\$1,000-\$4,999**

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Jules P. Halpern
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Arlo U. Landolt
Stephen P. Maran
Curt Niebur, PhD
Jeremiah Ostriker
Daniel Wolf Savin
William C. Wells

SUPERNOVA **\$500-\$999**

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Jeffrey Bennett
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Nancy J. Chanover
R. Paul Drake
Reginald J. Dufour
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Michael Thacher
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John Vallerga
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NOVA **\$250-\$499**

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Robert E. Wilson
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SUPERGIANT **\$100-\$249**

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Stock*
Ruth Peterson
John C. Raymond
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PUBLISHING



Starting in February 2016, submissions to *The Astronomical Journal*, *The Astrophysical Journal*, and *The Astrophysical Journal Supplements* were organized into seven new topic corridors, as directed by the AAS Journals Futures Task Force:

- Cosmology and Galaxies (Lead Editor, Ethan Vishniac)
- Stars and Stellar Physics (Lead Editor, Steve Kawaler)
- Interstellar Matter and the Local Universe (Lead Editor, Judith Pipher)
- The Solar System, Exoplanets, and Astrobiology (Lead Editor, Melissa McGrath)
- High Energy Phenomena and Fundamental Physics (Lead Editor, Frank Timmes)
- The Sun and the Heliosphere (Lead Editor, Leon Golub)
- Instrumentation, Software, Laboratory Astrophysics, and Data (Lead Editor, Chris Lintott)

The Astrophysical Journal Letters continues to operate as a separate editorial operation under Editor Fred Rasio at Northwestern University. Following the 2015 retirement of *Astronomical Journal* Editor, Jay Gallagher, *Astrophysical Journal* Editor-in-Chief, Ethan Vishniac, was appointed Interim Editor-in-Chief for all AAS journals. The complete list of 2016 science editors in 2016 is below:

- | | | |
|-------------------------------------|----------------------------------|-----------------------------------|
| • Lee Armus (Caltech) | • Shadia Habbal (U Hawaii) | • Daniel Scheers (U Colorado) |
| • Butler Burton (NRAO/Leiden) | • Dieter Hartmann (Clemson) | • Allen Shafter (San Diego State) |
| • Giovanni Carraro (U Padova) | • Louis Ho (Peking U/Kavli) | • Steinn Sigurdsson (Penn State) |
| • Chris Conselice (U Nottingham) | • George Jacoby (Lowell Obs) | • Luigi Stella (INAF Rome) |
| • Bozena Czerny (Copernicus Ctr) | • Rekha S Jain (U Sheffield) | • Francis Xavier Timmes (ASU) |
| • Ed DeLuca (SOA) | • Steven D. Kawaler (Iowa State) | • Ethan Vishniac (JHU) |
| • Steve Federman (U Toledo) | • Chris Lintott (U Oxford) | • Fabian Walter (MPIA Heidelberg) |
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| • Brad Gibson (U Hull) | • Judith L. Pipher (U Rochester) | |
| • Doug Gies (Georgia State) | • Fred Rasio (NU) | |
| • Leon Golub (Harvard CfA) | • Thomas Robitaille (UK) | |
| • Richard de Grijs (Peking U/Kavli) | • Ata Sarajedini (U Florida) | |

The AAS Publishing team included seven staff members in 2016: Alexandra Aguilar, Editorial Assistant (Arizona); Susanna Kohler, AAS Nova Editor (New York); Melissa Mills, Editorial Assistant (Arizona); August (Gus) Muench, Journals Data Scientist (Massachusetts); Greg Schwarz, Journals Data Scientist (Pennsylvania); Janice Sexton, AAS Editorial Operations Manager (Arizona); and Julie Steffen, Director (Arizona).

AAS Nova, a service launched in 2015 by the AAS to highlight the research published in AAS journals, was online less than six months when it won a 2016 Drum Online Media Award for Best Health/Education News Site. The Drum Online Media Awards identify the cleverest, boldest, and most original purveyors of news and views from around the world.

After more than 11 years, an updated version of AAS TeX (6.0) was released in January 2016. A new Software Policy was introduced for the journals as well:

AAS Journals have adopted a policy that reflects the importance of software to the astronomical community, and the need for clear communication about such software which ensures that credit is appropriately given to its authors. The policy provides clear guidelines for citing software in all papers, and supports the publication of descriptive papers about software relevant to research in astronomy and astrophysics.

Guidelines for software papers

AAS Journals welcome papers which describe the design and function of software of relevance to research in astronomy and astrophysics. Such papers should contain a description of the software, its novel features and its intended use. Such papers need not include research results produced using the software, although including examples of applications can be helpful. There is no minimum length requirement for software papers.

If a piece of novel software is important to published research then it is likely appropriate to describe it in such a paper.

We highly recommend that authors release code described in a paper under an appropriate open source license (see opensource.org/faq#osd or choosealicense.com/) and archive the published version of their code using a service such as Zenodo (zenodo.org/) or FigShare (figshare.com/) which will provide a unique digital object identifier (DOI) and ensure that the code is accessible in the long term. However, any papers which provide a clear statement on how to access the code - for example, by contacting the author — are acceptable.

Workflows for publishing code with a DOI include Making your Code Citable from GitHub & Zenodo.

