

# AAS Newsletter

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*Items of general interest* to be considered for publication in the *AAS Newsletter* should be sent to crystal@aas.org. Appropriate pictures are welcome. For information about deadlines and submitting articles, see <http://aas.org/publications/newsletter.php>. Items submitted to the *AAS Newsletter* are not automatically included in the AAS Electronic Announcements or vice versa. Submit electronic announcement items to crystal@aas.org.

### Front Cover

Students invited to interact with space researchers at the Division for Planetary Sciences Meeting in Reno. Photo: Rick Fienberg

# President's Column

David J. Helfand, [president@aas.org](mailto:president@aas.org)



From close-up pictures of water-sculpted pebbles on Mars, to the detection of galaxies at the boundary of the Dark Ages, discoveries in our field continue to advance our understanding of the Universe and to fascinate legions of the public who support our inquiry. Unfortunately, we do not see similar progress in the political sphere, even now that the consequences have been spelled out of allowing budget sequestration to hit every government agency in January. The election will, no doubt, provide a new ground-truth within which our elected representatives must work, but it is unlikely to contribute to the bi-partisan spirit necessary to address

seriously the nation's budget problems.

It is into this environment that the National Science Foundation Astronomy Division's Portfolio Review Committee released its report in late August. My personal opinion is that the Committee did an extremely good job working with the scenarios they were given. They scrupulously held to the scientific priorities of the Decadal Surveys and were meticulous in creating an inventory of the resources we have—and the facilities we need—to carry out the research that supports those priorities. They were sensitive to the dislocations their recommendations could cause and cognizant of their impact on the astronomical workforce. Finally, they were creative in recommending new, and re-balanced, programs to support innovation despite the current, highly constrained circumstances.

I carried this personal view of the Report into the process by which the Society issues public statements. Members should know that this process involves consultations among the seven-member Executive Committee plus, in the case of major public policy issues such as this, the fifteen-member Committee on Astronomy and Public Policy. It also includes the perusal of press releases issued by astronomical organizations and Congressional offices, as well as listening to the opinions of individual members who contact any of the nearly two dozen people formally involved. The process also generates many iterations and a great deal of word-smithing. The product of this process can be seen on the AAS website.

It is my experience that getting twenty people—who, by design, represent different constituencies, arise from different backgrounds and are shaped by different life experiences—to agree on the wording of a document is an impressive accomplishment. It also runs the risk of producing a less than compelling text, given the necessary compromises involved. After this exercise, however, it occurred to me that we should perhaps offer our services in the form of workshops for Congressmen on how to get things done. Unfortunately, Congress immediately left town.

Since I am granted this space to unburden myself of my opinions, however, I will use it to make one point with greater emphasis than our consensus document allowed.

There is no doubt that the closing of any public-access observing facility will be painful for a significant portion of our community and that dislocations will ensue. However, as the Portfolio Review makes clear, even in budget scenarios more rosy than the more optimistic one they considered, it is simply not possible to both keep all current facilities open and to proceed with the ground-breaking new facilities—ALMA, LSST, ATST, etc.—that we deem essential to our continued exploration of the Universe. Not possible, that is, unless one essentially eliminates individual investigator grants.

Now, an argument can be made (and I have even been known to posit it as an abstract concept) that it is possible to explore the Universe without grants but it is not possible to explore the Universe without telescopes. However, speaking of dislocation, the end of grants would require a complete restructuring (naively, elimination) of graduate training, of postdoctoral research, and of innovation in the laboratory—all outcomes inimical to our continued progress and devastating to workforce development. Of all the opinions we heard, none advocated eliminating the grants program.

But here is the critical point: while you can be certain that Congressmen and Senators representing affected facilities will rally to the cause of keeping them open (we have already seen the first “over my dead, cold body” press release), I can not imagine a groundswell of support on the Hill defending your \$85K per year NSF grant. It is relatively straightforward for a Representative or Senator to get directives to the Foundation written into the Authorization and Appropriations bills—“Thou shalt not close that facility”—but it is highly unlikely that the same Congressman will add all the funds required to both avoid the closure and leave the grants programs unscathed.

I am, of course, in favor of continuing to make the case that our stunning scientific successes and our massive impact

on both education and the public imagination deserve the funding profile envisioned by the Decadal Surveys. But with trillion-dollar-plus deficits, a tax policy that is a travesty, and entitlements growing far faster than inflation, it is going to be a very hard sell. And, as the Committee’s report notes repeatedly, one cannot responsibly cease to operate facilities overnight—it will take years. If work is not begun now on the task of reducing the burden of facility operations costs on the Astronomy Division budget, the consequences a few years hence could be dire indeed.

I believe it is in the collective interest of our membership that we not allow the distribution of the federal resources we are allocated to be further politicized. The Portfolio Review Committee was a Committee of our peers making their best judgments in the interest of our science. Reasonable people can, of course, disagree with details of their conclusions, but I hope that we can remain united in our support of peer review as the basis of resource allocation, and supportive of an allocation that retains a strong program of individual investigator grants.

Meanwhile we continue with our mission to “enhance and share humanity’s scientific understanding of the Universe.” A major display of our progress will take place in Long Beach during the second week in January. I hope to see you there.

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## From the Executive Office

Kevin B. Marvel, Executive Officer, [marvel@aas.org](mailto:marvel@aas.org)



By the time you read this column, the Division for Planetary Sciences meeting for 2012 will be history and the results will no doubt be bouncing around the Internet. The AAS is proud to help organize the annual meeting of the DPS when it is held in the US and support our largest Division to accomplish their goals.

We have expanded and improved

our support for all of our Divisions in the last several years, with what I think are very positive results. Our Divisions play a central role in our Society by bringing focus to specific areas of our diverse science. The annual meetings of our Divisions, some who meet with us, some on their own and some, occasionally, with other organizations, allow communities of specialists the time and space to share their results, build new collaborations and chart a course for exploration and discovery. If you are not a member of a Division, consider joining one. The cost is low for full AAS members and any member may join any Division. Full details are available on our web pages.

The Long Beach meeting in January is setting up to be a record-breaker. We had hundreds more abstracts submitted for this meeting than for the Austin meeting, so attendance

should be higher and may break the 3000 barrier, typically only exceeded at our winter meetings in Washington, DC. This is a welcome result, as it means the community values AAS meetings. The program is carefully crafted by our Vice Presidents and organized by our talented meeting staff, but the core of our meetings is you, our members! We could not have a meeting if you did not show up, so thank you for registering and attending. If you have ideas on how to improve the meetings, just let one of your elected leaders or me know and we will take your ideas into consideration.

Our goal is to always improve, never letting “good-enough” be enough.

Annual membership renewal is under way and I want to point out that by renewing early, you save the Society considerable expense. We do not like losing members, so when people do not renew during the early part of the renewal process, we work hard to find them, communicate with them and bring them back into active membership status. Membership benefits are turned off early in the new year, so do not wait, renew today!

# On the Waterfront: AAS Returns to Long Beach

Rick Fienberg, AAS Press Officer and Education & Outreach Coordinator, [rick.fienberg@aas.org](mailto:rick.fienberg@aas.org)

Four years ago U.S. astronomers made a significant discovery: the Long Beach Convention and Entertainment Center, where the AAS gathered for its 213<sup>th</sup> meeting. Smack in the “Waterfront Center of Southern California,” the facility sports a glass concourse and lobby offering expansive views of the scenic harbor and downtown skyline. A pedestrian promenade links abundant hotels, shops, restaurants, and attractions with more than five miles of sandy Pacific Ocean beaches. Throw in Southern California’s winter weather, which beats summer weather almost anywhere else, and it should come as no surprise that the AAS is heading back to Long Beach for its 221<sup>st</sup> meeting, 6-10 January 2013 ([aas.org/meetings/aas221](http://aas.org/meetings/aas221)). As is often true of our annual winter gathering, this will be a joint meeting with the Society’s Historical Astronomy Division (HAD) and High Energy Astrophysics Division (HEAD).

We will have our usual pre-meeting education workshops on Saturday and Sunday, January 5th and 6th, to improve teaching and learning in introductory-astronomy classrooms. In addition, in partnership with the Astronomical Society of the Pacific (ASP), the Center for Astronomy Education (CAE), and other organizations involved in science education and public outreach, we will offer our inaugural Astronomy Ambassadors workshop for early-career AAS members. This two-day workshop will help participants gain a better understanding of how people learn and what makes outreach to nonscientists effective. They will also get hands-on experience with materials already proven to meaningfully connect audiences with astronomy. In other outreach activities, AstroZone will set up at a high-traffic location near the convention center on Sunday to share the wonders of the universe with local students, families, and educators. In addition, we’ll invite local middle- and high-school students to drop by the meeting one day to visit the exhibit hall, participate in hands-on demonstrations, and interact with scientists.

The HAD meeting gets under way on Sunday afternoon, with special sessions entitled “Making Astronomy Public, Los Angeles Style” and “Preservation of Astronomical Heritage and Archival Data.” Next follow the undergraduate and opening receptions, at which you can enjoy ample food, drink, and camaraderie and then, if the mood strikes, take a relaxing stroll on the beach after dark.

The main science program kicks off on Monday morning with the Kavli Lecture by Tom Soifer (Caltech), who’ll talk about a decade of discovery with the Spitzer Space Telescope. There are no fewer than 16 more invited presentations throughout the week. Among the highlights will be the HEAD Rossi Prize lecture by Marco Tavani (INAF-IASF/Università di Roma “Tor Vergata”) on behalf of the AGILE mission team, the AIP/AAS Heineman Prize lecture on gamma-ray bursts and magnetars by Chryssa Kouveliotou (NASA Marshall), and an update on NASA’s Kepler mission by Natalie Batalha (San Jose State). Heather Knutson (Caltech) will give her Cannon Award lecture on the characterization of exoplanet atmospheres, Eric Ford (Univ. of Florida) will give his Warner Prize lecture on planet formation and evolution, and John Johnson (Caltech) will give

his Pierce Prize lecture on the relationships between exoplanets and their parent stars. Dave Arnett (Univ. of Arizona), who has made seminal contributions to many fields throughout his career, including core-collapse and

Type Ia supernova explosions, nuclear astrophysics, and hydrodynamics, has entitled his Russell lecture “Thinking and Computing.” See page 7 for news about the winners of the 2013 Osterbrock Book Prize, who will also give a lecture in Long Beach. Closing out the meeting on Thursday afternoon is the Berkeley Prize lecture by Eiichiro Komatsu (MPA) on the cosmological interpretation of seven years of WMAP data.

HAD and HEAD are collaborating on a special session celebrating 50 years of X-ray astronomy, and HEAD will sponsor a session on the first scientific results from the latest X-ray mission, NuSTAR, which was launched during the June AAS meeting in Anchorage. Early results from other new projects will appear in special sessions on the Hydrogen Epoch of Reionization Arrays (HERA), the Atacama Large Millimeter-submillimeter Array (ALMA), the Panchromatic Hubble Andromeda Treasury (PHAT), and the Spitzer Survey of Stellar Structure in Galaxies (S<sup>4</sup>G). Other topics spotlighted in special sessions include high-resolution ultraviolet imaging with Hubble, astrophysics using high-precision photometry from Kepler, and the scientific promise of the CCAT submillimeter observatory, the Dark Energy Survey, and the James Webb Space Telescope (JWST).



## On the Waterfront continued

Our popular series of special sessions on professional development continues in Long Beach with dialogues on nonacademic career options, advocating for astronomy, childcare and family-leave policies, and initiatives to broaden the participation of women and minorities in astronomy.

