



AMERICAN
ASTRONOMICAL
SOCIETY

2019 Annual Report

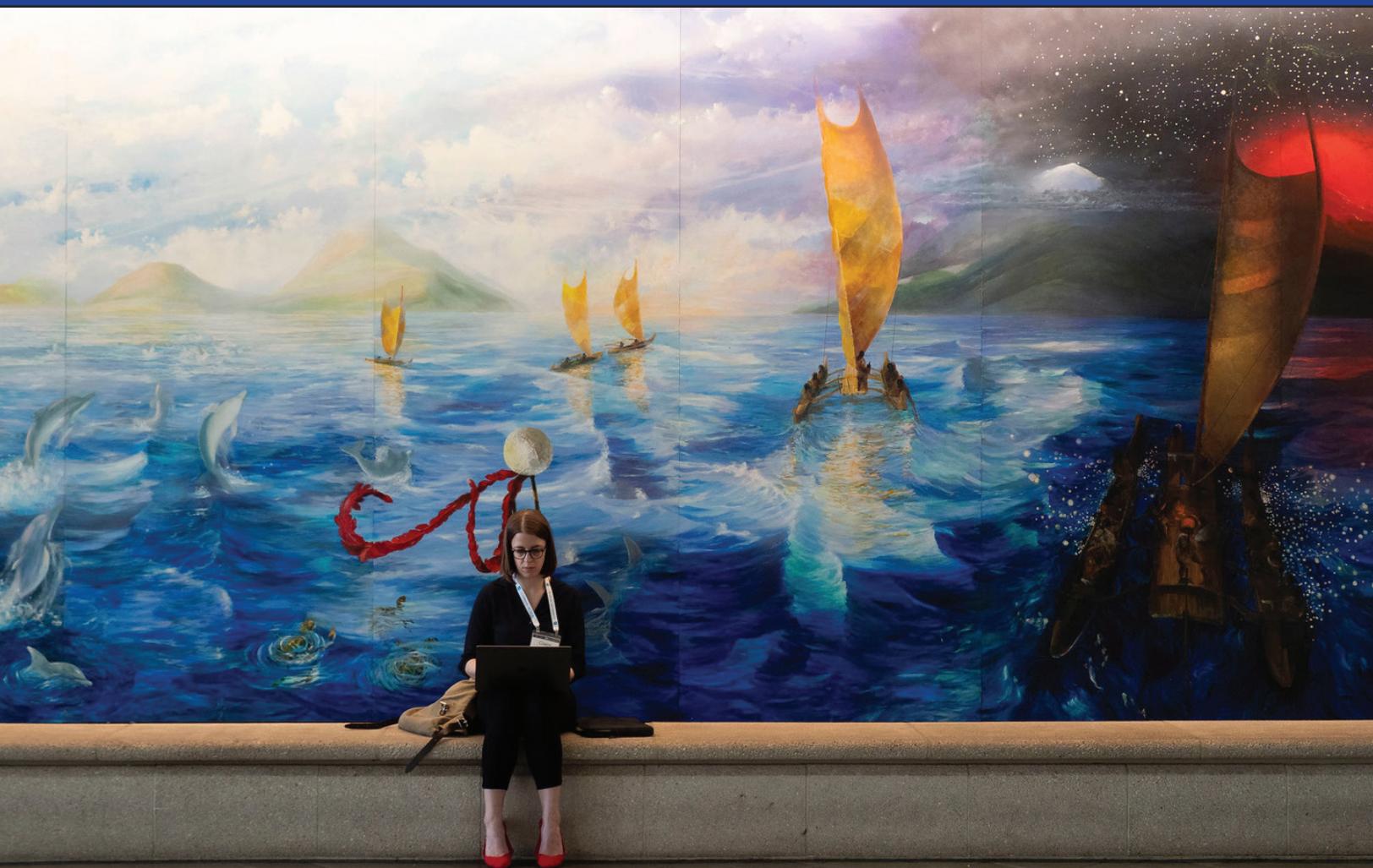


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MISSION & VISION STATEMENT

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.

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 the astronomical sciences. Photo credits: Phil McCarten and Todd Buchanan/Corporate Event Images © 2018, 2019 AAS



Photo: Harley Seeley Photography/MSU College of Natural Sciences

PRESIDENT'S MESSAGE: MEGAN DONAHUE

I thought 2019 was stressful, and here I am writing this in May 2020, in the middle of a deadly global pandemic that has killed more than 100,000 Americans and cratered the economy.

The world of May 2019 couldn't seem more different. That month SpaceX launched its first 60 Starlink communication satellites and changed the way we think about satellites and the night sky. The Starlinks on their way to higher orbits were easily visible to naked-eye stargazers everywhere on the planet, and we wondered what this meant for our highest-priority ground-based observatory from the Astro2010 Decadal Survey, the Vera C. Rubin Observatory. Formerly known as the Large Synoptic Survey Telescope, it was renamed for the late Vera Rubin by Congress starting with a bill in June 2019 that was passed and signed into law before the end of the year.

Back to Starlink. Over the last year we've been communicating with SpaceX managers and engineers, and they have begun redesigning the satellites to reduce their brightness. For this we are indebted to the AAS public policy staff, Joel Parriott and Kelsie Krafton, and to the AAS Committee on Light Pollution, Radio Interference, and Space Debris, especially Jeff Hall, Connie Walker, and Pat Seitzer. Unfortunately, simply "spray-painting them black" is not the answer; sorry, Twitter. The AAS has been collaborating with the International Astronomical Union and the world's major ground-based observatories to share models and technical information.

We are cautiously optimistic about the latest SpaceX innovations: a visor that blocks sunlight from the most reflective spacecraft elements and a strategy to reorient the satellites during orbit-raising to minimize reflection off their solar panels.

In July 2019 the Thirty Meter Telescope Consortium got permission to begin construction, but the immediate response of the mountain protectors, or *kia'i*, to block the Maunakea access road not only prevented that but also forced the existing observatories to cease operations for about a month. The January 2020 AAS meeting in Honolulu was planned and convened amid this controversy. The 'Imiloa Astronomy Center in Hilo organized its exhibition space to be a sharing circle. 'Imiloa's director, Ka'iu Kimura, had spoken a year earlier at our Seattle meeting, and her organization's efforts were rewarded by many visitors. The protectors, the *kia'i*, were able to express their views to the Astro2020 State of the Profession subcommittee and participated in a special session on Hawaiian perspectives along with Native Hawaiian astronomy graduate students.

Honolulu attendees were probably a little uncertain at first, but by the end of the week many of us felt the meeting had gone about as well as we could have hoped, with many aspects of the debate being expressed by people affected directly by decisions within the astronomical community. I was especially proud of the behavior of our meeting attendees, who I heard surprised the *kia'i* with how

interested and open these astronomers were to their concerns. If you attended the Honolulu meeting, and in particular if you chose to attend the sessions where these difficult issues were discussed, let me express my gratitude to you for what I saw and heard. These issues are not easy, and they can divide us at a time when it is important for us to be together as humans. I'll point out that many of these conversations were accomplished through in-person contacts and trust built on the basis of personal relationships extending back years in cases. I'm grateful and honored by the work and integrity of the individuals I had the pleasure of meeting that week. The in-person aspect of communication is very precious.

In other news, the AAS assumed ownership of *Sky & Telescope* in the summer of 2019. The community of amateur astronomers seems quite pleased that the magazine is once again owned and operated by astronomers. *Sky & Telescope* continued publishing monthly issues throughout the transition, not missing a beat. And that's only half our major publishing news for 2019. In addition, the AAS, collaborating with our Division for Planetary Sciences, launched the *Planetary Science Journal (PSJ)*. The PSJ is "gold open access," with all content freely available immediately upon publication; there's no proprietary period, and all costs are covered by page charges.

The year 2019 was a banner one for space astronomy and planetary exploration. Both NASA's Chandra X-ray Observatory (23 July) and Europe's flagship X-ray satellite, XMM-Newton (10 December), celebrated 20 years of science in space. Who would have thought that of NASA's original four Great Observatories, three (including the venerable Hubble Space Telescope) would still be working at the dawn of the 2020s? We bade a fond farewell to the Spitzer Space Telescope on 30 January 2020. Another "fare well, well met" goes to the Mars Opportunity rover, finally ending its mission on 13 February 2019. We continue to be delighted by spectacular pictures from JunoCam on the Juno spacecraft orbiting Jupiter. And Japan's Hayabusa2 probe grabbed samples of asteroid Ryugu in 2019 and is now on its way home, to arrive in late 2020. I'm keen to see what it found, as those samples may contain ice and organic compounds dating from the origin of our solar system. The Transiting Exoplanet Survey Satellite (TESS) finished its scan of the southern sky in July 2019 and began its survey of the northern sky. Throughout the mission the TESS team has been immediately sharing their data treasury to enable progress on questions beyond exoplanets, including asteroseismology of their host stars.