Guidelines for citation of software

Software can be cited in two ways:

- Citing the paper describing the software (e.g., *galpy*: A python Library for Galactic Dynamics, Bovy 2015, *ApJ*, 216, 29);
- Citing a DOI for the software, for example, obtained via Zenodo or FigShare (e.g., Foreman-Mackey et al. 2014, *corner.py*, v0.1.1, Zenodo, doi:10.5281/zenodo.11020, as developed on GitHub)

Ideally, both forms of citation should be included. The former extends credit to the authors for their publication and tells the reader where to learn about the software. The latter gives the reader access to the exact version of the software used in the project. These forms of citation are intended to allow authors to properly reference their use of software; alongside these formal references, they may also want to include links to appropriate code repositories, such as GitHub, or indices, such as the Astrophysics Source Code Library.

Authors may also include a section below the acknowledgments listing scientific software packages used as part of the work presented in the manuscript. This should be done via the new `\software` AASTeX 6 macro. The content of the command should take the form of a list of software name and citation in parentheses, for example:

```
\software{Astropy \citep{http://dx.doi.org/10.1051/0004-6361/201322068},  
          Matplotlib \citep{http://dx.doi.org/10.1109/MCSE.2007.55}}
```

This is analogous to acknowledging a major facility or instrument and is done for the same reason, to give credit to a project which is generally useful for the community.

The Astronomical Journal published 401 research articles last year; *The Astrophysical Journal* published 3,038; *The Astrophysical Journal Letters* published 587, and *The Astrophysical Journal Supplements Series* published 186, for a grand total of 4,212 research papers in 2016.



Members of AAS after their meetings with their elected Representatives and Senators in March.

PUBLIC POLICY

The AAS conducts a wide range of public policy activities on behalf of the membership and US astronomy. The **Committee on Astronomy and Public Policy (CAPP)**, whose members are appointed by the President of the AAS, is charged with guiding the Society's policy activities in close collaboration with the policy staff in the Executive Office. Together, CAPP, the Director of Public Policy, and the John Bahcall Public Policy Fellow closely monitor science policy developments important to the astronomical community and engage with policymakers at federal agencies, the White House, and Congress through advocacy initiatives.

The Director of Public Policy and John Bahcall Public Policy Fellow monitor policy issues on a day-to-day basis and work closely with the CAPP on communicating issues to both policymakers and the astronomical community. The most direct communication to the membership occurs during multiple plenary and concurrent policy sessions during AAS and Division meetings. Invited talks are another opportunity for AAS to communicate to the membership. The Director of Public Policy and John Bahcall Public Policy Fellow were invited to nine academic institutions in 2016 to give invited talks about science policy and AAS advocacy.

The AAS co-sponsored, with the Smithsonian Astrophysical Observatory, the briefing series "Space on the Hill." These briefings are hosted by the chair of the House Science, Space, and Technology Committee. In 2016, there were 3 solar-themed briefings: "Cloudy with a Chance of Solar Flares" (20 April 2016) about the many ways that space weather impacts everyday life, "A Mission to Touch the Sun" (17 May 2016) about the Solar Probe Plus mission (called the Parker Solar Probe), and "Anatomy of a Space Mission" (13 September 2016) about the ways that the Sun can impact the planning for a space mission.

The AAS is a member of several multi-society coalitions in Washington, DC, that work on science and science-education policy. These include the Coalition for National Science Funding (CNSF), the Task Force on American Innovation, the Energy Sciences Coalition, the Coalition for Aerospace and Science, the Science-Engineering-Technology Working Group (SETWG), the STEM Education Coalition, the

Physical Sciences Education Policy Coalition, and a coalition of scholarly publications. The AAS is also a member of the Intersociety Working Group and authors a chapter every year on the outlook for astronomy funding published in the American Association for the Advancement of Science (AAAS) Report on Research and Development.

In 2016 the AAS provided three opportunities for Society members to learn how federal policymaking for science works and to lobby their elected Representatives and Senators in Washington, DC. One opportunity was with SETWG, a working group that consists of members from various scientific and technical professional societies as well as universities and industry. The group sponsors an annual Congressional Visits Day each spring; last year's event was 12-13 April 2016. For the first time, AAS led an independent Congressional Visit Day on 15-16 March 2016. These two events bring together research scientists and engineers from all over the country to raise visibility and support for science, engineering, and technology. Nineteen AAS members volunteered their time to visit 47 congressional offices of 15 different states and the White House complex. Feedback from the participants was very positive. AAS also sponsored a graduate student to participate in the AAAS Catalyzing Advocacy in Science and Engineering (CASE) workshop, a 3.5-day program in DC to learn about Congress, the federal budget process, and effective science communication, held 17-20 April 2016.

CNSF is an alliance of over 140 professional organizations, universities, and businesses who all support national investment in the National Science Foundation (NSF). The group organizes an annual exhibition to feature the science, mathematics, engineering, and education projects supported by the NSF. The AAS participated as an exhibitor in the 2016 CNSF exhibition, "Investments in STEM Research and Education: Fueling American Innovation." Dr. Marcel Agüeros and three graduate students from Columbia University joined us on Capitol Hill to share their NSF-supported work in a presentation titled "Astronomy at Columbia: Advancing Scientific Knowledge, Diversifying the Scientific Workforce."