Everyone interested in science policy, and that really should be everyone, is invited to attend the numerous Town Hall meetings to be held in Long Beach. Sponsoring agencies and projects include NASA, NSF, NOAO, NRAO, the National Research Council, JWST, Arecibo Observatory, and the Kepler mission.

First and foremost, AAS meetings offer the opportunity to talk with friends and colleagues about the latest advances in our scientific understanding of the universe. But they offer much more, especially when the venue is as attractive as Long Beach. Visit the regal Queen Mary and the spectacular Aquarium of the Pacific. Hop on a quick and pleasant cruise to Catalina Island. Or head off for a day of fun at Disneyland or Universal Studios Hollywood. Southern California has a lot to offer—and the 221<sup>st</sup> AAS meeting is just the beginning. See you in Long Beach!

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## 2012 Kavli Laureates



Past President Debra Elmegreen attended the 2012 Kavli prize ceremony and associated symposia in September 2012. Shown with her (l to r) are the Kavli winners for Astrophysics, Michael Brown, David Jewitt and Jane Liu. They received their awards for discovering and characterizing the Kuiper Belt and its largest members, work that led to a major advance in the understanding of the history of our planetary system.

## Member Deaths

The Society is saddened to learn of the deaths of the following members, former members, and affiliate members:

**Robert F. Christy**  
**David Koch**  
**Dennis J. Lamenti**  
**Jaylee Mead**  
**Wallace Sargent**  
**William E. Shawcross**  
**Gart Westerhout**

## Letters to the Editor Policy

The Letters to the Editor section of the Newsletter provides a forum for Society members to comment on the operation of the Society, as well as to alert the readership to policy issues of broad interest in matters germane to our mission. Letters must be signed and should not exceed 250 words. The Associate Editor may edit letters, but will consult with authors before doing so. Letters will be published at the discretion of the Editors.

Send to Jeff Linsky, Associate Editor, Letters, (jlinsky@jila.colorado.edu; 303-492-7838 phone; or 303-492-5235 fax) one week prior to the *AAS Newsletter* deadline.

## Opting In and Out of AAS Publications

If you would no longer like to receive paper copies of the *AAS Membership Directory* or the *AAS Calendar*, please send an email to [address@aaas.org](mailto:address@aaas.org) or log in to your member record at [aaas.org](http://aaas.org).

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For address changes, email [address@aaas.org](mailto:address@aaas.org)

# Journals Update

Chris Biemesderfer, Director of Publishing, [biemesderfer@aaas.org](mailto:biemesderfer@aaas.org)

## The AAS Journals Business Model is Sound

My last two columns have looked at some issues related to the Society's publishing business model. In July, I wrote an overview of the Open Access advocacy that has been taking place all year. And in September, I reviewed (at some length!) the value proposition of the scholarly publishing process generally. In this column, I want to try and impress you with the merits of the business model we use (and have used for 100 years). I will do that by addressing the two principal arguments I hear for switching to a pure open access approach. First, though, I want to remind you of the conceptual basis for the AAS publishing business model.

The AAS' business model focuses primarily on two groups of stakeholders in scholarly research: those who produce research articles and those who consume (read) them in the course of their scientific investigations. We tend to label those groups as "authors" and "librarians"—the librarians being proxies for researchers studying the literature—since those are the customers we interact with in our publishing business. Crucially, those are also the groups in the academy that benefit most from the publication of research journals, and our business model entails getting revenue from each group, in the forms of fees from authors and subscriptions from libraries. We believe our approach is sensible and fair, insofar as it provides an appropriate way for the beneficiaries in the academy to acknowledge the importance of the value—intellectual and structural—that is added to articles by our publishing processes.

Let's look at two of the main arguments for moving to Open Access.

### *Why not just go Open Access and do away with reader fees?*

In the present climate, this is an obvious and reasonable question. There are two parts to the argument against this notion. One is philosophical, and it has to do with our model involving the two stakeholders. We think our model employs a good characterization of the beneficiaries of journal publishing, and we think that it is appropriate for them (both of them) to share the burden of paying for formal scholarly communication. To go wholly to Open Access would be to dismiss the inherent and sensible equity of that model. But there are even more compelling practical concerns to consider.

First, critically, it is more comfortable and sensible from a business management point of view for our journals revenue stream to be diversified, for the same sorts of reasons that it makes sense to have diversified investments in a retirement portfolio. Fluctuations in one source are buffered by relative stability in the other(s). Or in times when there is fiscal stress across the board, our revenues are not nearly so susceptible to single points of failure. That is straightforward enough; it is one aspect of business continuity planning.

In addition, there is also a non-trivial public policy concern. Pure Open Access requires that all the costs of publishing be borne by our authors. For many if not most AAS authors, that would mean that the author fee components of their grants would essentially double. At the individual level, that would probably be annoying if not outright painful. But at the community level, the AAS journals would need to take an additional \$2.5 million out of the community's research funding. In the present economic climate (particularly in regard to tax policy), it is unlikely that there would be an increase in overall research funding to compensate for doubled author fees, so those funds would have to come at the expense of other elements of the research process—like graduate students or post-docs or instrument components. In other words, it would come at the expense of the research process itself. The Society's leadership does not think that's a good idea.

### *Haven't the taxpayers already paid for it?*

When I talk with people about Open Access, there is inevitably a point in the discussion where I hear the claim that the taxpayers have already paid for scientific research and it is unfair for them to pay for things twice. Haven't the taxpayers already paid for the journals? The short answer is no. Tax monies pay for a variety of things in the scientific research process—most importantly the conduct of the research itself—through the disbursement of funds via grants. In astrophysics, grants usually have a provision for the payment of author fees, but that only pays for part of the publication process. In the bipartite AAS business model (see above), revenue comes from two sources, one of which is the author. It is fair to say that the taxpayer has already paid for the portion of journal articles that authors pay for with author fees. But that is only about half of the article costs. (In reality the percentages fluctuate with the

amount of articles published, and in aggregate, authors' share is typically closer to 60% in any given year.) At any rate, in the AAS model, the other portion of journal articles is explicitly paid for by the people who read the article—be they scholars, journalists, or the general public. The taxpayer is not paying twice for the same thing; when they pay to read the AAS journals, they are paying for something different: the half of the publication process that has not been paid for out of grant funds.

### **It's sound, and we should keep doing it**

The AAS publishes its journals at reasonable costs, and we impose reasonable fees on the sectors of the community with the most direct stakes in scholarly publishing. The business model that we employ for our journals has served the astronomical research community very well for over a century, and we think it is worth preserving. We intend to continue using it until we are instructed to do something different.

## **HAD News**

Jarita C. Holbrook, Chair, AAS Historical Astronomy

### **Harvey and Victoria Bricker Awarded the 2013 Donald E. Osterbrock Book Prize for *Astronomy in the Maya Codices***

The AAS Historical Astronomy Division's Donald E. Osterbrock Book Prize for 2013 will be awarded to Harvey M. Bricker and Victoria R. Bricker for *Astronomy in the Maya Codices* (Philadelphia: American Philosophical Society, 2011). The prize is for "the author(s) of the book judged to best advance the field of the history of astronomy or to bring history of astronomy to light." The Brickers will receive their award on Monday afternoon, 7 January 2013, at a HAD session at the 221<sup>st</sup> AAS meeting in Long Beach, California, after which the Brickers will give their Osterbrock prize lecture, "Astronomical Records in the Hieroglyphic Writings of the Pre-Columbian Maya."

During the conquest of the New World, nearly all of the written works of the Maya of Central and North America were destroyed. Fortunately for historians of astronomy, four major works survived that provide a window into Mayan astronomy: the Dresden Codex, the Grolier Codex, the Madrid Codex, and the Paris Codex. *Astronomy in the Maya Codices* brings together in one volume everything that is known about astronomy in these screen-fold hieroglyphic books.

The culmination of 30 years of collaborative research, this volume presents the Mayan glyphs, the calendar and counting system, the planetary cycles and their relations to the Mayan agricultural cycle, solar and lunar eclipse cycles, and more. The Brickers also include information from the other remaining codices, from artwork and engravings on

stone monuments, and from Mayan myths and legends, while continually engaging with the research done by previous scholars as well as our modern understanding of the night sky. The Brickers have been thorough and exact in their research. They have created a definitive volume that will please experts on the Maya as well as historians of astronomy.

Harvey Bricker and Victoria Bricker are professors emeriti at Tulane University and are also courtesy professors of anthropology and research associates of the Florida Museum of Natural History at the University of Florida. Victoria Bricker earned her PhD in anthropology from Harvard. She has published consistently on the Mayan people. Her research into the astronomy of the Maya began with a study of the eclipse tables found in the Dresden Codex in the early 1980s. Harvey Bricker earned his PhD in anthropology from Harvard as well. His career includes studies of Paleolithic archaeological sites in France. He began collaborating with Victoria Bricker on the Maya astronomy materials in the 1980s. *Astronomy in the Maya Codices* contains all of their scientific findings from their previous works on the astronomy of the Maya as well as their analyses of other scholars' findings and their new discoveries about the remaining codices.

This volume is ideal for teaching a section if not an entire class on Mayan astronomy because it requires no other text or articles: it is all here.

# JWST Update

Jason Kalirai, Deputy Project Scientist - James Webb Space Telescope, Space Telescope Science Institute

## The Space Telescope Science Institute

### The JWST Science Operations Design Reference Mission (SODRM)

The scientific potential of JWST is most often characterized through its four primary science themes, “Planetary Systems and the Origins of Life,” “Birth of Stars and Protoplanetary Systems,” “Assembly of Galaxies,” and “First Light.” The questions behind these themes emerged in the “Astronomy and Astrophysics in the New Millennium Decadal Survey” (2000), and set the challenges for a telescope that offered huge gains in sensitivity, resolution, and multiplexing over NASA’s Great Observatories. While JWST answers these specific challenges, its unique capabilities also offer unprecedented opportunities to advance other topics that are at the forefront of astronomical research today.

Over 50 astronomers from the Space Telescope Science Institute (STScI), Goddard Space Flight Center (GSFC), and the Science Instrument teams recently came together to develop a scientific program for JWST as a simulation of its normal science operations. This new Science Operations Design Reference Mission (SODRM) overhauls the 2005 version, which was built around simpler instruments, early operational concepts, and the four mission science themes. The new SODRM brings the observatory and instrument capabilities up to date and adds a number of science topics that have evolved rapidly in the years since the 2005 SODRM. It also provides our best estimate of the

range and depth of scientific investigations that JWST will carry out (see Figure 1).<sup>1</sup> The new program includes 112 programs, complete with Phase II files in the Astronomers Proposal Tool (APT), for a total of 849 days of observing time. These programs provide a realistic test bed for the design and implementation of the JWST ground system at STScI, and for simulating the operating schedule for the observatory and its instruments.