Ground-based astronomy thrived in 2019 too. Science from the Atacama Large Millimeter/submillimeter Array blows me away on a regular basis, with high-resolution maps of protoplanetary disks and gas clouds from the beginning of time (almost). The gravitational-wave detectors LIGO and Virgo began their third season of observations in April 2019, detecting black hole-black hole merger candidates almost weekly (!) and an occasional binary neutron star merger candidate, though none with electromagnetic counterparts like the one in August 2017. This science — like so much of our science — relies on our astrophysics facilities as a system, telescopes large and small, on the ground and in space, and on our people,

including students and early career folks on short-term contracts. As the Astro2020 Steering Committee contemplates grand plans for future astrophysics facilities and missions, I hope they will keep in mind that our future success depends on the health of the whole system. My language here is likely affected by the current pandemic, but I think it is appropriate.

The work of the AAS Board of Trustees has continued as well. The AAS Strategic Assembly, which includes the Board, Division leaders, and Committee Chairs, began the work of updating the AAS Strategic Plan in 2019 and will continue that effort through the summer of 2020. The Board has launched a new task force, named Beyond Academia, that has been charged with pulling together information and recommendations for the AAS and its membership about employment options and opportunities beyond the so-called ivory tower. Training in astrophysics has long been seen as a path to making more astronomy professors, especially by astronomy professors. That narrow view means that too many people — especially we professors — have seen the path as "tenure or bust," which creates an environment where even choosing to study astrophysics becomes economically risky. There are many ways to reduce this risk, perhaps starting with universities and funding agencies covering all of the costs that a graduate student or postdoctoral fellow may incur in taking on a new position, such as relocation costs and extra child-care expenses during scientific meetings. The Beyond Academia task force will provide statistics, advice, and information about the increasingly wide variety of careers that now engage PhD-holding astronomers. I also expect that the AAS may be asked to take a more proactive role in encouraging corporate members and other employers to advertise in the AAS Job Register and to provide information and workshops for astronomers at our semiannual meetings.

The AAS Fellows program was launched with naming our beloved Margaret Burbidge as the Inaugural AAS Fellow in January 2020. She passed away, at age 100, only a short time later. She was elected by the AAS Board along with an initial class of AAS Legacy Fellows filled by previous AAS and AAS Division career prize winners and long-time AAS committee members who contributed years of volunteer effort to the AAS, largely unnoticed by our membership. The criteria for AAS Fellow selection are, of course, far broader than those used for this initial set, and nominations for the first new class of AAS Fellows are being collected as I write this. The AAS Board welcomes the opportunity to acknowledge a much larger and broader set of contributions to the of field of astronomy and to our professional society than we can with a handful of awards and prizes each year.

I never expected a year like 2019, let alone one like 2020. But probably very few of us did. I am grateful to all of you for your input and your service to the field of astronomy. I say here with all the new weight of this usually casual expression of optimism: I hope to see you soon.



EXECUTIVE OFFICER'S MESSAGE: KEVIN B. MARVEL

As I write this message about 2019, the world finds itself in May of 2020 engulfed in a viral pandemic causing illness, death, and extreme measures with as yet unknown, but substantial consequences for our economies and our societies around the globe. Thus far no AAS staff or volunteer leaders have contracted the virus and we are operating our organization fully remotely, with all staff members working from home. This has not been easy, but we have adjusted and are now more than eight weeks into this mode of operation. The AAS is well positioned to weather this storm. In addition to our prudently managed reserves and ongoing business operations, we have engaged and dedicated staff and volunteer leaders who have rolled up their sleeves, focused on what needs to be done and we've accomplished a lot, including moving our in-person summer conference to a fully virtual experience. I look forward to authoring the 2020 EO message for the annual report next year, but let me focus here mainly on the significant achievements of 2019.

First and foremost, an opportunity appeared in early 2019 that came to dominate much of my time and that of our CFOO, Kelly Clark. We found out that the parent company for the venerable *Sky & Telescope* magazine filed for bankruptcy, with a goal of selling the various magazines it owned at auction. Our press officer, Rick Fienberg, had been alerted to problems with the company in the fall of 2018 and we had even discussed making an offer to purchase the business before the bankruptcy filing. The AAS owning *Sky & Telescope* had such obvious connection to our mission. However, any reasonable offer at the time did not seem prudent, so I didn't take such a proposal to the board.

Once the bankruptcy came about, I was able to bring a proposal for purchase at auction to the Board and they enthusiastically authorized me to try. Kelly and I worked furiously for a month or so with consultants and our legal counsel to review the business documents made available by the company through the bankruptcy court. It became apparent that the financial challenges faced by the parent were not problems faced by *Sky & Telescope*, which appeared to be generating a net positive bottom line. Worryingly, there was no real way we could independently verify many of the specifics. The Editor in Chief, Peter Tyson, helped with information where he could and it was allowed. In the end, we put in a bid we felt was reasonable and took into account the bankruptcy proceeding. In the end we didn't even have to participate in the auction. The experts running the auction called me the night before, we worked out some minor details and settled on a price, well below the Board's authorized maximum bid. Only paperwork remained...a lot of paperwork.

The *Sky & Telescope* team was overjoyed to find out we had successfully acquired the business, as did the readership and our membership. Now we just had to manage bringing on board all the staff, the business operations previously handled by the parent company and ensure we could operate the business effectively. Happily, everything has worked out after overcoming some significant challenges. Members can now get a discounted subscription to *Sky & Telescope*. We've successfully completely rebuilt the website, bringing it into the modern age, while simultaneously rebuilding the online store and growing the products sold by publishing a new version of the popular star atlases produced by the editorial team. I couldn't be happier with the outcome or with the engaged help of our leaders and staff in taking this opportunity and running with it. I think it will be a historic addition to the AAS with long-lasting impact both financially and from a mission perspective.

On the meetings front, we had a successful meeting in Seattle in January followed by another in St. Louis in June at the historic train station, now hotel. After arriving, I recalled a childhood memory taking the train from Dallas to Chicago to visit grandparents and switching trains in the very station where our conference was taking place. Although I had to rush back to



DC for the *Sky & Telescope* auction, it was fun to walk the same platform I walked as a five-year-old. Somehow the space shrunk a bit, but not by much. Our January 2020 meeting was held in Honolulu, Hawai'i. In the months before our meeting protestors on Maunakea halted the construction of the Thirty Meter Telescope and we were concerned that situation would end up negatively impacting our conference. President Donahue led an effort to reach out to the protestors, resulting in a pre-meeting get together where we listened to their grievances and worked out a compromise solution to provide them a shared session to air their message and avoid a direct protest. They were also pleased that we had a range of content focused on Hawaiian culture and astronomy and ended up attending a few of our other sessions and exhibit floor. Pretty much everyone was pleased with the outcome and we received a positive commentary in the local media, even from astronomy critics. A little bit of listening and being open to discussion can sometimes bring great results and I was very happy Megan's efforts worked out so well.

In 2019, we also concluded a major upgrade to our website and finished an upgrade to our corporate brand. The effort took some time, more than we might have liked, but we focused on getting things done right and the results speak for themselves. Our Director of Communications, Hua Liu, led the efforts. Combined with our recent IT upgrades and outsourcing of IT support, we are functioning better than ever. Significant upgrades to our membership management and e-commerce platform (renewals, registration, donations, etc.) have also taken place since our IT reinvention, making a lot of work easier and more reliable than before. These kinds of infrastructure efforts are important, even though they can be almost invisible once they work correctly.

Many of the other activities we've accomplished while moving forward on our mission are highlighted elsewhere in this report. These include in public policy (e.g., significant efforts in mitigating the negative impacts of low Earth orbit satellite constellations as well as advocacy for increased funding for astronomy), our scholarly publishing activities (formation of a new journal in partnership with the DPS, the *Planetary Science Journal*; producing a new light-curve tool for data presentation), enhanced attention and recruitment for our newest membership categories (e.g., amateur affiliates) and our various grant programs covering the gamut from childcare to travel support for financially challenged young astronomers. The Society is accomplishing a lot and having an impact.