AAS & DIVISION MEETINGS

The 227th AAS meeting was held 4-8 January 2016 in Kissimmee, Florida, near Orlando and only an hour's drive from Cape Canaveral and the historic Space Coast. To avoid clashing with the New Year's Day holiday weekend, the meeting took place Monday-Friday rather than the usual Sunday-Thursday. As usual, the Historical Astronomy Division (HAD) and High Energy Astrophysics Division (HEAD) joined the parent Society for the winter meeting, which drew more than 2,500 attendees. HAD hosted one special session: "A Celebration of the Centenary of Einstein's General Relativity." HEAD convened two: "High Energy Astrophysical Neutrinos" and "The Origin of the First Supermassive Black Holes."

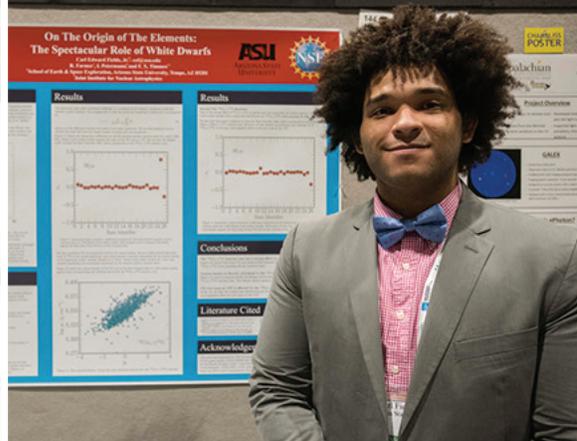
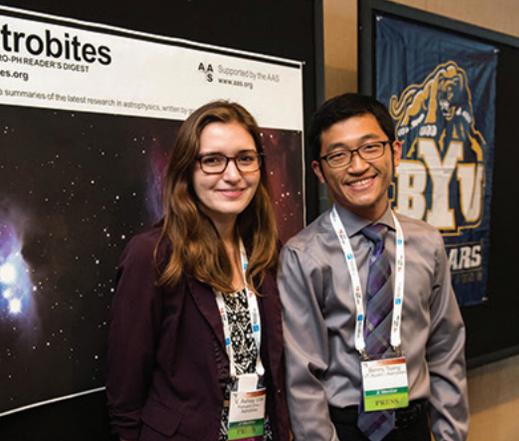
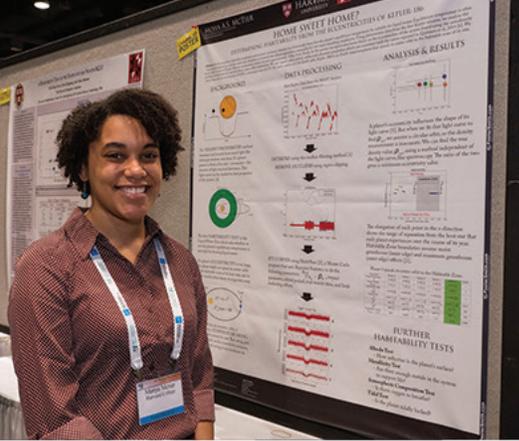
The recipient of HAD's 2016 LeRoy E. Doggett Prize for Historical Astronomy, Albert Van Helden (Rice Univ. & Univ. of Utrecht), had to cancel his trip to Florida at the last minute, so Owen Gingerich (Harvard-Smithsonian Center for Astrophysics) stepped in to present Van Helden's prize lecture "New Information About Old Telescopes," featuring surprising findings about the optical quality of some of the earliest astronomical instruments. The winner of HEAD's Bruno Rossi Prize, Fiona Harrison (Caltech), gave her prize lecture, "A New View of the High Energy Universe with NuSTAR," in person.

The Kissimmee meeting offered a wide variety of additional prize and invited talks, beginning with the Kavli Foundation Lecture by Alan Stern (Southwest Research Institute) on the latest results from the New Horizons encounter with Pluto and its moons. Numerous AAS prize winners gave plenary lectures throughout the week, including Annie Jump Cannon Award recipient Smadar Naoz (Univ. of California, Los Angeles), whose talk was entitled "On the Dynamics of Planets, Stars, and Black Holes: New Insights from Triples." The joint winners of the Dannie Heineman Prize, Marc Kamionkowski (Johns Hopkins Univ.) and David N. Spergel (Princeton Univ.), presented "From '~' to Precision Science: Cosmology from 1995 to 2025." Giovanni Fazio (Harvard-Smithsonian Center for Astrophysics), who was honored for lifetime achievement, gave the Henry Norris Russell Lecture, "Viewing the Universe with Infrared Eyes: The Spitzer Space Telescope."

We had two Helen B. Warner Prize lectures in Florida: "The Past, Present, and Future of Statistical Cosmology" by 2014 winner Christopher Hirata (Ohio State Univ.) and "Origins of Structure in Planetary Systems" by 2015 honoree Ruth Murray-Clay (Univ. of California, Santa Barbara). Two plenaries focused on public policy: one by France Córdova, director of the National Science Foundation (NSF), and another, "Science to Action: Thoughts on Convincing a Skeptical Public," by William H. Press (Univ. of Texas at Austin). Closing out the science program on Friday afternoon was Jan Tauber (European Space Agency), recipient of the Lancelot M. Berkeley Prize, who spoke on the latest results from the Planck mission.

The 228th AAS meeting convened 12-16 June 2016 at the Hilton San Diego Bayfront on the water's edge. With its lovely weather, sandy beaches, and major attractions, San Diego is one of the world's best tourist destinations, and it turned out to be a great destination for more than 700 scientists, educators, and journalists, too! The Kavli Foundation Lecture normally kicks off each meeting, but this time it was delayed by two days so that lecturer Gabriela González (Louisiana State Univ.) could announce the second detection of gravitational waves by the Laser Interferometer Gravitational-Wave Observatory (LIGO) — the big news was under a journal embargo till Wednesday morning!