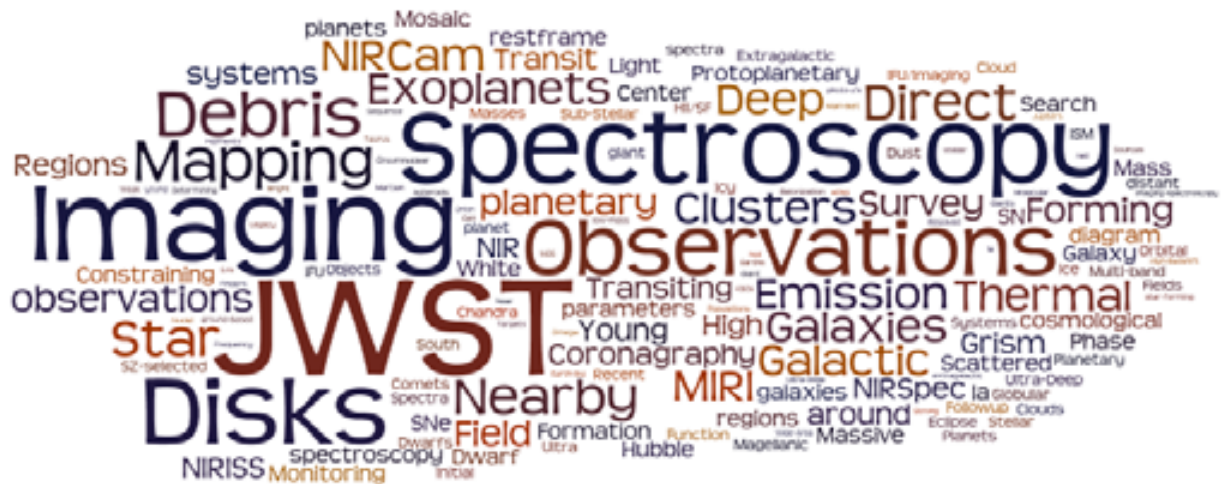
The new SODRM is available at <http://www.stsci.edu/jwst/science/sodrm/>.

The input submitted to the SODRM represents hypothetical, but realistic, scientific investigations from a broad cross-section of scientists. Not surprisingly, the results represent a balanced program in subject area (see Figure 2), including approximately equal fractions in Milky Way and stellar populations science, exoplanets, and nearby galaxies. A significant fraction of the SODRM science cases are dedicated to studies of our Solar System, while the majority of the programs focus on observations of the high redshift Universe. The distribution of SODRM targets on the sky is shown in Figure 3.

### Solar System

The investigations submitted to the SODRM fully exercise the diverse modes of JWST operation. For example, a rich Solar System science case emerges from combining JWST’s 20+ imaging, spectroscopic, and coronagraphic modes (see Table 1) with its vantage point at L2 and pointing control system. The latter will enable

Figure 1: A word cloud of the titles of scientific programs in the new JWST SODRM



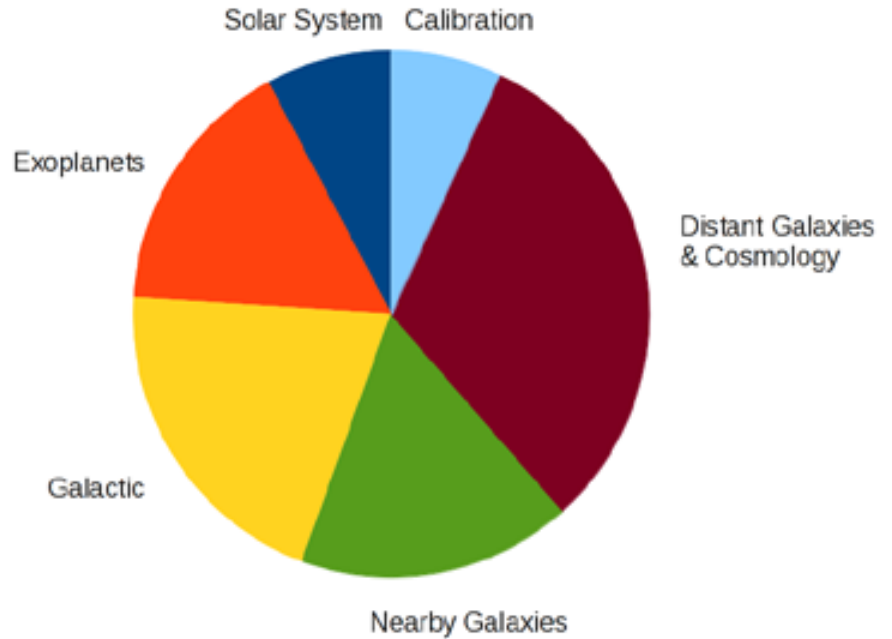


observations of objects moving at rates up to 30 milliarcseconds per second, sufficient to track planets, moons and asteroids beyond Earth's orbit. For Mars, NIRSpec and MIRI IFUs can obtain synoptic monitoring of gases, aerosols, and dust in the atmosphere over the entire disk, over time scales from a few minutes, weeks, to any other cadence. For giant planets such as Uranus and Neptune, JWST will provide unprecedented precision in exploring the chemistry and thermal balance of their atmospheres, including an analysis of the effects of seasonally varying clouds and storms. The diversity of the satellites of giant planets can also be studied with MIRI low-resolution spectroscopy and NIRSpec fixed slit spectroscopy. The sizes and compositions of these bodies provide information on the materials that are critical for planet formation, and these observations with JWST can be synergistic with planetary missions. At the outer reaches of the Solar System, JWST can make detailed surface composition measurements for any of the icy dwarf planets. This could possibly include the first detection of the low-temperature phase of solid  $N_2$ , and also will enable studies of the time-variable thermal state of the surfaces (with MIRI 25 micron photometry). Other JWST Solar System science cases include Target of Opportunity (ToO) imaging and spectroscopic observations of bright comets, imaging observations of Kuiper Belt Objects to determine their diameters and albedos, searches for organics and hydrated minerals, water ice in main belt asteroids with NIRSpec medium resolution spectroscopy, and much more. More information on the JWST Solar System science case is available at <http://www.stsci.edu/jwst/science/solar-system>.

### Exoplanets

JWST's exoplanet science case has become stronger since the 2000 Decadal Survey's prioritization. The SODRM includes details on some of the core science opportunities, such as high signal-to-noise, transient, NIRCcam imaging observations of Earth analogues to determine their radii and inclination angle, NIRISS, NIRSpec and MIRI spectroscopic transit observations to determine planetary atmospheres, and continuous NIRCcam imaging of a rich stellar field to determine the frequency of hot Earths. JWST's instrument suite also includes six coronagraphs

Figure 2: Science areas represented in the new JWST SODRM



and aperture mask interferometry capabilities (e.g., see Table 1). The SODRM includes applications of these tools to find and study exoplanets around nearby stars using new techniques. For example, the NIRISS non-redundant mask can be used to find the pristine population of newborn planets in young star-forming regions such as Taurus, and to study the timescale of planet formation within the first 10 Myr. This JWST mode can also fill a gap in the study of planet demographics by finding giant planets around young low-mass stars, stars that are too faint for extreme ground-based adaptive optics investigations. The NIRISS non-redundant mask will be able to detect planets of 1-3 MJup at separations of 3-20 AU around young and nearby low mass stars.

### The Milky Way and Nearby Galaxies

JWST imaging and spectroscopic observations of nearby stellar populations will offer significant advances over current understanding. The SODRM includes descriptions

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<sup>1</sup>Actual JWST observing programs in its first years will consist primarily of programs competitively selected by the Telescope Allocation Committee (TAC), plus Guaranteed Time Observations (GTO).

*continued on page 10*

Table 1: Distinct JWST Observing Modes

| Observing Mode               | Instrument | Wavelength (microns) | Pixel Scale / Resolving Power                  | Field of View  |
|------------------------------|------------|----------------------|--|--|
| Imaging                      | NIRCam     | 0.6 – 2.3            | 0.032 arcsec                                   | 2.2 x 2.2 arcmin   |
|                              | NIRCam     | 2.4 – 5.0            | 0.065 arcsec                                   | 2.2 x 2.2 arcmin   |
|                              | NIRISS     | 0.9 – 5.0            | 0.065 arcsec                                   | 2.2 x 2.2 arcmin   |
|                              | MIRI       | 5.0 – 28             | 0.11 arcsec                                    | 1.23 x 1.88 arcmin   |
| Slitless Spectroscopy        | NIRISS     | 1.0 – 2.5            | 150 ( $\lambda/\Delta\lambda$ )                | 2.2 x 2.2 arcmin   |
|                              | NIRISS     | 0.6 – 2.5            | 700 ( $\lambda/\Delta\lambda$ )                | single object  |
|                              | NIRCam     | 2.4 – 5.0            | 2000 ( $\lambda/\Delta\lambda$ )               | 2.2 x 2.2 arcmin   |
| Multi-Object Spectroscopy    | NIRSpec    | 0.6 – 5.0            | 100, 1000, 2700 ( $\lambda/\Delta\lambda$ )    | 3.4 x 3.4 arcmin with 250k 0.2 x 0.5 arcsec micro shutters |
| Single Slit Spectroscopy     | NIRSpec    | 0.6 – 5.0            | 100, 1000, 2700 ( $\lambda/\Delta\lambda$ )    | Slits of 0.4 x 3.8, 0.2 x 3.3, and 1.6 x 1.6 arcsec        |
|                              | MIRI       | 5.0 – ~14.0          | ~100 @ 7.5 microns ( $\lambda/\Delta\lambda$ ) | 0.6 x 5.5 arcsec slit                                      |
| IFU Spectroscopy             | NIRSpec    | 0.6 – 5.0            | 100, 1000, 2700 ( $\lambda/\Delta\lambda$ )    | 3.0 x 3.0 arcsec   |
|                              | MIRI       | 5.0 – 7.7            | 3500 ( $\lambda/\Delta\lambda$ )               | 3.0 x 3.9 arcsec   |
|                              | MIRI       | 7.7 – 11.9           | 2800 ( $\lambda/\Delta\lambda$ )               | 3.5 x 4.4 arcsec   |
|                              | MIRI       | 11.9 – 18.3          | 2700 ( $\lambda/\Delta\lambda$ )               | 5.2 x 6.2 arcsec   |
|                              | MIRI       | 18.3 – 28.8          | 2200 ( $\lambda/\Delta\lambda$ )               | 6.7 x 7.7 arcsec   |
| Aperture Mask Interferometry | NIRISS     | 3.8 – 4.8            | 0.065 arcsec                                   | -  |
| Coronagraphy                 | NIRCam     | 0.6 – 2.3            | 0.032 arcsec                                   | 20 x 20 arcsec   |
|                              | NIRCam     | 2.4 – 5.0            | 0.065 arcsec                                   | 20 x 20 arcsec   |
|                              | MIRI       | 10.65                | 0.11 arcsec                                    | 24 x 24 arcsec   |
|                              | MIRI       | 11.4                 | 0.11 arcsec                                    | 24 x 24 arcsec   |
|                              | MIRI       | 15.5                 | 0.11 arcsec                                    | 24 x 24 arcsec   |
|                              | MIRI       | 23                   | 0.11 arcsec                                    | 30 x 30 arcsec   |

of over a dozen science cases that fully take advantage of JWST’s sensitivity and resolution in the infrared bandpasses to enable fundamental advances in the study of debris disks, star forming regions, molecular clouds, dust formation, and much more. The wide wavelength baseline of JWST from 0.6 – 28.3 microns enables complete spectral energy distributions to be constructed for these sources, thereby enabling improved model comparisons of the interplay of different components. The SODRM also demonstrates that JWST’s study of nearby Milky Way stellar populations will provide new insights on fundamental relations such as the initial mass function (IMF) of stars. Deep NIRCam imaging will yield the clearest measurement to date on the shape of the IMF, and map its variation with environment. These studies can easily be extended to substellar objects to test physical models of cool objects, for example, through the L/T/Y dwarf transition. The JWST NIRSpec

microshutter array also offers new opportunities to study dense stellar environments with spectroscopy. The multiplexing of the array, at high spatial resolution, will yield abundances and motions for individual stars across the Milky Way.