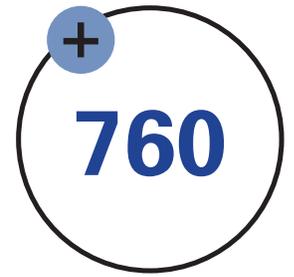
Happily, the Strategic Assembly will be concluding their work establishing the Society's strategic plan during the summer and fall of 2020. By January of 2021, we will have a revised strategic plan and a new set of specific goals to achieve. This will be more important than ever as we move forward during this pandemic crisis and beyond. I spent some time reviewing the minutes of our governance meetings and summaries of early AAS conferences during times of crisis, like WWI and WWII and the 1918 flu pandemic. I found upbeat and positive descriptions of how the AAS leaders of the time focused on ensuring the astronomical research community was moving forward. They held meetings, they found ways to keep positive, they continued submitting manuscripts to the journals (AAS didn't own them until far later in the century). I've found the same positive attitude reflected in our elected leaders and staff today. That is a great comfort and a tremendous asset. The AAS will weather this storm working hard to enhance and share humanity's scientific understanding of the universe. A goal we all share. A goal we all value. A goal that requires each of us to do our part and do it well. Thank you for your membership and engagement in 2019 and beyond. Don't hesitate to send me a note with your ideas.

MEMBERSHIP

The AAS is proud to draw its membership from countries all around the world as astronomy is clearly a global endeavor. With a total membership of 8,000 active members from 55 different countries across the continents (assuming the Antarctic meteorite-hunters for at least part of the year), the AAS membership is geographically diverse. Our journals continue to attract authors from beyond the US, and our meetings (virtual and in-person) are showing steadily increasing participation from astronomers working outside North America. In 2019, the AAS completed a restructuring of its membership classes and removed barriers to joining for student members. Amateur enthusiasts, who comprised a substantial portion of the Society in its early days, were again welcome to join, as were those who were prior members but have since moved on to careers outside of the astronomical sciences. We look forward to welcoming more members in 2020 because we can only achieve our mission of enhancing and sharing humanity's scientific understanding of the universe together with our inclusive community.



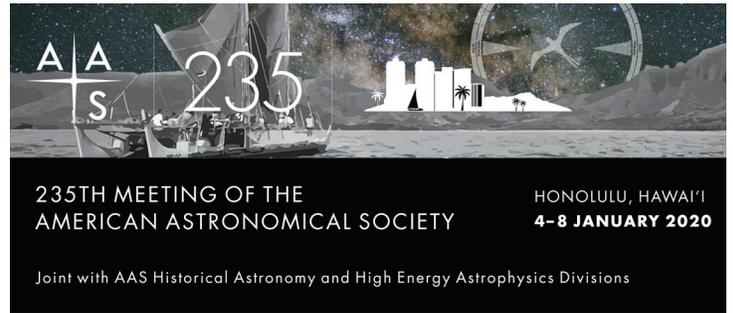
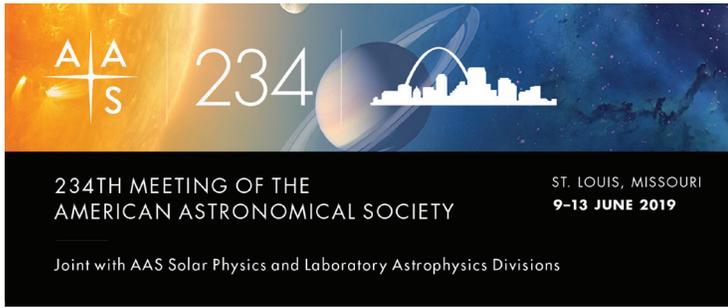
US MEMBERS



NON-US

CA	1123	OH	114	MT	25
MD	682	CT	93	LA	23
MA	474	IN	92	NV	21
AZ	381	WI	80	WY	20
NY	308	TN	70	ME	18
TX	258	MN	68	AR	17
CO	252	NC	61	DE	14
PA	229	MO	61	RI	14
VA	226	AL	60	NE	13
WA	179	UT	53	VT	13
IL	168	OR	52	PR	12
NM	160	SC	40	ID	10
NJ	144	KY	39	AK	7
MI	142	IA	36	ND	6
GA	133	NH	33	MS	4
FL	128	WV	33	VI	4
HI	119	OK	27	SD	2
DC	114	KS	25		

Canada	162	Switzerland	21	Belgium	5	Hungary	2	Georgia	1
United Kingdom	72	Spain	16	United Arab Emirates	5	Singapore	2	Uruguay	1
Germany	68	Mexico	14	Greece	4	Bahrain	2	Romania	1
Japan	65	Taiwan	13	Austria	4	Iceland	2	New Zealand	1
Republic of Korea	44	South Africa	10	Ireland	4	Egypt	1	Russian Federation	1
Australia	39	Israel	9	Czech Republic	4	Turkey	1	Costa Rica	1
Netherlands	31	Sweden	8	Holy See (Vatican City)	3	Macao	1	Bangladesh	1
Chile	30	India	7	Denmark	3	Colombia	1	Cyprus	1
France	26	Brazil	6	Hong Kong	3	Serbia	1	Latvia	1
China	22	Finland	5	Poland	3	Estonia	1	Iraq	1
Italy	22	Norway	5	Lebanon	2	Luxembourg	1		



AAS & DIVISION MEETINGS

AAS 234: St. Louis, Missouri, is an icon of the American Frontier — it was from here that Meriwether Lewis and William Clark set out in 1804 on their historic expedition across the American West. Two centuries later, from 9 to 13 June 2019, St. Louis became an icon of the Final Frontier as hundreds of astronomers and space scientists gathered for the 234th AAS meeting at the historic St. Louis Union Station Hotel.

Alice E. Shapley (University of California, Los Angeles) kicked off the science program with her Fred Kavli Plenary Lecture, “Key Outstanding Questions in Galaxy Formation and How to Answer Them.” Given the proximity of the meeting to the 50th anniversary of the Apollo 11 lunar landing, the AAS Vice-Presidents invited planetary scientist James Head (Brown University) to give a special plenary talk about Apollo’s role in advancing our scientific understanding of the Moon and how far we’ve come in the subsequent half century.

Gathering with the AAS in St. Louis were its Laboratory Astrophysics Division (LAD) and Solar Physics Division (SPD). The theme of LAD’s meeting was “Bridging Laboratory & Astrophysics,” featuring two tracks of special sessions over the course of three days: one on exoplanets and the other on molecules and the Spitzer space telescope. We also enjoyed a LAD plenary session featuring Xander Tielens (Leiden University), who presented the lecture “Dust Grains, Ices, and Surface Processes in the Interstellar Medium.” SPD convened numerous oral and poster sessions throughout the week, and two of its 2019 prizewinners gave plenary lectures: Philip H. Scherrer (Stanford University), recipient of the George Ellery Hale Prize for his work in helioseismology and space weather, and Anthony Yeates (Durham University), recipient of the Karen Harvey Prize for his contributions to modeling the evolution of solar magnetic fields.

Yacine Ali-Haïmoud (New York University) spoke about his Helen B. Warner Prize-winning work in cosmology, including his contributions to the interpretation of Planck mission data; he also led a multisession Meeting-in-a-Meeting (MiM) that he has organized, “Cosmological Probes of Dark Matter.” Other invited lecturers included Joshua Winn (Princeton University) on

characterizing exoplanets, Elisabeth Mills (Brandeis University) on star formation in galaxies, Suvrath Mahadevan (Penn State University) on the new Habitable Planet Finder at the Hobby-Eberly Telescope, and Elisabeth Krause (University of Arizona) on the intersection of theoretical and observational cosmology.

As usual, the meeting featured a wide variety of contributed oral and poster presentations, including many that were showcased in the “NASA Astrophysics Science SmallSat Studies” Special Session, the “WFIRST Ultra-Deep Fields” MiM, and other LAD, SPD, or MiM sessions.

AAS 235: There’s no National Football League franchise in Hawai‘i, so the Super Bowl isn’t heading to the Aloha State anytime in the foreseeable future. But the “Paradise of the Pacific” is home to some of the world’s largest telescopes, so it shouldn’t come as a surprise that the Super Bowl of Astronomy — the AAS winter meeting — touched down in Honolulu. From 4 to 8 January 2020, a near-record number (more than 3,600) astronomers, students, educators, and journalists gathered at the Hawaii Convention Center for the 235th AAS meeting, held jointly, as usual in winter, with the Historical Astronomy and High Energy Astrophysics Divisions.

The HAD meeting included two Special Sessions about 100th anniversaries: “Centennial of Eddington’s Solar Eclipse Tests of Einstein’s General Relativity” and “IAU-100: Celebrating 100 Years of International Astronomy” about the International Astronomical Union. Astro-historian Robert W. Smith (University of Alberta), recipient of HAD’s 2020 LeRoy E. Doggett Prize for his scholarship and writing on the history of NASA’s space telescopes, gave his prize lecture, “From the Invention of Astrophysics to the Space Age: The Transformation of Astronomy 1860-1990.”