Nine more distinguished astronomers also presented prize or invited talks in San Diego, including Dan Irwin (NASA Marshall Space Flight Center) on using space research to serve the world, Maura McLaughlin (West Virginia Univ.) on fast radio bursts, Kevin Schawinski (ETH Zurich) on citizen science with Zooniverse, Jo Bovy (Univ. of Toronto) on the large-scale structure of our galaxy as seen by the Sloan Digital Sky Survey's APOGEE project, and Linda Spilker (Jet Propulsion Laboratory) on Saturn's ocean moon Enceladus. Shannon Curry (Univ. of California, Berkeley) described MAVEN observations of the escaping Martian atmosphere, 2015 Newton Lacy Pierce Prize winner Heather Knutson (Caltech) presented "The Elephant in the Room: Effects of Distant, Massive Companions on Planetary System



Architectures,” Michael Norman (Univ. of California, San Diego) explored new frontiers in computational cosmology, and Dale Frail (National Radio Astronomy Observatory) presented “Things That Go Bump in the Night: The Transient Radio Sky.”

Gathering with the AAS in San Diego was the Laboratory Astrophysics Division (LAD), which convened daily sessions on the theme “Bridging Laboratory and Astrophysics.” Other special sessions included “The Polarization of the Cosmic Microwave Background: Current Status and Future Prospects” and “The NASA K2 Mission.” Multisession “Meetings-in-a-Meeting” considered “The Limits of Scientific Cosmology” and “Small Telescope Research Communities of Practice.” Public-policy Town Hall meetings featured representatives from NASA and the National Science Foundation, and Jacqueline Hewitt (MIT) presented the final report of the astronomy mid-decadal survey committee.

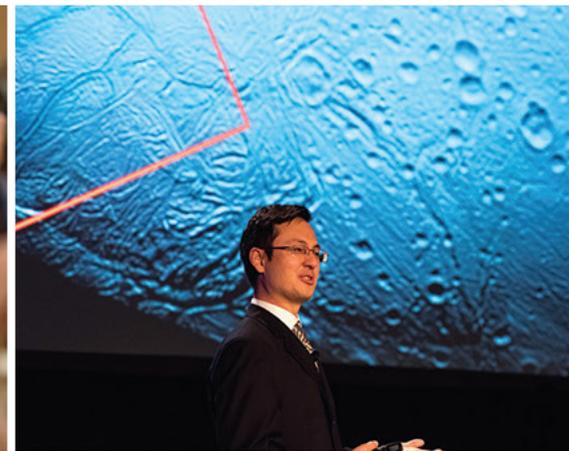
As they do every few years, the AAS Division for Planetary Sciences (DPS) and the European Planetary Science Congress (EPSC) held their annual meetings together in 2016. The joint 48th DPS/11th EPSC meeting took place at the Pasadena Convention Center, 16-21 October, with participation by HAD. More than 1,400 astronomers, planetary scientists, and historians from the United States, Europe, and around the world attended to discuss new results obtained on our solar system as well as on extrasolar planetary systems from both ground- and space-based studies. Highlights from ongoing robotic missions featured prominently, including

Akatsuki at Venus, Curiosity at Mars, Dawn at Ceres, Rosetta at Comet 67P/Churyumov-Gerasimenko, Juno at Jupiter, and New Horizons at Pluto.

Other Division gatherings in 2016 included the 15th HEAD meeting in Naples, Florida, in April; the 47th Division on Dynamical Astronomy (DDA) meeting in Nashville, Tennessee, in May; and the 14th Solar Physics Division (SPD) meeting in Boulder, Colorado, in May-June.

The 229th AAS meeting convened at the Gaylord Texan Resort & Convention Center overlooking beautiful Grapevine Lake near Dallas-Fort Worth (DFW) airport. To avoid clashing with the New Year's Day holiday, which again fell at an awkward time in the week, the January 2017 gathering took place Tuesday-Saturday, 3-7 January, rather than the usual Sunday-Thursday. Gathering with the AAS this time were HAD and HEAD, the two Divisions that usually meet with the parent Society in January. HAD hosted special sessions celebrating its 2017 Osterbrock Book Prize for *The Biographical Encyclopedia of Astronomers* edited by Tom Hockey (Univ. of Northern Iowa) and “Some Notes on the History of Infrared Astronomy from Above the Atmosphere.” HEAD convened two special sessions as well: “Astronomy Across the Gravitational Wave Spectrum” and “The Physics of the Perseus Cluster, and Other Highlights, from Hitomi,” Japan's short-lived X-ray-astronomy satellite.

The Grapevine meeting, which attracted more than 2,500 attendees, offered a rich assortment of prize and invited



talks by distinguished astronomers, beginning with the Kavli Foundation Lecture by William Bottke (Southwest Research Institute), "Early Solar System Bombardment: Exploring the Echoes of Planetary Migration and Lost Ice Giants." Laura Lopez (Ohio State Univ.), recipient of the Annie Jump Cannon Award, presented her prize lecture on the tumultuous lives and deaths of stars. Christopher McKee (Univ. of California, Berkeley), who was honored for lifetime achievement, gave the Henry Norris Russell Lecture, "How Stars Form."