Ultra-deep Hubble imaging of Local Group galaxies such as M31 has been used in concert with large ground-based telescopes to establish exquisite data sets of the disk, bulge, and halo of a Milky Way analogue. This can include resolved measurements of the ages, abundances, kinematics, and surface brightness profile of the galaxy’s stars, both on and off of detected substructure. These studies can provide detailed tests to N-body simulations of galaxy formation. A promising science case for JWST in the SODRM is the extension of these studies to systems outside the Local Group. JWST NIRISS and NIRCam

imaging will provide the first measurements of the resolved main-sequence turnoff of galaxies in the Sculptor group. These studies will provide crucial context to the differences we see between the Milky Way and M31. Other SODRM investigations of nearby galaxies include deep NIRCcam imaging and MIRI medium resolution spectroscopy of Young Stellar Objects in the Magellanic Clouds, narrow-band imaging with NIRCcam of cold gas in star forming regions, NIRSspec spectroscopy of compact clusters to resolve age/metallicity degeneracies, a range of ISM studies in nearby galaxies, IFR observations of extragalactic HII and star forming regions, coronagraphic observations of AGN in more distant galaxies to establish correlations between AGN mass and host galaxy mass, and much more.

### Distant Galaxies and Cosmology

“First Light” is one of the four major science themes for JWST and a key driver of its capabilities. The SODRM includes programs that push the workhorse camera, NIRCcam, to discover the first observable galaxies at redshifts of 10 - 15. MIRI will observe the rest-frame optical bands of these galaxies to trace the buildup of stellar mass in the first generations of galaxies. NIRSspec and NIRISS will be able to observe star formation in these galaxies using nebular emission line spectroscopy. These ultra-deep observations have always been the driving force behind JWST’s deep infrared capabilities, and their inclusion in the SODRM ensures that the flight and ground systems can support this core JWST science.

In addition, the SODRM also includes searches for the end of cosmic reionization, and the first QSOs, and unique signatures of galaxy formation in spatially resolved spectroscopy of galaxies at  $z = 2-6$ . The SODRM also includes a program for intensive followup of  $z > 1$  SNIa for measurements of the cosmic acceleration in the rest-frame infrared where the systematic error from reddening in the host galaxy is minimized. Finally, the SODRM will test our system for following up Targets of Opportunity (ToOs) with a program for spectroscopy of high- $z$  gamma-ray burst afterglows that will probe the ISM of the host galaxies just after the burst and then measure the much fainter spectrum of the host galaxy after the burst fades. All this adds up to a robust program of “first light” science that elaborates this important science theme with the latest ideas in this rapidly evolving field.

### A Look Forward

The SODRM is a comprehensive, science-driven simulation of the JWST mission. As our system matures and the scientific frontier advances we will improve the SODRM with new science and operational information. In later years we intend to accept programs from the larger astronomical community to ensure a broad science program and robust tests of our system. This simulated science program will have fulfilled its purpose when the actual, community-driven science program of the mission is executed and new and surprising discoveries are made with a fully optimized Observatory.

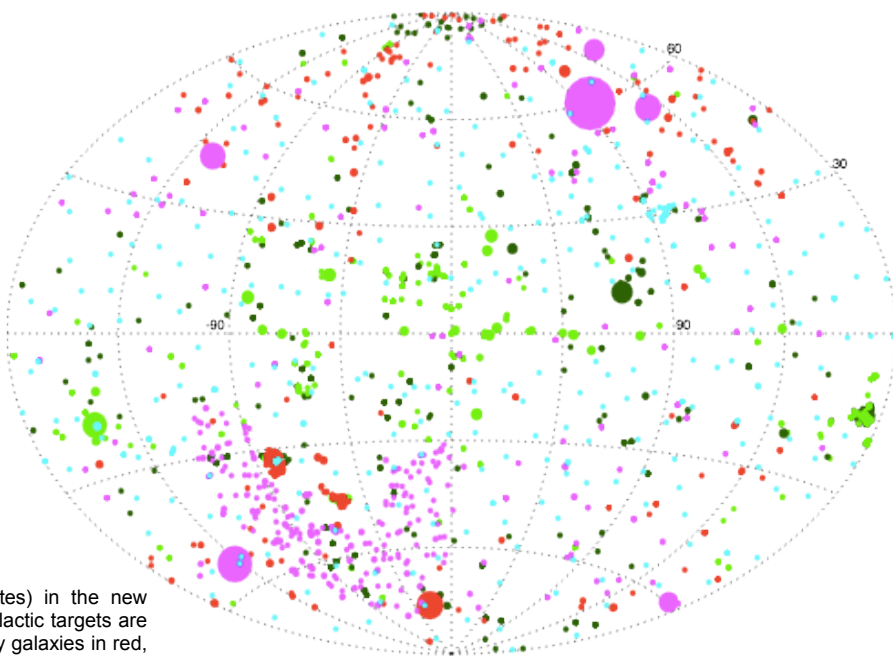


Figure 3: Sky distribution of fixed targets (Galactic coordinates) in the new SODRM (moving targets in the Solar System are excluded). Galactic targets are colored in light green, exoplanet host stars in dark green, nearby galaxies in red, and extragalactic targets in purple.

# Candidate Statements

*We are grateful for the following AAS members who have agreed to stand for election. Please support their dedication by voting. Members eligible to vote will be notified when the electronic ballot is posted on [members.aas.org](http://members.aas.org).*

## President (vote for one)

### Duties of a President:

- Presides over Council meetings;
- Serves on the Council as President-Elect, President and Past-President;
- Presides over the Annual Business Meeting;
- Chairs Executive Committee;
- Represents the AAS at official functions and before other organizations;
- Serves when required as official spokesperson for the AAS;
- Appoints members to various AAS committees.

Term: One (1) year as President-Elect, two (2) years as President and one (1) year as Past-President

## Chris Impey

Nominated Office: President

Affiliation: University of Arizona

Position: University Distinguished Professor, Deputy Department Head

Ph.D.: University of Edinburgh (1981)

Areas of Scientific Interest: Observational cosmology, AGN, multi-wavelength surveys, low surface brightness galaxies, astrobiology, astronomy pedagogy, science literacy, popular writing

### AAS Positions & Dates:

- Shapley Lecturer (1993-2003, 2012-present)
- Astronomy Education Review Editorial Board (2001-2005)
- Vice President (2003-2006)
- Executive Committee (2003-2006)
- Membership Committee (2003-2004)
- Chambliss Writing Award Committee Chair (2006)

Other experiences and positions relevant to service in the AAS Office:

- Deputy Department Head, Department of Astronomy, Univ of Arizona (1998-present)
- Associate Director, NASA Arizona Space Grant (1990-1995)
- Kitt Peak National Observatory TAC (1994-1997)
- Hubble Space Telescope Review Panel, Chair (1994, 1998)
- NASA Long Term Space Astrophysics Review Panel (1995)
- Organizing Committee, IAU Colloquium 171, The Low Surface Brightness Universe (1998)

- Organizing Committee, ASP Conference 189, Teaching Introductory Astronomy (1998)
- Organizer, Vatican Observatory Science and Education Conference (1998)
- NOAO Long Term Proposal TAC (1999-2000)
- Columbia University Biosphere-2 Advisory Board (1999-2001)
- Space Telescope Users Committee (1999-2002)
- NSF Extragalactic Astronomy Review Panel (2000)
- Chandra Observatory TAC, Chair (2000, 2006)
- Spitzer Observatory TAC (2003, 2004)
- NSF Distinguished Teaching Scholars Review Panel (2003)
- Hubble Fellowship Selection Panel (2004)
- University of Washington Astrobiology Program Review (2005)
- University of Toronto Astronomy Program Evaluator (2006)
- Scientific Steering Committee, COSMOS Collaboration (2005-2012)
- International Executive Committee, Inspiration of Astronomical Phenomena (2005-2012)
- Editorial Board, Encyclopedia of the Cosmos (2006-2009)
- KPNO Director Search Committee (2006)
- Organizing Committee, IAU Symposium 244, Dark Galaxies and Lost Baryons (2007)
- Organizing Committee, Astrobiology: Expanding Views of Society and Self (2008)
- Keck Observatory NASA TAC (2008-10)
- Organizing Committee, Vatican Observatory SuperVOSS III Conference (2009)
- Organizing Committee, Pontifical Academy “Study Week in Astrobiology” (2009)
- Science for Monks Program, India, Cosmology Organizer and Lecturer (2008-2010)
- Metanexus Global Network Initiative, Advisory Council (2008-2010)
- Decadal Survey 2010, Education and Public Outreach Study Group, co-Chair (2009)
- APS/AAPT “Using Astronomy to Teach Physics” Project Advisor (2010-present)
- Board of Directors, Astronomical Society of the Pacific (2011-2013)
- Cosmology and Consciousness Conference, Co-organizer, Dharamsala, India (2011)
- Gordon Research Conference, Physics Research and Education, Advisory Panel (2011)

## Candidate Statements continued

- National Science Foundation, Astronomy “Portfolio Review” Committee (2011-2012)
- The Art and Craft of Science Writing, Princeton University, Organizer (2012)
- Communicating Science, ASP Annual Meeting, Local Organizing Committee (2012)
- Astronomical Society of the Pacific, Awards and Publications Committees (2012)

Statement: Our profession is in robust health, with access to an unprecedented array of observational facilities, and a research enterprise making advances in areas from exoplanets to cosmology. Despite our small size as a discipline, we have great power to engage and inspire the public. However, we face stresses and challenges, in particular a limited “supply” of jobs, grants and other resources, relative to the “demand” from a growing corps of researchers. The AAS is the glue that binds us professionally. This is most visible with meetings and stewardship of journals, but equally important with efforts to promote astronomy and pure research in the national policy arena. I would be honored to serve as AAS President and help shepherd the society through turbulent waters. I can bring to the position a broad, multi-wavelength perspective as a researcher, and a commitment to education and outreach. The health of the profession needs AAS advocacy to improve career opportunities for young researchers, and to make progress in recruiting and retaining women and minorities. My participation in the Decadal Survey and the NSF Portfolio Review have given me a clear sense of the trade-offs that we will have to make to keep the profession strong.

### Meg Urry

Nominated Office: President

Affiliation: Yale University

Position: Professor and Chair, Department of Physics;

Director, Yale Center for Astronomy & Astrophysics

Ph.D.: Johns Hopkins University (1984)

Areas of Scientific Interest: Black hole growth, galaxy evolution, blazars, high-energy astrophysics, multiwavelength surveys

AAS Positions & Dates:

- Councilor (2009-2012)
- Council & Appointments Committee of the American Astronomical Society (2008-2011)
- Committee on Public Policy (2006-2011)
- Committee on the Status of Women in Astronomy: Chair (2000-2003); member (1998-2000), (1994-1996)
- Editor in Chief, STATUS (2000-2003);

Contributing Editor (2003-present)

- AAS Nominating Committee 1996-1998 and 2001-2004 (Chair 1997-1998);
- George van Biesbrock (2012) and Annie Jump Cannon (1990) awards

Other experiences and positions relevant to service in the AAS Office:

- Public Policy Committee of the American Physical Society (2011-present)
- Astronomy Section Head, American Association for the Advancement of Science (2010-2012)
- American Association of Universities, NASA Presidential Working Group (2007-present)
- Science Frontier Panel Chair (“Galaxies across Cosmic Time”) for the 2010 Decadal Survey
- Led US delegations to 2002 and 2011 International Women in Physics meetings
- Gemini Telescopes Board Member (2008-2009)
- Space Telescope Science Institute Committee on Diversity, 2007-2011 (Chair 2007-2009)
- NAS/NRC Co-Chair, Committee on Astronomy and Astrophysics (2004-2007)
- NAS/NRC Board on Physics & Astronomy (2003-2007)
- NAS/NRC Chair, Ad Hoc Committee to Assess Progress toward the Decadal Vision in Astronomy and Astrophysics [Mid-Course Review] (2004-2005)
- NAS/NRC Space Studies Board (2000-2004); Executive Committee (2001, 2003)
- Member of Committee on the Status of Women in Physics of the American Physical Society (2000-2002)
- National Virtual Observatory Science Definition Team (2001)
- NASA Space Science Advisory Committee (1997-2000)
- NASA/SScAC Task Group on MO&DA (1998)
- Writing for the public, on science and women in science, monthly column on CNN.com
- Fellow of American Academy of Arts and Sciences (2008), Connecticut Academy of Science & Engineering (2007), American Women in Science (2006), American Physical Society (1999).