HEAD hosted two Special Sessions: “Are Disks Just Disks? The Commonalities of Protoplanetary and Black Hole Accretion” and “Black Holes in the Mass Gaps.” Brian Metzger (Columbia University) and Daniel Kasen (University of California, Berkeley) presented the HEAD Bruno Rossi Prize lecture about their work predicting the electromagnetic signatures from radioactive nuclei produced in neutron star mergers.

Suvi Gezari (University of Maryland), the meeting's Fred Kavli Plenary Lecturer, presented "Black Holes Snacking on Stars: A Systematic Exploration of Transients in Galaxy Nuclei" based on her studies of tidal disruption events. Sheperd S. Doeleman (Center for Astrophysics | Harvard & Smithsonian) gave the Lancelot M. Berkeley – New York Community Trust Prize lecture on how the Event Horizon Telescope produced its ground-breaking image of the black hole at the center of galaxy M87.

Ann M. Boesgaard (University of Hawai'i) presented the Henry Norris Russell Lecture about her work using light-element abundances to test Big Bang nucleosynthesis and to probe stellar structure and stellar evolution. Via an exchange with the Royal Astronomical Society (RAS), the AAS Russell lecturer also gives a talk at an RAS meeting, and in return the recipient of the RAS Gold Medal in Astronomy speaks at one of our meetings. In Honolulu we heard from Robert C. Kennicutt (University of Arizona and Texas A&M University), who received the 2019 Gold Medal for his contributions to understanding star formation in galaxies and to determining the value of the Hubble constant.

The Dannie Heineman Prize for outstanding mid-career work in the field of astrophysics is given jointly by the AAS and the American Institute of Physics. Giving his prize lecture at AAS 235 was Edwin (Ted) Bergin (University of Michigan), who was honored for his work in astrochemistry — especially his innovative contributions to our understanding of the physics and chemistry of star and planet formation — and for his tireless efforts to improve diversity and inclusion in astronomy.

Rounding out the prize lectures at AAS 235 were Daniel R. Weisz (University of California, Berkeley), recipient of the Newton Lacy Pierce Prize for his research on the star-formation histories of dwarf galaxies in the Local Group, and Jo Bovy (University of Toronto), whose contributions to our understanding of the structure and dynamics of the Milky Way and his work on forward modeling of large scientific data sets netted him the Helen B. Warner Prize (and, soon thereafter, the Vera Rubin Early Career Prize from the AAS Division on Dynamical Astronomy).

Kālepa Baybayan and Kala Baybayan Tanaka (Polynesian Voyaging Society) spoke on Hawaiian celestial navigation, Timothy Heckman

(Johns Hopkins University) on galaxy evolution, Andrea Dupree (Center for Astrophysics | Harvard & Smithsonian) on stellar chemistry, Jennifer van Saders (University of Hawai'i) on stellar structure and variability, Jason Hessels (ASTRON & University of Amsterdam) on fast radio bursts, Peter Eisenhardt (Jet Propulsion Lab) and James De Buizer (SOFIA Science Center) on the future of infrared astronomy, and Hawaiian language advocate Amy Kalili (Ōiwi TV) on the stewardship of Maunakea from the perspective of both the Hawaiian and the astronomical communities.

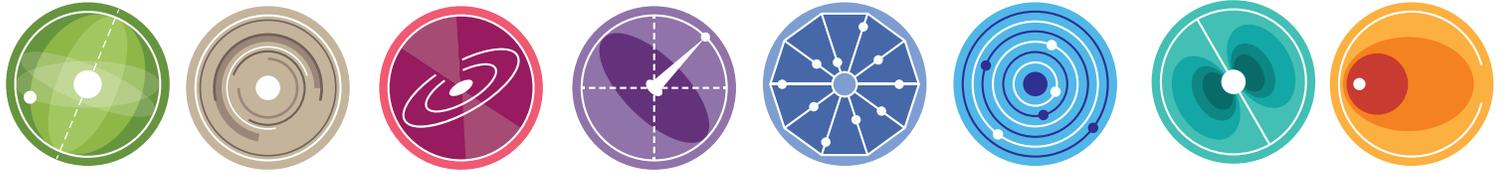
The HAD and HEAD Special Sessions were among more than three dozen such gatherings. Others included "Astrobiology and the Search for Intelligent Life in the 2020s," "Breakthrough Science with the Atacama Large Millimeter/submillimeter Array," "Gravitational-Wave Astronomy: The LIGO-Virgo Third Observing Run and Plans for the Future," "NASA's Parker Solar Probe: First Encounters with the Sun," "New Horizons Results at 2014 MU69," "Survival Skills for Astronomers: Posters, Presentations, and Proposals," and "Transient Science with TESS."

All three AAS meetings also featured a variety of lunchtime and evening public-policy Town Halls where attendees had the opportunity to hear from and ask questions of representatives from NASA, the National Science Foundation, the National Academy of Sciences, the national observatories (optical, radio, and solar), and numerous other funding agencies, ground-based astronomical facilities, and space-astronomy missions. Of particular note were multiple Town Halls related to the ongoing Astro2020 decadal survey.

Division Meetings

HEAD held a standalone meeting 17-21 March 2019 in Monterey, California, during which attendees celebrated the 10th anniversary of the Fermi Gamma-Ray Space Telescope launch, the 20th anniversaries of the Chandra X-ray Observatory and XMM-Newton launches, and the 50th anniversary of HEAD's own launch. The AAS Division on Dynamical Astronomy met in Boulder, Colorado, 10-13 June, and the Division for Planetary Sciences met jointly with the European Planetary Science Congress 15-20 September in Geneva, Switzerland, attracting 1,730 participants from 52 countries.





The AAS Publishing portfolio grew by two publications in 2019, starting with a relaunched [Bulletin of the AAS \(BAAS\)](#), an online only journal for reports of broad interest to the astronomical community, commentary about the discipline, AAS science meeting abstracts, and obituaries. NASEM Astro2020 Decadal Survey white papers on both science and state of the profession were published in the BAAS in 2019, as well as several at-large community reports. In collaboration with the AAS Division for Planetary Sciences, the AAS founded a new journal in 2019 devoted to recent developments, discoveries, and theories in planetary science, [The Planetary Science Journal \(PSJ\)](#), with Dr. Faith Vilas as editor. The PSJ publishes manuscripts starting in 2020 that constitute significant new research that is directly relevant to planetary science, including observational results, theoretical insights, modeling, laboratory studies, instrumentation, or field studies.

The *Astrophysical Journal Letters (ApJL)* published a [Focus issue](#) dedicated to the first Event Horizon Telescope results in April 2019 that has been downloaded almost 300,000 times since publication. Starting in June 2019, all AAS journal authors were moved from the decades old key word/subject heading classification system to the [Unified Astronomy Thesaurus](#), an AAS-led community service project.

November 2019 marked the anniversary of AAS’s hiring of its first Innovation Scientist, Dr. Peter K. G. Williams. With the publishing landscape evolving as rapidly as ever, it has been an opportune moment to have a member of the staff charged with supporting the Society’s work to stay ahead of the field. Dr. Williams took the lead in identifying a new digital publishing platform for the *Bulletin of the AAS* and migrating the content to the eventual selection, [PubPub](#), an open-source project stewarded by the MIT Knowledge Futures Group. The new platform offers both the conveniences of collaborative online editing and publishing, and the infrastructure needed for scholarly publishing such as DOI registration and metadata export. The back content of BAAS, dating back to 1969 and including meeting abstracts, obituaries, and the Astro2020 whitepapers, have been indexed and ingest into the new platform is underway.

Dr. Williams is also director of the [AAS WorldWide Telescope \(WWT\)](#) project, which reached multiple long-awaited milestones this year. At the AAS 234 meeting a beta release of WWT for Windows version 6.0, the next major version of the WWT Windows

application, was announced. WWT 6.0 will add support for new VR headsets, HiPS data sets, and large data tables such as the Gaia catalog. In April, a major overhaul of the WWT web services infrastructure was completed, eliminating major bottlenecks in the WWT software deployment process. The overhaul allowed a major update to the WWT homepage (linked above), the launch of a [new documentation portal](#), and new support for the secure HTTPS protocol, necessary to embed WWT in other websites that increasingly require HTTPS to be used. This new foundation enables the use of WWT interactives in AAS media such as *Sky & Telescope*, AAS Nova, and AAS press releases.