Martin Aubé (Cégep de Sherbrook) presented "The LED Outdoor Lighting Revolution: Opportunities, Threats, and Mitigation." If Big Bang cosmology leaves you scratching your head, Sean Carroll (Caltech) let you know you're in good company when he gave his talk "What We Don't Know About the Beginning of the Universe." Wendy Freedman (Univ. of Chicago) continued on that theme with her Dannie Heineman Prize lecture "Increasing Accuracy and Increasing Tension in the Hubble Constant," after which W. Neil Brandt (Pennsylvania State Univ.) gave his HEAD Bruno Rossi Prize lecture, "A Good Hard Look at Growing Supermassive Black Holes in the Distant Universe."

The Sun was the star when Terry Forbes (Univ. of New Hampshire) described his work on magnetic energy release in solar flares, for which he was awarded the AAS Solar Physics Division (SPD) George Ellery Hale Prize. Karen Öberg (Harvard-Smithsonian Center for Astrophysics) presented

her Newton Lacy Pierce Prize lecture, "The Chemistry of Planet Formation," and Philip Hopkins (Caltech) gave his Helen B. Warner Prize talk, "Feedback: Now with Physics." Laura Fissel (Northwestern Univ.) floated plenty of new ideas in her talk "Astronomy from the Upper Stratosphere: Key Discoveries and New Opportunities from High Altitude Scientific Balloons."

The final day's plenary lectures began with "Exploring for Galaxies in the First Billion Years with Hubble and Spitzer — Pathfinding for the James Webb Space Telescope" by Garth Illingworth (Univ. of California, Santa Cruz), recipient of the Lancelot M. Berkeley Prize. Alien hunter Jill Tarter (SETI Institute) presented "The 21st Century: The Century of Biology on Earth and Beyond," and Alex Young (NASA Goddard Space Flight Center) discussed NASA's plans for the American astronomical highlight of 2017: the August 21st coast-to-coast total solar eclipse. Megan Donahue (Michigan State Univ.) gave the final scientific talk of the meeting, "How Supermassive Black Hole Feedback Might Work."

In addition to the plenaries and the contributed oral and poster presentations, the Grapevine program offered numerous Town Hall meetings on astronomy and public policy, including a session on Astro2020, the next decadal survey of astronomy and astrophysics, as well as a special plenary Town Hall to discuss racism in astronomy.



DIVISIONS, COMMITTEES & WORKING GROUPS

The AAS is a diverse group of members passionate about their discipline. What the AAS can accomplish is greatly enhanced by our Divisions, Committees, and Working Groups. Each has a role to play, but all are enabled by the dedicated enthusiasm of volunteer leaders and participants.

The AAS Divisions cover major areas of astronomical endeavor. Our six topical Divisions are the Division on Dynamical Astronomy (DDA), Division for Planetary Sciences (DPS), Historical Astronomy Division (HAD), High Energy Astrophysics Division (HEAD), Laboratory Astrophysics Division (LAD), and Solar Physics Division (SPD). Each has its own governing committee, whose volunteer leaders guide the strategic direction of the Division and partner with the AAS Council to enhance our field. All AAS members may join any, and as many, Divisions as they choose; each Division has its own membership dues and bylaws. Several Divisions have affiliate memberships, which allow scientists who would not otherwise be, or do not qualify to be, full members of the AAS to participate in Society and Division activities.

The AAS Committees help implement many of the strategic goals of the AAS Council. A full list is available on the AAS website, but some of the most important include our diversity committees — Committee on the Status of Women in Astronomy (CSWA), Committee on the Status of Minorities in Astronomy (CSMA), and Committee for Sexual-Orientation & Gender Minorities in Astronomy (SGMA) — as well as the Committee on Public Policy, the Publications Board, and the Employment Committee. Some committees require election, while most rely simply on interested individuals to volunteer for service. Each AAS prize and award has its own selection committee, and there are a range of administrative committees that look after the operation of the Society in a variety of ways. Individuals interested in volunteering for committee service should contact the AAS Secretary.

Working Groups are formed by the AAS Council to look after specific issues in our field. Among those formed recently are the Working Group on Astroinformatics and Astrostatistics (WGAA), Working Group on Time Domain Astronomy (WGTDA), and the Working Group on Accessibility and Disability (WGAD). Sometimes Working Groups stay active for a long time, like the Working Group on Astronomical Software, while occasionally they “graduate” to a full-fledged Division, as outlined in our bylaws.

MEDIA RELATIONS

The role of the AAS Press Office is to ensure media attention to newsworthy scientific results that are presented at Society meetings, presented by AAS members or other astronomy researchers at scientific conferences worldwide, published in peer-reviewed journals (including our own *Astrophysical Journal* and *Astronomical Journal*), or announced in press releases from recognized astronomy-related institutions. An ancillary role is to ensure media recognition for recipients of major astronomical prizes and honors, especially those awarded by the Society or its Divisions. These responsibilities fall to the AAS Press Officer, Dr. Richard Tresch Fienberg, who

organizes press conferences at AAS meetings, handles media inquiries and requests for expert referrals, and manages the AAS press-release-distribution service, which forwards astronomy-related releases from public-information officers to journalists all over the world and working in all forms of print, broadcast, and electronic media. He also distributes headlines and links to online press releases via the Twitter account [@AAS_Press](#) and manages the Astronomy in the News section of the AAS website. Rick is a member of the AAS Executive Office staff, though he works from home near Boston. Assisting as volunteers are Deputy Press Officers Dr.