Statement: I am honored to be considered for this office. The AAS has been my home for over 30 years, and has worked hard to support its members. I believe science leadership has never been more important, and that the nation needs scientists and engineers more than ever.

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## Candidate Statements continued

We face a growing anti-science climate and the danger that scientists could be seen not as impartial deliverers of truth but as one more special interest group. The AAS has to speak for the importance of STEM education and literacy, for the importance of scientific research and discovery, and for the benefits that ensue for the public. As a professional society, we must continue to support students and young scientists, making sure they have broad career opportunities, and we must ensure the full utilization of talent. I will try to be an effective exponent on behalf of the AAS. Thank you very much for your consideration.

### Vice-President (vote for one)

Duties of a Vice-President:

- Serves on Council;
- Responsible for selecting invited speakers for AAS meetings;
- Responsible for overall scientific content of AAS meetings;
- Two senior Vice-Presidents serve on the Executive Committee.

Term: three (3) years

### Chryssa Kouveliotou

Nominated Office: Vice President

Affiliation: NASA's Marshall Space Flight Center

Position: Astrophysicist

Ph.D.: Technical University of Munich (1981)

Areas of Scientific Interest: Gamma- and X-ray emission from High Energy transients, such as Gamma-Ray Bursts, Magnetars, Supernova Remnants, X-ray Binaries

AAS Positions & Dates:

- HEAD Executive Committee (1994-1996)
- AAS Council (2007-2010)
- HEAD Chair (2008-2010)

Other experiences and positions relevant to service in the AAS Office:

- Chair of the Division of Astrophysics of the American Physical Society (2003)
- Member of the Committee on Astronomy and Astrophysics (CAA) of the National Academy of Sciences (2003-2006)
- Vice Chair of COSPAR Commission E (2010 - present)
- US IUPAP Representative for Committee 19 (Astrophysics) (2012- present)
- Board member of the American Association of the Variable Star Observers (AAVSO) (2011-present)

Statement: AAS is the internationally recognized representative of the US professional astrophysics

communities, as well as their best and most successful advocate in the US Congress. My first AAS task was as a member of the HEAD (1994), followed by my election as a Councilor (2007), and as the HEAD Chair (2008). I filled the last two positions in my personal capacity, since my status as a civil servant does not allow me to do otherwise. Should I be elected as a Vice President, I will be happy to again do so: some of the most stimulating 'vacations' I had were during AAS and HEAD retreats.

The main task of a Vice President is organizing the AAS meetings. Since these are the only fora where our largely diverse communities are coming together to exchange scientific results, it is of the outmost importance that these meetings are well-organized, comprehensive, attractive and successful. Moreover, this is where the young astronomers come to communicate their results, establish new collaborations, and, last but by far not least, network. I consider the latter essential for the survival and continuation of our broad community, especially in these adverse fiscal times. I commit myself to bring together astronomers worldwide, link amateur and professional communities, and ensure that young astronomers are given every opportunity to be heard.

### Nancy D. Morrison

Nominated Office: Vice President

Affiliation: The University of Toledo

Position: Professor of Astronomy Emerita

Ph.D.: Univ. of Hawaii (1975)

Areas of Scientific Interest: Stellar spectroscopy, supergiant stars, stellar winds, binary stars, variable stars

AAS Positions & Dates:

- Committee on the Status of Women in Astronomy (1978-1979)
- Nominating Committee (1981-1984), Chairman (1982-1983)
- Annie J. Cannon Award Advisory Committee (2002-2005)
- Council (2008-2011)
- Committee on the Status of Women in Astronomy (2010-2013), webmaster, STATUS Associate Editor

Other experiences and positions relevant to service in the AAS Office:

- Astronomical Society of the Pacific Board of Directors (1985-1991), Executive Committee (1987-1991), Awards Committee (1987-1991), Chairman (1988-1991)
- American Association for the Advancement of Science, Section D: Nominating Committee (1978-1981), Chairman (1980-1981), Section D committee (2009-2012), organized 90-minute symposium at 2012 AAAS annual meeting.

## Candidate Statements continued

Statement: As always, it would be an honor and a privilege to further the mission of the AAS through service as an officer.

### Secretary

Responsibilities of the Secretary:

- Voting Member of the Executive Committee and Council;
- Preparing and distributing the agendas and minutes of Council Meetings;
- Official signor for the AAS;
- Sits on AIP Governing Board (when elected);
- Member and Secretary, USNC-IAU;
- Collects, counts and certifies ballots for all Society elections;
- Solicits nominations for AAS awards; and  
Selects session chairs for meetings.

Term: three (3) years

### George F. (Fritz) Benedict

Nominated Office: Secretary

Affiliation: McDonald Observatory, University of Texas

Position: Senior Research Scientist (Emeritus)

Ph.D.: Northwestern U. (1972)

Areas of Scientific Interest: astrometry, space astrometry, low mass stars, binary stars, exoplanet detection and characterization

AAS Positions & Dates

- Secretary (2010-present)

Other experiences and positions relevant to service in the AAS Office:

- AAS Division on Dynamical Astronomy, Chairman (1998-1999)
- Vice-Chairman (1997-1998)
- Member, Executive Committee (1993-1995)

Statement: I have enjoyed being your Secretary over the past two years, even more than I had anticipated. I hope that my performance has earned your continued support.

### Councilors (vote for three)

Duties of Councilors:

- Serve as part of the governing board of the AAS; and
- Have the legal responsibility to help make all decisions to manage, direct, and control the affairs and property of the Society.

Term: three (3) years

### Sarbani Basu

Nominated Office: Councilor

Affiliation: Yale University, Department of Astronomy

Position: Professor

Ph.D.: Tata Institute of Fundamental Research, University of Mumbai (1993)

Areas of Scientific Interest: Solar and stellar astrophysics using models as well as helio- and asteroseismic data from SDO and Kepler; physical processes inside stars; using seismology to test stellar evolution theory, study solar variability and the solar dynamo process; properties of exo-planet host stars with Kepler data; formation history and chemical evolution of the Galaxy.

AAS Positions & Dates:

- Member, Beatrice M. Tinsley Prize Committee (2008-present)
- Chair, Beatrice M. Tinsley Prize Committee (2010-2011)
- Member, Solar Physics Division's Nominating Committee (2004)

Other experiences and positions relevant to service in the AAS Office:

- National Solar Observatory Visiting Committee (2012-2013)
- Member, Steering Committee, Kepler Asteroseismic Science Consortium (KASC) (2010-present)
- Committee of Visitors, Upper Atmosphere Research Section, Division of Atmospheric Sciences Section, NSF (2008)
- Management Operations Working Groups (MOWG) of NASA's Living With a Star (LWS) program (2006-2008)
- National Solar Observatory Users' Committee (2005-2011)
- Steering Committee of the Solar Physics Division Summer School (2005-2008)
- Scientific Advisory Committee, Global Oscillation Network Group (GONG) (2003-present)
- Data Users Committee, Global Oscillation Network Group (GONG) (1999-present)

Statement: In an era of shrinking research budgets but expanding fields of research, the AAS plays a unique role in fostering public understanding and support of astronomy. In this era of increasing specialization, AAS provides a forum for astrophysicists of different flavors to communicate with each other and form a consensus opinion. My work straddles the day/night divide and bridges the interests of solar physicists and the night-time astronomers; these disciplines can learn a lot from each other but historically have not been in frequent communication.

My interest in becoming an AAS council-member is three-fold. First, I believe that the grants programs

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## Candidate Statements continued

of NSF and NASA are critical to the health of our profession and I would like to work to ensure that AAS continues to support these programs. Second, I support the activist role of the AAS in highlighting the impact of astronomy on STEM education and basic research; my efforts here will be to work within the AAS to lobby for increased support for science. Finally, I wish to foster communication between our sub-disciplines and between theory and observation, and I will be active in supporting AAS meetings and programs that achieve this goal.

### Geoffrey Clayton

Nominated Office: Councilor

Affiliation: Louisiana State University

Position: Ball Family Distinguished Professor,

Department of Physics & Astronomy

Ph.D.: University of Toronto (1983)

Areas of Scientific Interest: Interstellar and circumstellar dust, core-collapse supernovae, R Coronae Borealis stars, white-dwarf mergers

AAS Positions & Dates

- Associate Editor of STATUS, the newsletter of the Committee on the Status of Women in Astronomy (1988-1993)
- Committee on the Status of Women in Astronomy (1992-1995, 2006-2009, Chair 2007-2009)
- Small Research Grant Committee (2000)
- Warner/Pierce Prize Committee (2000-2001, Chair 2001)
- Chrétien International Research Grant Committee (2002-2003, Chair 2003)

Other experiences and positions relevant to service in the AAS Office:

- Visiting Senior Scientist, NASA Headquarters (1988-90)
- IUE, SMEX, ADP, NOAO, HST, and SST Review Panels (1991-2012)
- NASA Office of Space Science Policies and Processes for Peer-Reviewed Science Grants Review Panel (1995)
- Council of the American Association of Variable Star Observers (AAVSO) (2002-03)
- IAU Working Group on Women in Astronomy (2010-present)
- Editorial Board of the Journal of the AAVSO (2011-present)

Statement: In these uncertain economic times, the AAS is more important than ever. We hear a lot these days about “engines of the economy.” In this era of funding cutbacks, the case must be made strongly that two of the most important economic “engines” are science

education and basic research. Maintaining scientific literacy in the United States is very important. We must continue to make the point that the payoff for investments in the areas of science education and basic research is huge, and astronomy, in particular, has the ability to inspire great interest in science.

I will bring a great variety of experience with me if elected. I came to the United States as a newly minted Ph.D., and have lived and worked here ever since. I spent over a decade on soft money, and two years at NASA as a program officer before getting a tenure-track position. I’ve had a career-long interest in increasing diversity in astronomy and am keenly interested in assuring equal opportunity in science for everyone. However, there is a real danger that the gains we have made as a society in increasing the diversity of our membership may be lost if we enter a prolonged period with few tenure track positions available. If elected, I will work through the society to maintain and enhance the key areas of science education, basic research, and diversity.