AAS Nova was launched in 2015 and is now an archive of more than 800 posts summarizing articles published in AAS journals. In partnership with Astrobites, AAS Nova has featured 75 live-blogging posts summarizing 14 astronomy meetings. Readership of AAS Nova continues to steadily grow; the site currently receives nearly 1,000 pageviews per day.

The first-ever AAS Media Fellow, Kerry Hensley, completed her fellowship in August 2019 and went on to be awarded a prestigious AAAS Mass Media Science & Engineering Fellowship. In September, we welcomed our newest AAS Media Fellow, Tarini Konchady, a Texas A&M graduate student. The Media Fellowship now includes professional development and mentoring not only with AAS Nova and the AAS Press Office, but also with *Sky & Telescope*.

The AAS Publishing team included six full-time staff members and one contractor in 2019: Alexandra Aguilar, Senior Publications Editor (Texas); Dr. Susanna Kohler, AAS Nova Editor (California); Dr. August (Gus) Muench, Data Editor (Connecticut); Dr. Greg Schwarz, Data Editor (Pennsylvania); Janice Sexton, Editorial Operations Manager (Colorado); and Julie Steffen, Director of Publishing (Arizona), and Lakshmi Desemsetty (contractor, Saskatchewan).

Our AAS/IOP eBooks Series entered its third year in 2019 with six new titles published and 29 more forthcoming. *The Astronomical Journal* published 520 research articles in 2019; *The Astrophysical Journal* published 3,191; *The Astrophysical Journal Letters* published 663, and *The Astrophysical Journal Supplement Series* published 226, for a grand total of 4,600 research papers in 2019. There were 199 *Research Notes of the AAS* published in 2019.



PUBLIC POLICY

The AAS conducts a wide range of public policy activities on behalf of the membership and US astronomical science. 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 N. Bahcall Public Policy Fellow (JBPPF) closely monitor science and space policy developments important to the astronomical science community and engage with policymakers at federal agencies, in the White House, and in Congress through advocacy initiatives. CAPP and the Executive Office policy staff communicate most directly to the membership through three primary avenues:

Plenary and concurrent policy sessions at the AAS and Division meetings: At the 2019 winter AAS meeting in Seattle, CAPP and the AAS policy staff organized a special session on "When Astronomers Lobby Congress: Congressional Staffer Advice on Advocacy and the Decadal Survey" and a town hall on "Astronomer Advice for the President's Advisors: A Listening Session with the National Space Council Users' Advisory Group".

AAS Policy Blog and Twitter feed: The AAS Policy Blog, authored by the JBPPF, communicates important developments in astronomical science policy to the membership, and is distributed as part of the biweekly AAS News Digest e-mail in addition to appearing on the AAS website. The JBPPF (and some guest member writers) published over 40 posts on the AAS Policy Blog in 2019. Additionally, the JBPPF operates the [@AAS_Policy](#) twitter account, tweeting updates, announcements, news, and analysis of astronomical science policy developments. The account's audience includes not only AAS members, but also members of the general public, science/higher education federal relations community, and Congressional and agency staff.

Invited talks at academic and research institutions: The AAS shares travel costs when sending the Director of Public Policy or the JBPPF to institutions. In 2019, the JBPPF and Public Policy Director gave six invited talks about science policy and AAS advocacy.

AAS members can have a significant impact on federal science policy by visiting Congress: The AAS facilitates such visits with training, materials, and guidance. In 2019, the AAS provided several opportunities for Society members to learn how federal policymaking for science works and to lobby their elected Representatives and Senators in Washington, DC. AAS leads a Congressional Visits Day (CVD) every March; in 2019, 15 AAS members participated in CVD, visiting 44 offices representing 14 states. AAS and Division leadership regularly visit Capitol Hill, and the AAS policy office supported DC visits by the DPS Committee and the SPD Public Policy Subcommittee.

AAS works to engage a large number of members for collective impact on policy via Action Alerts: Action Alerts go out via email to identify key issues in federal astronomical science policy. Each Action Alert has a specific topic or "ask," and members are given information on how to contact their Senators and/or Representatives and guidelines on what to say. In 2019, the AAS issued one Action Alert instructing members to tell Congress how the federal shutdown impacted them and to ask Congress to help end the shutdown.

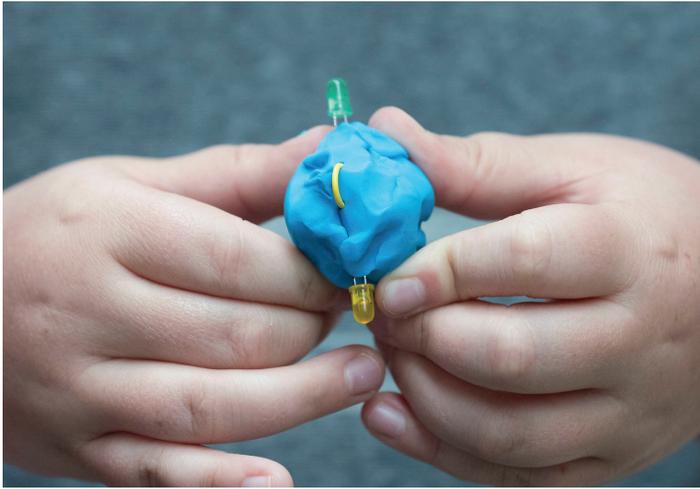
Many stakeholders share interest in various elements of federally supported science and working together can help amplify our messages and increase impact. Coalitions build stakeholder consensus on issues of shared concern, and jointly determine effective advocacy strategies. The AAS is a member of several multi-society coalitions in Washington, DC, that work on science, space, and science-education policy and are typically comprised of professional societies, colleges and universities, and industry partners. These include the Coalition for National Science Funding, the Task Force on American Innovation, the Energy Sciences Coalition, the Coalition for Aerospace and Science, the Physical Sciences Education Policy Coalition, the Science and Security Working Group, and a coalition of scholarly publishers. The AAS is also an affiliate member of the STEM Education Coalition and participates in ad hoc coalitions or joint efforts of scientific societies led by organizations like the American Association for the Advancement of Science or the National

Academies of Sciences. In 2019, the AAS was a signatory on over 20 letters to Congress or the administration via these coalitions.

The AAS co-sponsors, 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 2019, there were two briefings: “Destination Moon: The Past, Present, and Future Science of the Moon” (11 July 2019) to honor the anniversary of the Apollo 11 lunar landing and “Chandra: The Original X-Ray Observatory” (18 December 2019) in honor of Chandra’s anniversary.

Since the first launch of SpaceX’s Starlink satellite constellation on 23 May 2019, the AAS Public Policy staff have been working

with the AAS Committee on Light Pollution, Radio Interference, and Space Debris on communication between the astronomical scientific community and the satellite constellation industry. Our working group has established a positive relationship with SpaceX, advising them on changing their satellites to mitigate the impact on ground based OIR observations, an iterative process. The AAS Public Policy Department also has the added task of engaging the government and space law community on the satellite constellation topic. In 2019 we met with the National Space Council, the Office of Science and Technology Policy, and Congressional staff. We attended space law symposiums and satellite industry workshops. We also conducted a survey of observatories to gauge the impact satellite constellations would have on different facilities.



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. General questions should be addressed to education@ aas.org. See [aas.org/education](http:// aas.org/education) for more information about the items listed below as well as other AAS education programs. The Education Committee: The Education Committee, led by a Board of Trustees-Appointed Chair, is charged with oversight of the education activities of the AAS by providing advice to the Board of Trustees, the Executive Officer, and the Education & Outreach Coordinator. The AAS Education

& Professional Development MiniGrant Program: In January of 2017, the AAS Board of Trustees (then, Council) approved the recommendation from the AAS Education Task Force to create a grants program. In 2019, eight proposals were received and funded. Seven of the eight were for workshops or other sessions that were held at the 235th AAS meeting in Honolulu, HI, January 2020.

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/professional development, and outreach.