Larry Marschall (retired from Gettysburg College) and Dr. Inge Heyer (Loyola University Maryland).

In preparation for AAS meetings, the Press Officer solicits press, photo, and video releases; arranges press conferences, photo opportunities, press tours, and seminars for science writers; and prepares media advisories and a press kit. During meetings, press conferences are webcast live for journalists unable to attend in person. Working with the American Association for the Advancement of Science's EurekaAlert service, complimentary access to the electronic editions of the *Astrophysical Journal* and the *Astronomical Journal* is provided to accredited reporters who are not employed as astronomers.

Another of the Press Officer's responsibilities is to arrange for photography at AAS meetings. For many years we relied on volunteers, but from 2012 to 2015 we used the professional services of Joson Images, which dramatically increased the quality of our meeting photography. In 2016 we switched vendors to Corporate Event Images, which has further enhanced the quality of our meeting photography and sped up the process of posting the photos online. Furthermore, Corporate Event Images shoots videos as well as still photos; we've begun having them make short videos to recap the latest meeting and promote the upcoming one.

We've been forwarding press releases to the news media by email for three decades. The AAS press list is actually two lists: one for reporters eligible to receive embargoed releases, and one for public-information officers (PIOs) who, according to rules established by Science and Nature, are ineligible to receive embargoed releases. Releases go to more than 2,400 email addresses, with about 2,000 of them on the press list and about 400 on the PIO list. On average, we forward about 100 ± 20 press releases each month. We receive dozens more, but we don't forward releases if we don't think they'll be of interest to our list members (as is the case, for example, with NASA releases about contract extensions and university releases about small grants to individual investigators). The [@AAS_Press](#) Twitter account has more than 4,200 followers, but not all of those are journalists or PIOs. Many are astronomers (including AAS members) or astronomy enthusiasts among the general public.

The AAS Press Office has been working more closely with AAS Publishing since 2015 in connection with AAS Nova. Launched that August in collaboration with our journal-publishing partner, IOP Publishing, the AAS Nova website provides a curation service to the astronomical community,



L-R: Rick Fienberg, Larry Marschall, Inge Heyer

highlighting breakthroughs and discoveries that busy researchers might otherwise overlook, especially outside their immediate area of expertise. The site's editor, Dr. Susanna Kohler, writes a biweekly "tip sheet" alerting journalists to potentially newsworthy papers featured on AAS Nova; it is distributed via the AAS press list, and links to new articles on AAS Nova are posted daily to the Astronomy in the News section of the AAS home page.

In 2016 the AAS forged a stronger partnership with Astrobites, a blog operated by graduate students to share news about interesting astro-ph preprints with a wider audience. For several years one Astrobites author was granted press meeting registration to spend time in the press office learning about media relations and to cover the meeting for the blog; now up to a half dozen Astrobites authors attend our meetings as press registrants, vastly increasing the amount of coverage. In addition, we are now cross-posting content between Astrobites and AAS Nova, which leads to a couple of Astrobites items appearing on the AAS home page each week.

The 227th AAS meeting in Kissimmee, Florida, in January 2016 attracted 68 press registrants. Another 21 reporters requested the press-conference-webcast password. On-site press registrants were a mix of approximately two-thirds reporters and one-third public-information officers. The AAS Press Officer organized five press conferences and two seminars for science writers (i.e., backgrounders on upcoming missions or emerging topics) at the winter meeting. We had 28 on-site press registrants at the 228th AAS meeting in San Diego, California, in June 2016. The number of online participants in the six press conferences wasn't recorded. One of the briefings featured (thanks to some last-minute good luck) the second LIGO gravitational-wave detection. When the subject of that briefing was revealed in a media advisory the day before, we got so many dozens of requests for the webcast password that we gave up trying to keep track of them!



EDUCATION & OUTREACH

Through its education and outreach programs, the AAS nourishes a scientific outlook in society to help increase public support for scientific research, improve science education at all levels, attract young people to careers in science and technology, and make evident the connections between science, technology, and prosperity. The highest priorities of the AAS in these areas are to promote and support training the next generation of astronomers to become successful scientific researchers and educators, and to encourage and support high-quality research on the teaching and learning of astronomy.

Except as noted below, AAS education programs are administered by the AAS Executive Office, primarily by Gina Brissenden, Education & Outreach Coordinator (+1 202-328-2010 x122, gina.brissenden@aaas.org). General questions should be addressed to education@aaas.org. See aaas.org/education for more information about the items listed below as well as other AAS education programs.

Astronomy Education Board (AEB): The Astronomy Education board is charged with oversight of the education activities of the AAS by providing advice to the Council, the Executive Officer, the Education Officer, and the Education & Outreach Coordinator. The AEB examines the full range of education activities in which the society and its members are involved, reviews the context in which investments in science education are being made by federal and state agencies, recommends optimal mechanisms for developing an effective education strategy for the astronomical community, recommends appropriate roles for the AAS in exercising leadership in education, and suggests and implements education-related AAS activities consistent with the mission, goals, and strategic

plan of the Society. The current AEB Chair is Charles Liu, the AAS Education Officer (2015-2018), educationofficer@aaas.org.