### Dawn M. Gelino

Nominated Office: Councilor

Affiliation: NASA Exoplanet Science Institute (NExScI), IPAC, Caltech

Position: Staff Scientist and Science Affairs Task Lead

Ph.D.: New Mexico State University (2001)

Areas of Scientific Interest: Exoplanets, Interacting Binaries

AAS Positions & Dates:

- Member (1997-Present)

Other experiences and positions relevant to service in the AAS Office:

- AAS, HEAD, and DPS attendee/presenter (1997-Present)
- AAS and DPS exhibitor (2004-Present)
- AAS Workshop co-organizer and panel member: “Careers 101: Career Planning Workshop for Graduate Students and Postdocs” (2012, 2013)
- AAS Employment Committee discussion panel member: “The Astrophysics Postdoc Job Market” (2012)
- AAS Council presenter: Successfully presented to AAS Council on behalf of the named NASA Astrophysics Fellowship programs to state our case against the AAS Employment committee proposal to move the postdoc decision deadline back to later in the year. (2009-2010)
- NExScI Science Affairs Lead: Coordinate between NExScI, NASA’s Exoplanet Exploration Program (ExEP), and the exoplanet community (2007-Present)



## Candidate Statements continued

- SOC/LOC chair/member for 20+ international exoplanet meetings (2007-Present)
- NASA Keck Operations Scientist: Administer NASA's portion of time on Keck telescopes, Keck PI Data awards, Keck/IRTF Management and Operations Working Group (2007-Present)
- NASA Sagan Exoplanet Program Scientist: Summer Workshops, Postdoctoral Fellowships, Fellows Symposia (2008-Present)

Statement: I have attended 90% of the AAS and DPS meetings since I began graduate school in 1996. My first Washington AAS meeting was overwhelming. There were so many astronomers! I quickly learned, however, that the opportunities to network at AAS meetings are invaluable. In today's difficult funding environment, this inward-looking aspect of the AAS has never been more important. Similarly, looking outward into the world of science policy, the AAS's role as a voice for our science is more critical than ever.

As coordinator of NASA's Sagan Fellowship program, I have had the opportunity to interact with graduate students and postdocs and to become sensitive to their struggles to find rewarding career paths. I have led AAS Career Planning Panels and have represented NASA's Einstein, Hubble, and Sagan Programs before the AAS Council when critical postdoctoral issues were being discussed.

As a member of the AAS Council, I would work to provide additional opportunities for networking and job placement, and to enhance family-friendly policies at our institutions. As a working scientist, I would work to ensure that the excitement of our field was conveyed to the broadest possible audience.

### Jeff Mangum

Nominated Office: Councilor

Affiliation: National Radio Astronomy Observatory

Position: Scientist

Ph.D.: University of Virginia (1990)

Areas of Scientific Interest: Galactic and extragalactic star formation, Radio, Millimeter, and submillimeter-wave measurement calibration, Radio astronomical instrumentation, Antenna systems

AAS Positions & Dates:

- Committee on New Communications (2007-2008)

Other experiences and positions relevant to service in the AAS Office:

- NRAO Student and Visitor Programs Coordinator (2008-present)
- NRAO Research Experience for Undergraduates (REU) program coordinator (1996-present)

Statement: The general public's fascination with our profession is our strength. Use the term "Big Bang" or "galaxy" in conversation with your non-scientist friends and they invariably know what you are talking about. But how is an understanding of the universe connected to the economic and political realities of life on Earth? Why should the general public financially support astrophysical research?

Scientists and engineers improve our lives by developing new ways for us to communicate and analyze the world around us. All of this work of discovery and development is done by people who are trained as scientists, who themselves were trained by the scientists that came before them. Astrophysicists are educators who train future generations to think like scientists.

Unfortunately, this connection between science in our everyday lives and the financial support for our profession is often lost to the politicians who provide this support. The AAS must continue to strengthen our message of science education to the general public and the politicians whom they represent. This should include resources which will help our membership effectively interact and communicate as educators. With this connection between our research endeavors and education the general public will see the value to our profession.

### Dara J. Norman

Nominated Office: Councilor

Affiliation: National Optical Astronomy Observatory

Position: Assistant Scientist

Ph.D.: University of Washington (1999)

Areas of Scientific Interest: AGN, Galaxy Evolution, Gravitational Lensing

AAS Positions & Dates:

- Committee on the Status of Minorities in Astronomy (2006-2012)
- Demographics committee (2010-present)

Other experiences and positions relevant to service in the AAS Office:

- Organizer for AAS special sessions: "Mentoring a New Generation of Minority Astronomers," (2009), "Mentoring Astronomers: Students to Faculty," (2010), "Strategies for Addressing Harassment and Prejudice," (2011) and "Straight Talk About an Astronomical Career: A Professional Development Session," (2012)
- AAS representative at the AWIS AWARDS workshop on diversifying AAS candidates for

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## Candidate Statements continued

scholarly awards, recommendations sent to the council.

- Co-author of an invited testimonial for the NRC on Women of Color in Astronomy
- Principal Organizer and Co-author for the Decadal Survey white papers, “Significantly Increasing the Numbers of Minorities in Astronomy in the Next 10 Years” and “Research Science and Education: The NSF’s Astronomy and Astrophysics Postdoctoral Fellowship”
- AURA/NOAO Diversity Advocate (2009-present)

### Review Panels:

- NSF review panel for Astronomy and Astrophysics Postdoctoral Fellowship (2009)
- Chandra X-ray Observatory review panel (2007)
- NASA review panel for Beyond Einstein Foundation Science (2006)
- NSF review panel for Research Experiences for Undergraduates (REU) sites (2004)
- NSF review panel for observational cosmology (2003)

### Additional committee experience:

- Joint Annual Meeting of the National Society of Black Physicists and the National Society of Hispanic Physicists Program Committee co-Chair & Executive Committee member (2011)
- DECam Workshop, Scientific Organizing Committee (2011)
- Internal Search Committee for KPNO Director (2010)
- National Society of Black Physicists, Co-chair ASTRO committee (2010-present)
- NOAO Search Committee (2009)
- Women in Astronomy, Organizing Committee (2009)
- AURA Workforce and Diversity Committee (2009-present)

### Societies:

- IAU member (2003-present)
- National Society of Black Physicists member (1996-present)
- AAS member (1993-present)

Statement: My goals while on the council will be to insure that the AAS provides strong support of members, their teaching and research, and the community’s long-term scientific goals. I will continue to work on expanding support for ALL members in their diverse career goals. In difficult budget times, support for career development of members must be a focal point of the society’s activities, as well as scientific advocacy.

As a member of the CSMA, I have worked towards these goals through the organization of AAS special sessions and workshops to promote diversity and mentoring. As a council member, I would advocate for more such development workshops. As a member of the AAS Demographics Committee, I have been active in identifying ways in which the society might better understand the community’s workforce challenges and promote practices that better serve the membership. Examples include exploring changes to scholarly award requirements that eliminate researchers who must take career breaks, or recommendations that better support career/life balance practices. I have also been able to attend high-profile events that allowed me to discuss STEM career issues with policy makers, like support for graduate student and postdoctoral healthcare. I hope to bring my experience to the council.

## Nicole S. van der Blik

Nominated Office: Councilor

Affiliation: NOAO

Position: CTIO Director (Interim)

Ph.D.: University of Leiden (1997)

Areas of Scientific Interest: Young stars, infrared astronomy, instrumentation

AAS Positions & Dates: N/A

Other experiences and positions relevant to service in the AAS Office:

- Member of IAU-OAD Taskforce “Astronomy for Universities and Research” (Office of Astronomy for Development, [www.astronomyfordevelopment.org](http://www.astronomyfordevelopment.org)) (2012-present)
- Site Director for 2002 CTIO REU program and oversight of CTIO Student Programs coordinator (2002–2012)
- Chair of Review Committee of “La Silla Operations 2010+” (2010)
- External reviewer Gemini-Conicyt Fund for the “Development of Astronomy and related sciences” (2010 & 2011)
- Member of several Time Allocation Committees, both USA (2005–2006) and Chilean (2009 & 2011)

Statement: It is an honor to be nominated to serve on the AAS Council, and I look forward to being able to contribute to the AAS mission of representing and serving the US astro-community.

I became part of this community when I joined the NOAO staff twelve years ago and I joined the AAS not much later. The AAS has been a tremendous resource for me to learn about and participate in the US astro-

## Candidate Statements continued

community, and I have developed a large professional network through the AAS. These elements of the AAS are particularly important for junior members of the society and as a Councilor I would support the AAS career development activities and encourage early-career scientists to become active AAS members. This kind of support fits well with my responsibilities at NOAO, where I am actively involved in the mentoring program.

At NOAO, I enjoy the fact that we support astronomers to use the telescopes and instruments and one of my strengths is helping to facilitate (young) scientists to carry out their research and develop themselves. I choose to work at a national observatory, because I believe open access is important. Providing services for the wider astronomical community is a key function of both NOAO and the AAS and as a Councilor I will be able to bring my experience at NOAO to benefit the AAS.

### Nominating Committee (vote for two)

Duties of Nominating Committee:

- Nominate candidates for the positions of Officers and Councilors of the AAS for election by membership. For positions of Treasurer, Secretary, and Education Officer, the decision is made in consultation with the Executive Committee of the AAS.

Term: three (3) years

### Rica Sirbaugh French

Nominated Office: Nominating Committee

Affiliation: MiraCosta College

Position: Professor of Astronomy

Ph.D.: N/A

Areas of Scientific Interest: star clusters, modeling stellar evolution, astronomy education and outreach, astronomy education research, faculty professional development

AAS Positions & Dates:

- Astronomy Education Board (2012-present)
- Employment Committee Panelist (2012)
- Columnist, *Spark: The AAS Education Newsletter* (2009-present)
- IYA 2009 Working Group for Research Experiences for Students, Teachers, and Citizen Scientists (2008-2009)
- Chambliss Award Judge (2008)
- Society Member (1995-present)

Other experiences and positions relevant to service in the AAS Office:

- Program Director for Astronomy, MiraCosta College (2004-present)

- Coordinator, Professional Development Programs (MiraCosta College: 2011-present)
- Coordinator, State of California Flexible Calendar Program (MiraCosta College: 2011-present)
- Board of Directors, North County Higher Education Alliance (San Diego County: 2011-present)
- Fellow, Collaboration of Astronomy Teaching Scholars (CAE/CATS: 2008-present)
- Coordinator, SoCal Regional Teaching Exchange (Center for Astronomy Education [CAE]: 2010-present)
- Member, AAPT (2001-present)
- Member, ASP (1995-present)
- Member, AAAS (2005-10)
- Member, California Science Teachers' Association (2008-10)
- Member, Council on Undergraduate Research (2007-08)

Statement: In my 17 years as a Society member, I have been simultaneously awed and proud to witness the continual succession of amazing individuals willing to devote time and effort by giving back to their Society. It's quite the humbling honor to be included amongst those ranks. Representing the AAS means maintaining a careful balance in a variety of arenas: research, education, outreach, policy, and budgets, just to sample a few. This balancing act highlights just how critical it is to maintain strong and open connections with the public – the future of astronomy. The Nominating Committee may have one of the most difficult charges of all: data-mining the Society membership for those best-suited, willing, and able to cultivate those connections at the highest levels of representation. The wealth of diversity in our membership, experiences, and interests ensures those individuals exist. It is up to the Nominating Committee to seek out the most dynamic and innovative of our neighbors and convince them that we're right: we need you to help shape the future of astronomy, "to enhance and share humanity's scientific understanding of the Universe." I always did enjoy a challenge...

### Massimo Marengo

Nominated Office: Nominating Committee

Affiliation: Iowa State University

Position: Assistant Professor

Ph.D.: 2000

Areas of Scientific Interest: Infrared Astronomy, Evolved Stars, Young Planetary Systems

*continued on page 20*

## Candidate Statements continued

AAS Positions & Dates: N/A

Other experiences and positions relevant to service in the AAS Office:

- NASA Review Panels: ADAP, SOFIA, Spitzer, Hubble, Solar System Origin, ADP/LTSA (2001-2012)
- NSF-AST Review Panel (2006-2012)
- NASA Postdoctoral Program Review Panel (2007)
- Science Opportunity for the Warm Spitzer Mission Working Group (2007)

Statement: As a member of the AAS Nominating Committee I will work towards promoting an effective and diverse representation in the candidates for AAS office. The report of the Demographics Study Group for Astro 2010 has shown how diverse our community has become. The AAS has played an important role in supporting this diversity, which is fundamental to ensure that all parts of our society have equal chance to contribute to the progress of astronomy, and reach their full potential. This role must be protected and enhanced by ensuring that the AAS leadership will continue to be inclusive of all genders, minority status and institution type and size. This is essential to preserve the effectiveness of AAS in difficult budgetary times, when reduced public telescope time and funding will affect harder smaller institutions, the traditional hotspot for diversity. My experience in moving from a large research center (CfA) to a university setting, well connected to the local network of small colleges, gives me an important perspective on these issues. I will draw from this experience in seeking high quality and representative candidates to the AAS elections.