The AAS Harlow Shapley Visiting Lectureship Series: Launched in 1958, 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. The AAS makes concerted efforts to reach out to minority serving institutions and community colleges. In 2019,

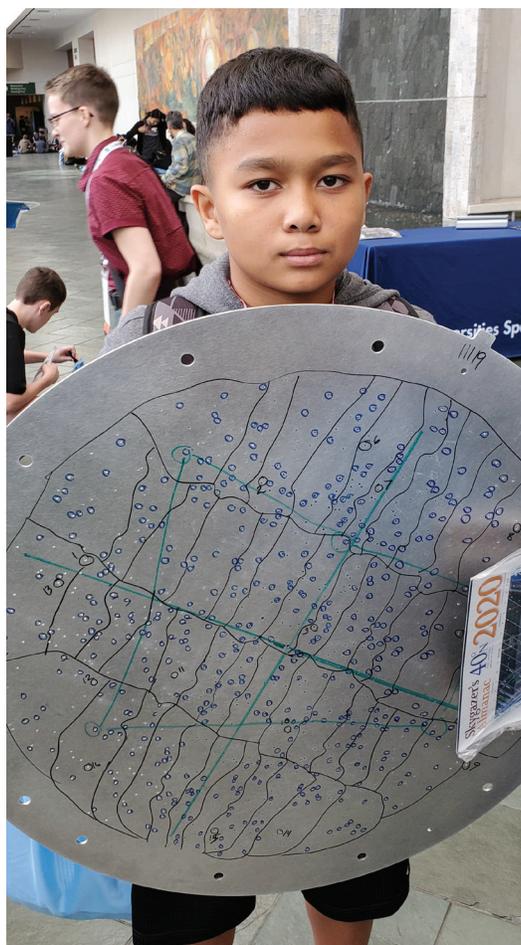
efforts continued to increase the diversity (across people, topics, and locations/types of institutions of speaks) within the pool of Shapley Visiting Lecturers.

The AAS Astronomy Ambassadors Program: Launched in January 2013, at the 221st meeting of the AAS, in Long Beach, CA, 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. In 2019, at the 233rd meeting of the AAS, in Seattle, WA, approximately 30 new AAS Astronomy Ambassadors received training to enter these ranks.

The AAS Student Education Outreach Program: Launched in June 2012, at the 220th meeting of the AAS, in Anchorage, Alaska, the AAS Student Education Outreach Program invites students and their chaperones (teachers and/or parents) to drop in at AAS meetings, on a prearranged morning, to hear a special presentation from an astronomer and to 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. In 2019, AAS members Emily Levesque (Univ. of Washington, Seattle) and Angela Speck (Univ. of Missouri) inspired, educated, and awed the outreach attendees with their presentations at the 233rd (Seattle, WA) and 234th (St. Louis, MO) meetings, respectively.

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, 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.





SKY & TELESCOPE

For *Sky & Telescope*, 2019 went from bleak to bright. On 10 March, *S&T*'s former owner F+W Media declared bankruptcy; four months later, on 3 July, AAS officially became *S&T*'s new owner. The uniting of AAS and *S&T* is a marriage made in the heavens: both have the same mission statement — to enhance and share humanity's scientific understanding of the universe — and both are excited by the stellar prospects ahead.

The transition to new ownership was challenging and took the remainder of the year to largely complete. With EO Kevin Marvel and CFO/COO Kelly Clark leading the charge, the AAS formed AAS Sky Publishing, LLC, a wholly owned subsidiary, to contain the now nonprofit *Sky & Telescope*. Contracts were renewed with key *S&T* vendors such as LSC Communications (magazine printer), Pubworx (magazine circulation), and Aero (product fulfillment), among others. *S&T* filled three critical staff positions — webmaster, editorial assistant, and consulting editor — while AAS's consultant Clearview helped these and other *S&T* staff get up to speed on the IT front. And *S&T*'s online store, shopatsky.com, was stood up after a major overhaul, with both B2B and consumer orders being taken.

Not all was a slog, however. In December 2018, AAS in DC and *S&T* in Cambridge threw a joint holiday party, with the two staffs interacting with much boisterousness through Zoom on a large screen in each location. And in January, *S&T* set up a booth in the exhibit hall at AAS 235 in Honolulu. Three *S&T* editors attended the conference, covering plenaries and press conferences, peopling the booth, and mingling with astronomers, exhibitors, and other attendees throughout the four-day event. The most oft-heard refrain was how pleased attendees were that AAS had acquired *S&T*. They, like staff, now stood poised for the next chapter in *S&T*'s history.

Yesterday and Today

Sky & Telescope magazine published its first issue in November 1941, after two existing magazines merged — *The Sky* and *The Telescope*. Its first home was a small office in the Harvard College Observatory in Cambridge, Mass., and while it has moved offices several times since, *S&T* has always remained in Cambridge. It's an

ideal location for an astronomy brand, being just down the road from both the Center for Astrophysics | Harvard & Smithsonian, and the American Association of Variable Star Observers, as well as near to Harvard, MIT, Tufts, and other leading universities.

Having published continuously for over 75 years, *Sky & Telescope* worked hard to ensure it did not miss an issue during the bankruptcy and transition periods, and it looks forward to celebrating its 80th anniversary next year under AAS auspices. In 2020, the AAS plans to introduce a sustaining subscriber option as well as discounts on *S&T* subscriptions for AAS members. As *S&T*'s core readership comprises amateur astronomers, the magazine has been playing up the AAS's Amateur Affiliate membership program, with full-page ads in recent issues. Advertising is holding its own despite the general industry downturn, with big advertisers like Celestron lured back after a years-long absence, and many new smaller advertisers.

Website, Products, and Tours

The three other areas of the *S&T* business also fared well in 2019 and early 2020.

The *S&T* website, skyandtelescope.org, underwent a complete redesign by Happy Cog, the same company that overhauled the AAS website. Launched in February 2020, the new site has been brought into the modern era, with a refreshing new look and best practices apparent throughout. It continues to republish AAS Nova highlights, as it has done for years, and it will soon offer links to WorldWide Telescope, further solidifying its ties to the AAS. *S&T*'s existing social media accounts on Facebook and Twitter expanded recently with a new *S&T* Instagram account, which now has several thousand new members.

On the products front, *S&T* staff, despite the challenging transition period, were able to put several new products into production. These include the annual 12" x 12" *Sky & Telescope* Observing Calendar, a first-ever 12" globe that shows all eclipse tracks globally throughout the 21st century, and new editions of the hugely popular *Pocket Sky Atlas* and *Pocket Sky Atlas Jumbo Edition*. More

products are in the works, including the 2021 *SkyWatch*, an annual single-issue publication aimed at beginners in astronomy.

S&T astronomy tours continued unabated in 2019. Working with a host of tour operators, *S&T* ran successful tours to Finland (March), Chile (July), Iceland (September), and Australia (October). AAS staff meanwhile helped establish the ability for the iMIS association software to take registrations and deposits for *S&T* tours run by overseas operators. Using the system, AAS is already taking bookings for *S&T*'s stargazing safari in Botswana (July 2021). Despite virus-related uncertainties, *S&T* continues to prepare for tours, from already announced tours in late 2020 to tours in 2021 and beyond to Antarctica, Hawai'i, and other destinations.

New Initiatives

Other projects are in the works. *S&T* Editor in Chief Peter Tyson is working with Kevin Marvel to establish an Editorial Advisory Committee. The committee will include professional and amateur astronomers, long-time subscribers, and others who will aid the Editorial Advisory Committee in guiding *Sky & Telescope* into the future. AAS is undertaking several initiatives to increase circulation of the magazine, including working with Pubworx and Palm Coast Data to refresh magazine subscription pages and to place *Sky & Telescope* prominently in airport shops. Management is always on the lookout for new content-licensing arrangements to complement those *S&T* already has with *Australian Sky &*

Telescope and the Chinese National Astronomy Magazine. Finally, with an estimated 250,000 undergraduates taking Astronomy 101 courses every year, AAS is looking to tap into this potentially vast market with academic subscriptions to *Sky & Telescope*.

Altogether, the *S&T* business continues to work well despite the new world order that the coronavirus has ushered in. The staff successfully switched to full-time work-at-home on 23 March, and *S&T* vendors continue to operate as well. In April, *S&T* participated in a virtual version of the annual Northeast Astronomy Forum, or NEAF, the largest astronomy expo of the year, and in June it will have a virtual booth at AAS 236. Once the emergency has passed, AAS plans to continue building out the new *S&T* offices at One Alewife Center in Cambridge, as well as to move *S&T* entirely onto the Cloud, thereby precluding the need for sometimes balky physical servers.

The *S&T* staff would like to thank the Board of Trustees, Kevin Marvel, and Kelly Clark, as well as the entire staff and volunteers at AAS, for rescuing *S&T* from bankruptcy and bringing it into the AAS fold so warmly and effectively. Lastly, a nod to AAS Press Officer and former *S&T* Editor in Chief Rick Fienberg, who had the kick-off eureka moment: Could AAS acquire *Sky & Telescope*? *S&T* is delighted to be here.

THE NEW AAS FELLOWS PROGRAM



The AAS Honors 237 Distinguished Members for Extraordinary Achievement and Service

Many scientific societies acknowledge their members' scientific accomplishments and service to the field by electing them as Fellows. Examples include the American Association for the Advancement of Science, the American Physical Society, and the Royal Astronomical Society. Many AAS members have been recognized as Honorary Fellows of these organizations.