AAS Education & Professional Development (AAS-EPD) Mini-Grant Program: In January of 2017, the AAS Council approved the recommendation from the AAS Education Task Force to create a grants program for US-based AAS members to provide education-related mentoring and professional-development experiences for fellow members. Suitable venues for such experiences include (but are not limited to) AAS and Division meetings, college and university campuses, museums, planetariums, observatories, and online webinars and hangouts. The AAS-EPD mini-grant program will provide direct funding and logistical support for these experiences but will not pay any indirect costs (e.g., overhead). Individual grants will range from \$1,000 to \$10,000, with a typical amount of approximately \$5,000. The first round of proposals were due in June 2017.

Education Sessions at AAS Meetings: Oral and poster sessions on various aspects of astronomy education are regular features of AAS meetings. Special sessions and workshops are often organized by AAS members involved in astronomy-related education research, curriculum development, and outreach. Additionally, there are often pre- and within-meeting family and middle/high-school student astronomy events planned by both AAS members and staff. The majority of workshops occur on the weekends before regular AAS meetings, but some do occur within the meeting itself, as well as at some AAS Division meetings.

The AAS Harlow Shapley Visiting Lectureship Series: The AAS coordinates a program of two-day visits to colleges and



universities by professional astronomers who wish to share the excitement of modern astrophysics with students, faculty, and the public. Participation is open to two-year colleges and four-year undergraduate institutions throughout the United States, Canada, and Mexico, especially ones without their own astronomy programs. Shapley Lecturers contribute to the host institution's academic program and intellectual environment in many ways. They give at least one presentation that's free and open to the public: The Harlow Shapley Lecture. They may also guest-teach a class in physics or astronomy; give a research colloquium or seminar presentation; interact with students informally about graduate school and careers; discuss teaching and curriculum with faculty, deans, and administrators; and visit local primary and secondary schools.

The goal of the Harlow Shapley Visiting Lectureship is to support not only the part of the AAS mission statement that commits the Society to training, mentoring, and supporting the next generation of astronomers, but also the part that commits the AAS to promoting increased participation of historically underrepresented groups in astronomy.

Toward this end, the AAS waives the institutional stipend paid to the AAS in support of the Shapley program for community colleges and Minority Serving Institutions (MSI), such as Historically Black Colleges or Universities, Hispanic Serving Institution, Tribal College and Universities, etc. Additionally, the AAS arranges a special Shapley Visiting Lectureship at an MSI that is located geographically near an upcoming AAS meeting or AAS Division meeting, which results in one faculty member from that institution and five of their students receiving free one-day registration to

attend that nearby AAS/AAS Division meeting. Additionally, we recently recruited new Shapley Lecturers who are particularly interested in partnering with MSIs for their Shapley Visiting Lectureships and who are willing to take part in the communication with these MSIs to broker the relationship. Since these efforts have been put into place, there has been an increase in the number of Shapley Visiting Lectureships that are hosted by community colleges and MSIs.

The AAS Astronomy Ambassadors Program: The AAS Astronomy Ambassadors program comprises a professional development workshop and a community of practice designed to help improve early-career astronomers' ability to communicate effectively with students and the public. It provides mentoring and training experiences for astronomers, from advanced undergraduates to beginning faculty, and provides access to resources and a network of contacts within the astronomy EPO community.

By learning how to implement effective education and outreach strategies, AAS Astronomy Ambassadors become better teachers, better presenters at meetings, and better representatives of our science to the public and to the government. And because early-career astronomers are a more diverse group than those who currently do the majority of astronomy outreach, they help the astronomical community present a more multicultural and gender-balanced face to the public, enabling members of underserved groups to see themselves as scientists. Ambassadors are provided with a large, growing library of outreach activities and materials that are suitable for a range of venues and audiences. Many of the resources



in this library were developed by organizations such as the Astronomical Society of the Pacific, the Pacific Science Center, and the Center for Astronomy Education for other outreach programs, though some resources have been created specifically for this program.

The first AAS Astronomy Ambassadors workshop was held at the 221st meeting of the AAS in Long Beach, California, in January 2013 and served 30 young astronomers chosen from more than 75 applicants. Incorporating feedback from workshop participants and lessons learned from the reports they've submitted after conducting their own outreach events, a second annual workshop for a new cohort of 30 Ambassadors was successfully held in January 2014 at the 223rd AAS meeting in Washington, DC. In October 2014, the AAS co-sponsored the third Ambassadors workshop with the AAS Division for Planetary Sciences (DPS), which was held in conjunction with 46th DPS meeting in Tucson, Arizona, for a cohort of 28. The fourth annual workshop was held in January 2015 at the 225th AAS meeting in Seattle, Washington, for a cohort of 28 Ambassadors. The AAS Council approved continuing this program in 2016 and 2017, with additional workshops held at the 227th AAS meeting in Kissimmee, Florida, for a cohort of 28, and the 229th AAS meeting in Grapevine, Texas, for a cohort of 26.

AAS Student Education Outreach Program: In June 2012 at the 220th meeting of the AAS in Anchorage, Alaska, the AAS launched the AAS Student Education Outreach Program. Students and their chaperones (teachers and/or parents) are invited to drop in at AAS meetings on a prearranged morning to hear a special presentation from an astronomer and then tour the Exhibit Hall, where numerous exhibitors conduct age-appropriate interactive demonstrations and other educational activities. This program has proven to be very popular, typically including 150-250 local middle-school through community college students from underserved minority populations, STEM programs, and homeschool groups. Through a generous contribution from long-standing

sponsor Associated Universities, Inc., the AAS is able to supply transportation and additional resources to provide this program free of charge.