### Jacob Noel-Storr

Nominated Office: Nominating Committee

Affiliation: Rochester Institute of Technology

Position: Assistant Research Professor

Ph.D.: Columbia (2004)

Areas of Scientific Interest: Astronomy Education and Outreach; Family Science Learning; Science Education Technology; Active Galactic Nuclei and Supermassive Black Holes; Radio Galaxies

AAS Positions & Dates:

- Astronomy Education Board (2004-2006)
- Ad Hoc Committee on Future Communications in Astronomy (2006-2008)
- Editor: Spark the AAS Education Newsletter

Other experiences and positions relevant to service in the AAS Office: N/A

Statement: I have been an active member of the American Astronomical Society community since beginning Graduate School, and remain a regular attendee at all Society meetings. I feel close connections to both the Scientific and Educational communities within the society, and if elected to this position, would look forward to the opportunity to strengthen those ties. Through my many interactions with the AAS, both in serving on committees, and through organizing regular events at conferences, I have a good grasp on ‘how things work’—valuable knowledge in helping to identify individuals who can be the best to continue to move our society forward. I am committed to doing my part to continue to drive the society in the direction of becoming a true community of colleagues, and would be dedicated to nominating great representatives of you, the astronomical community, to positions within our society.

### Virginia Trimble

Nominated Office: Nominating Committee

Affiliation: University of California, Irvine

Position: Professor of Physics & Astronomy

Ph.D.: California Institute of Technology (1968)

Areas of Scientific Interest: Structure and Evolution of Stars, Galaxies, and the Universe, and of the communities of scientists who study them

AAS Positions & Dates:

- Vice President (1997-2000)
- Chair sequence High Energy Astrophysics Division (1992-1993)
- Historical Astronomy Division chair sequence (1997-2003)
- Various times from 1970s to present, External Awards Committee, Nominating Committee, Education Advisory Board, Panel on Astronomy and Public Policy, Centennial Committee, Russell Lectureship Committee, International Travel Grant Committee, Publications Board, Annenberg Prize Committee, Tinsley Prize Committee, Cannon Award Committee, Doggett Prize Committee, Chrétien Prize Committee, others

Other experiences and positions relevant to service in the AAS Office:

- Adjectival editor, *Astrophysical Journal* (1989-1998)
- Editor Comments on Astrophysics (1987-1997)
- Vice Pres. IAU (1994-2000)
- Press of Comm. 28 (Galaxies, 1994-1997)
- President Div. VIII (Galaxies and the Universe, 2000-2003)

## Candidate Statements continued

- Pres. Div. XII (Union Wide Activities, 2000-2003)
- Chair sequence APS Division of Astrophysics (1998-2001)
- Chair sequence APS Forum on History of Physics (2004-08)
- Member of APS Council & Executive Board (1997-2000)
- American Association for the Advancement of Science, Council (for Sect L, History, 2009-2012) and Committee on Council Affairs (2010-2012)
- Various positions in International Union of Pure and Applied Physics, Astronomical Society of the Pacific, Sigma Xi, AAPT, and other professional organizations

Statement: In principle, AAS, like most other organizations of scientists, is self-governing. This means we elect officers and council members who, one way or another, choose the executive officers who do a very large fraction of the work. But you can't vote for folks who aren't candidates, which, in turn, puts a fair amount of power in the hands of the nominating committee (yes, nominations by petition are possible, but very hard to

organize!). As a result of having already held a number of elective and appointive positions in AAS and other societies, I think I know the community and those who do their fair share of the work and beyond fairly well. I am also old enough to remember the first time the AAS president was elected from between two formal candidates and so can try to be sensitive to who might be lost as a major worker for AAS if not chosen.

*Members eligible to vote will be notified when the electronic ballot is posted on [members.aas.org](http://members.aas.org).*

*Members for whom we do not have email addresses will receive a paper ballot by first class mail. You may verify your email address at [aas.org/directory](http://aas.org/directory) and if necessary send corrections to [address@aas.org](mailto:address@aas.org).*

*Any other member wishing to use a paper ballot may request one by phone (202) 328-2010 ext. 115, fax (202) 234-2560 or by email to [ballot@aas.org](mailto:ballot@aas.org). If possible, include your member number with your request.*

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## News from NSF Division of Astronomical Sciences (AST)

Jim Ulvestad, Division Director, [julvesta@nsf.gov](mailto:julvesta@nsf.gov)

### Portfolio Review Report

The AST Portfolio Review Committee report was officially transmitted to the National Science Foundation on August 16. The report and the public AST response are posted at [http://www.nsf.gov/mps/ast/ast\\_portfolio\\_review.jsp](http://www.nsf.gov/mps/ast/ast_portfolio_review.jsp). The process of responding to the report recommendations involves stakeholders throughout the federal government, so no decisions will be made about the detailed response by NSF until discussions have taken place among all the stakeholders, and the President's Fiscal Year (FY) 2014 budget request is released in February 2013. We had hoped to schedule a community webinar in September, but logistical constraints have forced a postponement. We now expect the webinar to occur during the (northern) autumn; the community will

be notified separately about the date and the mechanism for participation in this webinar.

### Fiscal Year 2013 Budget

Congress has passed, and the President has signed, a Continuing Resolution that will fund the federal government (including NSF) for the first six months of FY 2013, from October 2012 through 27 March 2013. Since Congress has now recessed until after the November elections, any action on a final NSF budget for FY 2013 will be deferred until the post-election period.

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## New AAG Solicitation for Upcoming Deadline

We remind potential investigators that the previous Astronomy and Astrophysics Research Grants (AAG) solicitation NSF 05-608 has been replaced by NSF 12-589; see [http://www.nsf.gov/publications/pub\\_summ.jsp?WT.z\\_pims\\_id=13630&ods\\_key=nsf12589](http://www.nsf.gov/publications/pub_summ.jsp?WT.z_pims_id=13630&ods_key=nsf12589)

The proposal submission window remains 15 September to 15 November, with a firm submission deadline of 15 November 2012 at 5 p.m. local time of the submitting institution. See the solicitation, or our article in the previous version of this *Newsletter*, for more details.

## AST Staff Changes

Dan Evans has begun a term as a rotator Program Director in AST, arriving in September. Dan will be taking over the Education and Special Programs portfolio previously overseen by Scott Fisher, and also will be engaged in the review of other research grant proposals. AST expects to have another rotator position available beginning in March 2013; interested individuals should contact any AST staff member for further information.

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# News from the Astronomical Society of the Pacific (ASP)

James Manning, ASP Executive Director

## STEMing the Tide

I would be preaching to this particular choir to talk about the value and importance of having an education system, workforce and electorate literate in the disciplines of Science, Technology, Engineering, and Mathematics, known in their “group hug” as STEM. We all understand the value, and live for that day—though we’d better eat our vegetables and always look both ways before crossing the street if we want to experience that day, which on many days seems very far away indeed.

But that is rather my point: if that day seems far away (as it does on days when new world rankings come out showing our students in less than gold, silver or bronze positions in STEM skills, or when a former congressman from Missouri who sat on the House Science Committee spout outrageous fictions about biological functions in the heat of a political campaign), then it is important for us all to do what we can to bring that day of widespread STEM literacy a little closer.

At the Astronomical Society of the Pacific, we are weighing in on this question (one that we frequently do) by choosing “Ensuring STEM Literacy” as the overarching theme for our 2013 national conference on education and public outreach (EPO). The conference will be held on the lovely campus of San Jose State University in San Jose, California, 20-24 July of next year. In addition to the EPO symposium, the meeting will also include the every-three-

year “Cosmos in the Classroom” symposium, bringing together college introductory astronomy instructors from around the country (and beyond) to commune with each other and engage in professional development activities. And the conference theme is entirely appropriate for both symposia, gathering formal and informal educators, communicators, scientists, and others to share their experiences and learn from each other in the quest to create a future where science is widely understood, valued, and considered in debating and deciding the great questions of our time. Not to mention ensuring that we have a workforce that can implement science and STEM-related endeavors.

So save the date, and come join us in San Jose next summer, for either symposium or both as we consider what we are doing, what we can do besides, and what we can do together to help ensure greater STEM literacy for the future. The future rather depends on it!

You can go to the web link [astrosociety.org/2013meeting](http://astrosociety.org/2013meeting) on the ASP’s newly designed and updated web site ([www.astrosociety.org](http://www.astrosociety.org)). And roam around our new online digs while you are at it, to refresh your knowledge about who we are and what we do, and to check out all the useful resources and services you can find there.

See you in San Jose?

# Committee on Employment

Rick Pernak (rick.pernak@gmail.com)

## Working Outside the Box

I graduated from the University of Maryland, College Park with a Bachelor of Science degree in astronomy in 2005, then three years later graduated from The Catholic University of America with a Master of Science degree in physics. So it has been a few years since I left graduate school. Since then, I have been through the job search process twice—once right after commencement, and once when my wife and I moved to Cambridge, MA. These experiences have given me an idea as to what the post-grad school opportunities can be like for someone with a physics and astronomy background.

My early work experience was somewhat a continuation of my work as a graduate student—writing software and doing data analysis for the Heliophysics Science Division at NASA Goddard Space Flight Center. While I am sure that those in the astronomy world know about the fellowship and post-doc opportunities at Goddard, I would be remiss if I were to suggest that those are the only opportunities available. After obtaining my master's, I was recruited by a contracting company (AdNet Systems, Inc.) where the “degree demographic” was pretty diverse. There were plenty of scientists with master's degrees and many that earned PhDs but did not follow the conventional astronomy job path, which is usually described as a couple of post-docs followed by (hopefully) a tenure track position.

The move to Cambridge was out of necessity for my wife, who accepted a fellowship at the Harvard Smithsonian Center for Astrophysics. The problem was that we relocated without anything being offered to me. The job search was tough—the economy was bad and the unemployment rate was close to 9%. What I did learn is that even in a recession (or recovery from a deep recession), the skill set that physical scientists have—critical thinking/problem solving skills, computer programming abilities, etc.—is still in high demand in multiple industries. I just needed to know where to look.

The first places that often come to mind are defense contractors. Big ones like Lockheed Martin, Raytheon, and Northrop Grumman were a given in my job search, and eventually I looked at other companies like L-3, SSAI, Booz Allen Hamilton, and BAE. Many of these places utilize astronomers' knowledge of orbital dynamics and instrumentation pertinent to the design of space systems. Some companies need data analysts. At the very least, there are programming jobs to which astronomers can contribute.

Shortly after moving, I ended up at a small company called Atmospheric and Environmental Research (AER). Much of their research would be appealing to atmospheric scientists, but I was hired as part of the Space Weather and Effects Division, coincidentally working with the same satellite as I did when I was at Goddard! It was a pretty smooth transition for me, and I continue to do the data analysis and software engineering that I love doing. Opportunities are there for me to contribute to proposal writing, to write papers, and present my own science as well and I do feel like my job is secure as long as I keep on doing what I am doing.