As of 2019, the AAS elects Fellows too.

The AAS Fellows Program was established by our Board of Trustees in late 2019 to honor members for extraordinary achievement and service and their contributions toward the AAS mission of enhancing and sharing humanity's scientific understanding of the universe. AAS Fellows are recognized for original research and publication, innovative contributions to astronomical techniques or instrumentation,

significant contributions to education and public outreach, and noteworthy service to astronomy and to the Society itself.

An initial group of 237 Legacy Fellows was designated by the Board and announced in early 2020. These include past recipients of certain awards from the AAS or its topical Divisions, distinguished AAS elected leaders and volunteer committee members, and previously unrecognized individuals with long histories of outstanding research, teaching, mentoring, and service. Among the first class AAS Fellows, the Board unanimously voted to designate E. Margaret Burbidge (1919-2020) — the first woman to serve as AAS President (1976-1978) — as the Inaugural Fellow.

Starting in 2020, there will be an annual call each May for nominations of new AAS Fellows. The AAS Fellows Selection Committee will evaluate the nominations, and the Board of Trustees will approve the new Fellows. Each new class of Fellows will be honored at the subsequent AAS winter meeting, and each honoree will receive a Fellow certificate and lapel pin.

The AAS Fellows program is an important new initiative for the Society, providing the opportunity to acknowledge the superb, long-term, generous work of our colleagues and celebrate the excellence of our membership.



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*, *Astronomical Journal*, and *Planetary Science 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.

The foregoing 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 in central New Hampshire. He previously spent 22 years at *Sky & Telescope* magazine, including nine as President and eight as Editor in Chief (it was Rick's idea for the AAS to acquire the magazine when its former owner went bankrupt; see page 14). Through most of 2019 Rick was assisted by our first AAS Media Fellow, Kerrin Grace Hensley, a graduate student at Boston University who worked part time for the Society, shared between Rick and the Editor of AAS Nova (see below). Kerry's two-year term ended in late summer 2019, upon which she was succeeded by Tarini Konchady, a graduate student at Texas A&M University.

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 EurekAlert 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. Since 2016 we have been using the services of Corporate Event Images, run by Todd Buchanan and usually assisted by Phil McCarten. Todd and Phil have enhanced the quality of our meeting photography considerably and have sped up the process of posting the photos online. Furthermore, they can shoot videos as well as still photos; we occasionally ask them to make a short video to recap the last meeting and promote the next one.

We've been forwarding press releases to the news media by email for more than four 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 about 2,500 email addresses, with about 85% of them on the press list and 15% on the PIO list. On average, we forward about 100 ± 25 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 5,800 followers. Not all of them 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 year in collaboration with our journal-publishing partner, IOP Publishing, the AAS Nova website provides a curation service to the astronomical community, 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.

Since 2018 the AAS has continued to develop its partnership with Astrobites, a blog operated by graduate students to share news about interesting astro-ph preprints with a wider audience. Between one and six Astrobites authors are granted press registration at each AAS meeting to spend time in the press office learning about media relations and to cover the meeting for the blog, vastly increasing the amount of coverage we get. In addition, we cross-post content between Astrobites and AAS Nova, which leads to at least one Astrobites item appearing on the AAS home page each week throughout the year.

The 233rd AAS meeting in Seattle, Washington, in January 2019 attracted 93 press registrants. Another 19 reporters requested the press-conference-webcast password. On-site press registrants were

a mix of approximately two-thirds reporters and one-third PIOs. The AAS Press Officer organized eight press conferences at the winter meeting, generating huge amounts of media coverage worldwide. In lieu of a press dinner, dozens of press registrants attended the Northwest Science Writers Association's annual holiday party at the Living Computers Museum. And an SUV-load of press registrants went on a tour to the Laser Interferometer Gravitational-wave Observatory (LIGO) in Hanford, Washington. We had 14 on-site press registrants at the 234th AAS meeting in St. Louis, Missouri, in June 2019, plus eight requests for the website password to enable remote participation in our six press conferences. In lieu of a press tour, several press registrants joined a busload of regular meeting attendees for a field trip to the Cahokia Mounds State Historic Site, where a pre-Columbian Native American city once thrived.

DIVISIONS, COMMITTEES, WORKING GROUPS & TASK FORCES

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

AAS Divisions

The AAS Divisions cover major areas of astronomical endeavor. Our six topical Divisions are the Division on Dynamical Astronomy, Division for Planetary Sciences, Historical Astronomy Division, High Energy Astrophysics Division, Laboratory Astrophysics Division, and Solar Physics Division. Each has its own governing committee, whose volunteer leaders guide the strategic direction of the Division and enhance our field via service on the AAS Strategic Assembly. 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.

AAS Committees

The AAS Committees help implement many of the strategic goals of the Board of Trustees, and key Committee chairs serve on the Strategic Assembly as well. A full list of Committees is available on the AAS website, but some of the most important include our diversity committees — Committee on the Status of Women in Astronomy, Committee on the Status of Minorities in Astronomy, and Committee for Sexual- Orientation & Gender Minorities in Astronomy — as well as the Committee on Public Policy, the Publications Committee, and the Employment Committee. Some committees require election, while others rely simply on interested individuals to volunteer for service. Each AAS honor, 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.

AAS Working Groups & Task Forces

Working Groups and shorter-term Task Forces are formed by the Board of Trustees to look after specific issues in our field. These currently include the Working Group on Astroinformatics and Astrostatistics, Working Group on Time Domain Astronomy, Working Group on Accessibility and Disability, and Working Group on the Preservation of Astronomical Heritage. Sometimes Working Groups stay active for a long time, like the Working Group on Astronomical Software, and occasionally they “graduate” to a full-fledged Division, as outlined in our bylaws.

The Task Force on Diversity and Inclusion in Graduate Astronomy Education submitted its final report at the 233rd AAS meeting in Seattle in January 2019. The Solar Eclipse Task Force, which took an 18-month break after several years of preparing for the August 2017 “Great American Eclipse,” held the first of a new series of planning workshops at the 234th AAS meeting in St. Louis in June 2019 as the first step in its effort to prepare the nation for the October 2023 annular and April 2024 total solar eclipses across North America.

In May 2019 SpaceX launched its first 60 Starlink communication satellites, which surprised everyone with their bright naked-eye visibility. Given SpaceX's plan to launch thousands more such satellites, the AAS public policy team and Committee on Light Pollution, Radio Interference, and Space Debris (LPRISD) reached out to SpaceX to begin a dialog about mitigating their negative effects on ground-based astronomy. SpaceX has been quite responsive to our concerns, and the dialog is continuing under the auspices of the LPRISD Committee's Ad Hoc Subcommittee on Satellite Constellations, which is collaborating with concerned counterparts at the International Astronomical Union and other astronomical organizations.

2019 FINANCIAL REPORT

In 2019, the overall liabilities and net assets were \$22,496,928, an increase of \$3,998,856 from 2018. This is largely attributed to the acquisition of the *Sky & Telescope* businesses. In 2007, our net assets were \$14,102,834.

The largest losses occurred in the journals program that experienced a deficit of \$488,342; which is down from \$1,096,551 in 2017. The journal development expenses reached \$189,275. The market value of our portfolio increased by \$1,675,712. In 2019, we spent \$156,804 towards strategic initiatives. Additionally, we incurred \$11,595 in legal and consulting fees associated with the harassment and ethics issues in 2019.

Gold Open Access (GOA) fees reached \$583,858 in 2019; up from \$175,509 in 2017. The GOA fee is set higher than the base quanta fee at a level that would cover lost subscription revenue if all authors selected (or were required to select) GOA and assumes no subsidy from the journal reserve funds.

Additionally, our partnership with IOP Publishing and inclusion into the larger subscription bundle (IOPsx) netted an additional \$186,787; up from \$38,293 in 2017. In 2019, 64% of our *AJ* and *ApJ* institutional subscribers purchased our content through the IOPsx package. Participating in the IOPsx package is one way to insulate the AAS journals from single subscription cancellations. Across all AAS titles, the subscription revenue was \$2,247,317 or \$191,858 below the revised budget which is mainly attributed to the timing of the subscription contracts for the institutions within the IOPsx package.