At the 221st AAS meeting in Long Beach, California, in January 2013, approximately 300 students from six schools and various homeschool programs heard a talk by Bobak "Mohawk Guy" Ferdowsi (NASA JPL) and engaged in hands-on science activities led by 23 exhibitors and volunteer outreach groups. At the 222nd AAS meeting in Indianapolis, Indiana, in June 2013, approximately 200 students from two schools and various homeschool programs heard from Gail Zasowski (STScI) and participated in hands-on activities led by 14 exhibitors and volunteer outreach groups. More recently in January 2017, 300 students at the 229th AAS meeting in Grapevine, Texas, heard from Dr. Nick Siegler from the Jet Propulsion Laboratory, then participated in hands-on activities with 29 exhibitors. Then in June 2017, 150 students at the 230th AAS meeting in Austin, Texas, heard a talk by Dr. Rachael Livermore from the University of Texas at Austin, then participated in hands-on activities with 10 exhibitors.

Other education programs within the AAS include coordinating the Rodger Doxsey Travel Prize, which provides graduate students or postdocs within one year of receiving or receipt of their PhD with a monetary prize to enable the oral presentation of their dissertation research at a winter AAS meeting. The AAS also coordinates the Chambliss Student Astronomy Achievement Awards, which recognize exemplary research by undergraduate and graduate students who present posters at AAS meetings. Finally, the Education and Outreach Coordinator also serves as the AAS liaison to other scientific societies' education programs. As a result of such collaboration with the American Institute of Physics (AIP), participation by the Society of Physics Students (SPS) is now a regular feature of winter AAS meetings; SPS exhibits at the undergraduate reception and holds a special evening poster session at which a well-known astronomer gives a career-oriented "pep talk" to the attending students.



L-R (top row): Christopher F. McKee, Karin I. Öberg, Wendy L. Freedman, Philip F. Hopkins
 L-R (bottom row): Laura A. Lopez, Lynn R. Cominsky, James J. (Jamie) Bock, Richard (Rick) A. Perley

2016 PRIZE WINNERS

Christopher F. McKee, *Henry Norris Russell Lectureship*
 “For his innovative ideas, powerful theoretical insights, and practical models that have had significant impact on many areas of astrophysics.”

Karin I. Öberg, *Newton Lacy Pierce Prize*
 “For her research on the astrochemistry and astrophysics of ices and molecules in star-forming regions and protoplanetary disks.”

Wendy L. Freedman, *AAS/AIP Dannie Heineman Prize*
 “For her outstanding contributions and leadership role in using optical and infrared space- and ground-based observations of Cepheid variable stars, together with innovative analysis techniques, to greatly improve the accuracy of the cosmic distance scale and thereby constrain fundamental cosmological parameters.”

Philip F. Hopkins, *Helen B. Warner Prize*
 “For his research on galaxy formation and evolution and the growth of supermassive black holes.”

Laura A. Lopez, *Annie Jump Cannon Award*
 “For her contributions to understanding the birth-to-death cycle of stars in our galaxy. Lopez’s work on supernova remnants, young massive stars, and the interstellar medium

spans radio through X-ray wavelengths and bridges the gap between theory and observation.”

Lynn R. Cominsky, *Education Prize*
 “For her long-standing leadership of the Sonoma State University Education and Public Outreach Group, which has had a broad and significant impact both locally and nationally.”

James J. (Jamie) Bock, *Joseph Weber Award for Instrumentation*
 “For his development of low noise “spider web” bolometers that enable a broad range of submillimeter and millimeter observations with ground-based, balloon-based, and space-based instruments, leading to critically important measurements of the cosmic microwave background radiation.”

Richard (Rick) A. Perley, *George Van Biesbroeck Prize*
 “For his tireless and unrelenting career-long service to the global astronomical community, and the dedication of his unparalleled expertise in radio interferometry to the design, commissioning, and optimization of the world’s premier radio telescope, the Very Large Array.”

MEMBER DEATHS

The Society was saddened during 2016 to learn of the passing of the members listed. The Society, through its Historical Astronomy Division, strives to publish an obituary for each AAS member after we are informed of the member's death. Obituaries are published and available online through the AAS web pages. A complete index is available at aas.org/obituaries.

Mark Allen
André Brahic
Winifred S. Cameron
John Fountain
Katherine B. Gebbie
Howard D. Greyber
William E. Howard, III

Michael Juda
Michael Jura
Kwok-Yung (Fred) Lo
Patrick S. McIntosh
Romas Mitalas
A. G. Davis Philip
Gail A. Reichert

Jack H. Robinson
Elizabeth "Pat" Roemer Vera
C. Rubin
S. Ichtiaque Rasool
Mercedes T. Richards
Richard G. Teske
Kurt W. Weiler

Ewen A. Whitaker
Gernot Maria Rudolph Winkler
Harold S. Zepolsky
Martin V. Zombeck

THE AAS

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Education Officer Charles Liu, CUNY College of Staten Island
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Dara J. Norman, NOAO
Dawn M. Gelino, Caltech

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Buell T. Jannuzi, Steward Obs.
Stephen Unwin, JPL

2015-2018

Daniela Calzetti, Univ. of Massachusetts
Nancy Chanover, New Mexico State Univ.
Sally Oey, Univ. of Michigan

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