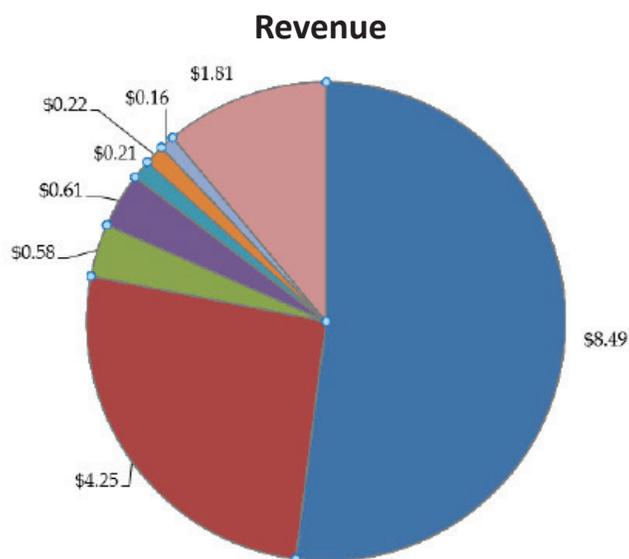
The AAS General Fund produced a surplus of \$139,128; inclusive of the beginning balance of \$64,869. Figure 1, on the next page illustrates the year-end results for the past 18 years. [It should be noted that the Council (now Board) approved budget deficits for 2014, 2016, and 2017 therefore, a financial loss (red bar in Figure 1) was to be expected, unlike in prior years when financial losses were not planned.] Current management only had control over budgets from 2008 going forward. Financial losses, budgeted or not, will deplete the Society's reserves. The Board 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.

Figure 1. AAS Balance Sheet

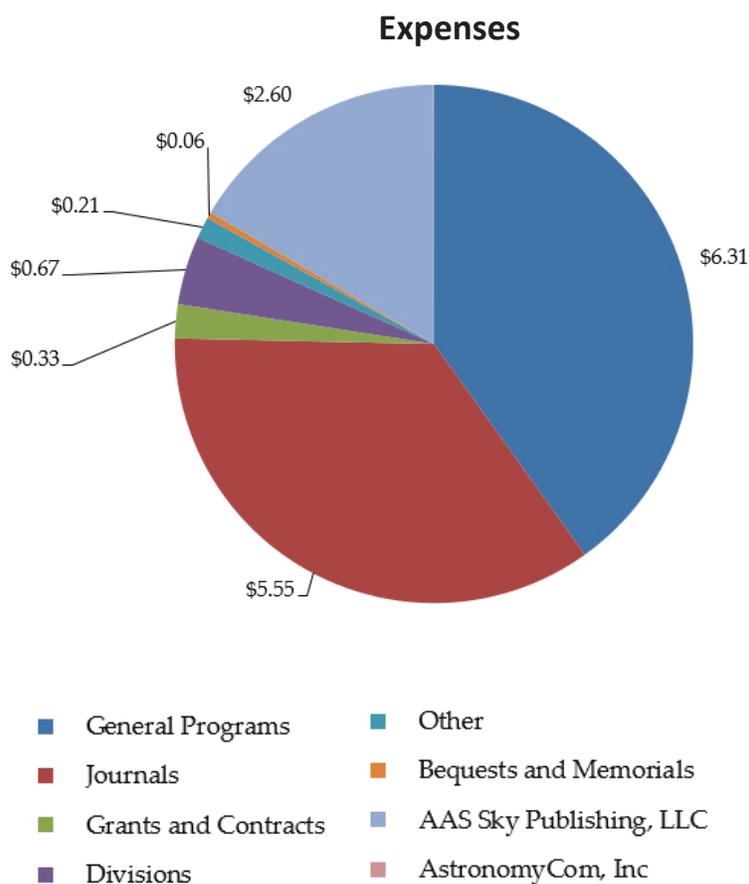
Assets	2019	2018
Cash and Cash Equivalents	669,967	1,124,553
Accounts Receivable	888,709	476,432
Inventory	117,357	
Prepaid Expenses	948,810	476,362
Investments	14,472,847	15,353,078
Deposits	112,233	92,386
Assets Held for Deferred Compensation	235,519	172,780
Goodwill, net	4,032,226	
Property and Equipment	1,019,260	342,308
Tenant Improvement Assets		453,042
Totals Assets	\$22,496,928	\$18,490,941
Liabilities and Net Assets		
Accounts Payable and Accrued Expenses	1,352,760	1,347,173
Deferred Revenue	5,934,948	3,170,467
Deferred Rent	708,561	682,522
Deferred Compensation	235,519	172,780
Total Liabilities	\$8,231,788	\$5,372,942
Net Assets		
Without Donor Restrictions	10,892,166	10,300,622
With Donor Restrictions	3,372,974	2,817,377
Total Net Assets	\$14,265,140	\$13,117,999
Total Liabilities and Net Assets	\$22,496,928	\$18,490,941

Figure 2. AAS Statement of Activities		
Unrestricted Activities	2019	2018
Revenues		
Journals	8,493,822	6,556,738
General Programs	4,246,475	3,937,957
Divisions	582,291	653,259
Other	605,708	92,148
Grants and Contracts	211,097	321,357
Bequests and Memorials	133,279	33,414
AstronomyCom, Inc	162,972	125,873
AAS Sky Publishing, LLC	1,806,627	
Net Assets Released from Restrictions	87,232	67,810
Total Unrestricted Income	\$16,329,503	\$11,788,556
Expenses		
General Programs	6,311,841	6,642,489
Journals	5,545,785	5,590,292
Divisions	334,528	182,071
Other	669,799	1,284,995
Grants and Contracts	211,097	323,082
Bequests and Memorials	64,359	64,650
AstronomyCom, Inc	4,260	160,128
AAS Sky Publishing, LLC	2,596,290	
Total Expenses	\$15,737,959	\$14,247,707
Change in Unrestricted Net Assets	\$591,544	(\$2,459,151)
Temporary Restricted Net Assets		
Bequests and Memorials	272,542	(6,828)
Contributions and Other	250,351	(19,665)
Divisions	119,936	(9,837)
Net Assets Released from Restrictions	(87,232)	(67,810)
Change in Temporarily Restricted Net Assets	\$555,597	(\$104,140)
Change in Net Assets	\$1,147,141	(\$2,563,291)
Net Assets Beginning of Year	13,117,999	15,681,290
Net Assets End of Year	\$14,265,140	\$13,117,999

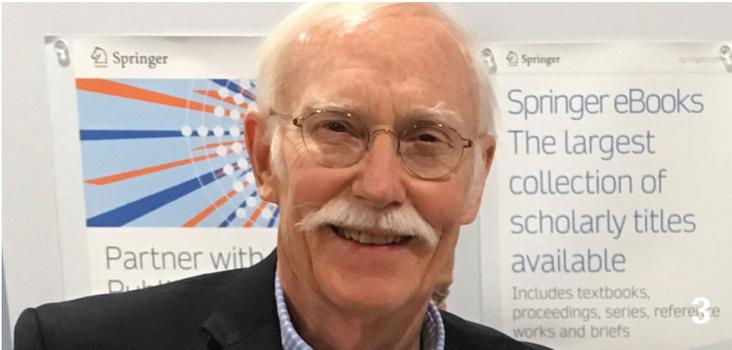
Figure 3. Annual Revenues and Expenses (in millions of dollars)



*Bequest and Memorials includes Assets Released from Restrictions



2019 PRIZEWINNERS



1. Blakesley Burkhart - Annie Jump Cannon Award: For her leadership in studies of magnetohydrodynamic turbulence on all scales and in diverse astrophysical environments, using innovative techniques to carefully compare observational data with numerical simulations. **2. David Branch & 3. J. Craig Wheeler - share the Chambliss Astronomical Writing Award:** For the scholarly book *Supernova Explosions* (Springer, 2017). **4. Edwin (Ted) Bergin - Dannie Heineman Prize:** For his pioneering work in astrochemistry and innovative contributions to our understanding of the physics and chemistry of star and planet formation, and for his tireless efforts to improve diversity and inclusion in astronomy. **5. Jo Bovy - Helen B. Warner Prize:** For his contributions to our understanding of the structure and dynamics of the Milky Way and his work on forward modeling of large scientific datasets. **6. Ann Merchant Boesgaard - Henry Norris Russell Lectureship:** In recognition of her pioneering, sustained work in using light-element abundances to test Big Bang nucleosynthesis and to probe stellar structure and stellar evolution. **7. John D. Monnier - Joseph Weber Award for Astronomical Instrumentation:** For his pioneering work in high-angular-resolution studies with long-baseline optical interferometry, which have moved the field from measurements in visibility space to true imaging and opened up a new window on stellar astrophysics. **8. Daniel R. Weisz - Newton Lacy Pierce Prize in Astronomy:** For his transformational work on the star-formation histories of dwarf galaxies in the Local Group.

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The Society was saddened during 2019 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 *Bulletin of the AAS* website at <https://baas.aas.org/obituaries>.

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