Probably the most important thing to stress to any new jobseeker is to expand one's network when it comes to careers. Looking back, almost all of my interviews and offers have come about because I knew someone at a particular company. I may not be at AER today if my new boss did not know my advisor at Goddard. That made the interview really easy!

I cannot speak for other astronomers or physicists, particularly since I did not go to grad school with the same goals as the majority of them. Namely, I did not want a PhD, a post-doc or a professorship. I just did not think that I fit that mold. What I can say is that AER and companies like it have become quite attractive to astronomers as the academic job market and traditional career path seem to be getting more and more bleak. Earning a PhD or master's degree was not easy, and along the line all of us who have been through it learned some really useful stuff. Perhaps you feel you have invested too much time on your career path to give up on it, or perhaps you are ready to leave academia but do not know how to approach industry jobs. The silver lining is that the skills you have learned can definitely be applied in the “real world” if that is what you want to do.

*The AAS Committee on Employment is pleased to highlight useful resources for astronomers, and welcomes your comments and responses to this and previous columns. Check out our website ([www.aas.org/career/](http://www.aas.org/career/)) for additional resources and contact information for the committee members. We are always looking for guest columnists in non-academic careers. If you are willing to contribute, or have an idea for a future column, please contact the Employment Column Editor, Liam McDaid ([mcdaid@scs.losrios.edu](mailto:mcdaid@scs.losrios.edu)). The AAS committee on employment exists to help our members with their careers. Your ideas are important, so let's hear them!*

# Committee on the Status of Women in Astronomy

Nancy Morrison, NMorris@UTNet.UToledo.Edu, Dara Norman, dnorman@noao.edu, and Jedidah Isler, jedidah.isler@yale.edu

## Women of Color in Astronomy

Although recent decades have seen significant progress by women in science, technology, engineering, and mathematics (STEM), this rate of progress is not shared by women scientists belonging to underrepresented minorities. Recognizing this problem, the National Academy of Sciences organized a conference entitled, “Seeking Solutions: Maximizing American Talent by Advancing Women of Color in Academia,” which was held on 7-8 June 2012 in Washington, DC. In preparation, the Academies invited a range of scientific societies to comment on the status of women of color in their disciplines. The AAS responded by forming a working group consisting of members of the Committee on the Status of Minorities in Astronomy (CSMA): Dara Norman, Jedidah Isler, and Hakeem Oluseyi; and the Committee on the Status of Women in Astronomy (CSWA): Nancy Morrison, Caroline Simpson, and Laura Trouille. Our report is posted on the National Academies’ web site, along with those of many other societies, at: <http://sites.nas.edu/wocconference/get-involved/organizations/>. In the following summary, quotations are from our report: <http://sites.nas.edu/wocconference/files/2012/03/6.3.-American-Astronomical-Society.pdf>

Women of color are at the nexus of race and gender, and are therefore in a double bind. While their experience has much in common with those of both women and minorities, they are often overlooked in efforts on behalf of both groups. Our report begins with a summary of barriers faced by women of color in astronomy, involving: difficulty building networks and collaborations and achieving a professional status that permits participation in invited activities; lack of effective mentoring; unfavorable workplace climate, lack of support, and even hostility; cultural alienation; conscious and unconscious bias; and stereotype threat. All these problems are exacerbated by the rarity of women of color in every STEM field.

Aiming toward solutions to these problems, our report suggests steps that could be taken by funding agencies, consortia of universities, and scientific societies, to improve networking, recognition, support, and understanding within the scientific community of women of color in science.

- Build national cohorts of high-achieving graduate student women of color at leading institutions to

provide supportive, interdisciplinary peer networks

- Require diversity and cultural awareness training for people in supervisory roles to decrease their reliance on stereotypes in their relations with women of color
- Encourage fair hiring practices such as those implemented by the ADVANCE programs at the University of Michigan ([http://sitemaker.umich.edu/advance/recruitment\\_stride\\_](http://sitemaker.umich.edu/advance/recruitment_stride_)) and the University of Wisconsin (<http://wiseli.engr.wisc.edu/map.php>), among others. Research shows that “only after reviewers are given specific metrics with which to assess candidates do they avoid giving unfair advantage to white males.”
- Recognize departments or individual mentors for support of women of color. Recognition could be modeled after the American Physical Society’s Woman Physicist of the Month (<http://www.aps.org/programs/women/scholarships/womanmonth/>) or mentoring awards such as that of the AAAS (<http://www.aaas.org/aboutaaas/awards/mentor/>).
- Improve collection of statistics and monitoring of the careers of women of color
- Encourage networking across disciplines among women of color at the professional level
- Expand programs that enable graduate students and postdocs to change advisors or to be exposed in mid-program to alternative mentors. In this way, damage caused by a failed relationship with a supervisor could be mitigated and students’ professional connections stimulated. An example is the Visiting Faculty Program of the Department of Energy (<http://science.energy.gov/wdts/vfp/>).

Our report continues with descriptions of existing activities by the AAS that assist women of color, including the existence of the CSMA and CSWA and the ongoing redesign of the Shapley Lectureship program to provide outreach to underrepresented minorities. It concludes with lessons learned from successful programs at minority-serving institutions such as Florida International University and at historically black colleges and universities such as Spelman College. We hope that the AAS can be at the forefront of additional efforts to make our science more inclusive.



# Bringing Sustainability into Your Institution

By Bruce Balick (University of Washington) and James D. Lowenthal (Smith College)  
Members, AAS Sustainability Committee

Sustainability is a complex issue with a large array of consequences ranging from local to global and from scientific and economic to natural and spiritual. As astronomers, we usually apply the same standards of inductive reasoning that we use in our daily work to discern cause-and-effect relationships and to make predictions of the impacts of both natural and human-generated environmental changes on this planet. As we might with the Hertzsprung-Russell Diagram or the Hubble Law, or the relationship between smoking and lung cancer, we interpret the tight correlations between, say, CO<sub>2</sub> and global warming, and, with the help of our colleagues in climate science and related fields, we reach conclusions, many of them quite strong, about how fundamental characteristics of the Earth such as climate have already changed and are likely to change in the near- and long-term future. How best to bring those professional scientific perspectives and our personal time and energy to bear on environmental policies at our own institutions?

The Sustainability Committee of the AAS aspires to engage every AAS member in its activities in our professional lives and at home. Here we open a newsletter discussion about how AAS members are well placed to foster changes with vital yet modest efforts in the workplace.

## SUSTAINABLE INSTITUTIONS

There is a green school near you. It might be your own! The Sierra Club identified the 20 “coolest schools” of 2011 in the U.S.,<sup>1</sup> and the Sustainable Endowments Institute issues “Green Report Cards” for more than 300 colleges in the U.S. and Canada.<sup>2</sup> Meanwhile, presidents of more than 650 colleges and universities have signed the President’s Climate Commitment,<sup>3</sup> pledging to reduce to zero their schools’ greenhouse gas emissions. Few of these schools were pioneers; all shared best practices and then implemented what they could. No doubt that all of them did this through faculty-student-management teamwork, commitment, and close coordination with city and state agencies and utility companies.

Your institution can use your help. And where students are available, your students can learn to become agents of

institutional change with your encouragement. National labs and observatories from NASA to NOAA may not have students, but they have much simpler administrative structures than most universities of the same size. If that’s where you work then you are already in close contact with directors, engineers, programmers, and infrastructure leaders who know how to implement complex management programs. That makes decision making much clearer and faster. (Do not laugh. It is true. Many faculty members have never even seen their provosts.)

It may take patience and persistence, but you can take the lead in local sustainability efforts in your institution. Chances are that a group already exists and would appreciate your help working on committees such as food service, transportation, or building operations. Joining such groups is a friendly gesture, astronomers are always welcome, and you will make new and interesting friends quickly.

Speak with your colleagues and green leaders at other institutions. Then work with your professional colleagues and administrators to put a plan together to improve environmental sustainability. This generally turns out to be both fun and rewarding. If there is no “Green Team” or Sustainability Committee at your institution, start one: identify a few allies—especially some higher-ups if possible—and call a meeting to brainstorm and identify an initial project or two that are highly likely to succeed and build momentum.

Start by imagining some highly visible baby steps, for example, the installation of motion-activated light switches (two-hour timers) in conference rooms and lavatories. Think about opportunities for water conservation measures. Can you imagine new bike and pedestrian trails near your office? Learn how available compostable plates, cups, and plastic-ware have become, or replace disposables with reusables (ceramic or metal plates instead of paper). Ponder the pros and cons of replacing desktop computers with far more energy-efficient laptops. Are classroom lights left on all night? Replacing poorly designed and excessive

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## Bringing Sustainability into Your Institution continued

outdoor lighting with fully-shielded and appropriate lighting has the double benefit of reducing waste and helping bring back dark skies.

Here are a few examples from the experiences of members of the AAS Sustainability Committee at their home institutions:

- Although the University of Washington is located in a soggy environment, water usage is a serious issue. A faculty-administrative team there called the Environmental Stewardship Committee learned to cut UW's water consumption by 35% over three years and re-invested the savings. Faculty and administrators worked nose to nose, and became good friends in the process.
- At Smith College, the Committee on Sustainability—founded by Professor Emeritus Dick White, who retired early from the Astronomy Dept. to pursue a second career in climate change education, and then chaired by his replacement, astronomer James Lowenthal—convinced the College to invest several million dollars in dozens of energy conservation measures that have already paid for themselves in savings. The COS wrote the College's Sustainability and Climate Action Management Plan and has sponsored several climate change teach-ins such as "Focus the Nation" and "350.org." Undergrads at Smith have their own Green Team, operate a Bicycle Kitchen, and started a campus community organic garden, all with COS support.
- Pat Knezek chaired a new Recycling Committee at NOAO that implemented improved practices for recycling paper, plastics, batteries etc. in Tucson, all extendable to the La Serena, Chile offices as well as the observatories. The committee encouraged use of electronic rather than paper files, and provided info on reducing consumption of material at home and in the workplace. All offices and common spaces were provided with receptacles for recyclable materials, and metrics were established to measure success.
- At the Gemini Observatory in Chile, Bernadette Rodgers helped launch a significant "green

initiative" in 2008-2009 to nearly immediate positive effect. The observatory implemented recycling programs at both sites, energy saving initiatives, and travel reductions, and put metrics in place to track performance. These green actions were documented in the December 2009 Gemini Focus—just before then director Doug Simons was a speaker at the first AAS Splinter Session on Sustainability in January 2010. The initiative enjoyed strong employee support, and in general the observatory found that the first major reductions were "easy," reducing its carbon footprint in some cases as much as 23% in one year without significantly impacting operations. Late improvements have been more incremental; long-term quantitative monitoring is essential to ensure that backsliding does not occur after the initial enthusiasm and attention fade.

No matter what your visions and intentions, any large institutional project will need a business plan once your administrators are involved, usually with a full cost-benefit analysis. Managers are usually good at making these; it is their job, and it's how ideas are translated into action at all institutions no matter how small.

After a while you may well find that your college or observatory has become a viable demonstration model and is inspiring other similar efforts in your area. The local notoriety is very useful for making additional friendly contacts. Share best practices, including with the rest of us astronomers!

*Bruce Balick and James Lowenthal are both members of the AAS Sustainability Committee.*

*Learn more at the committee's webpage: <http://sustainability.aas.org>.*

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<sup>1</sup>Source: [http://www.sierraclub.org/sierra/201109/cool\\_schools/](http://www.sierraclub.org/sierra/201109/cool_schools/)

<sup>2</sup><http://www.greenreportcard.org/>

<sup>3</sup><http://www.presidentsclimatecommitment.org/>

# Calendar of Events

## AAS & AAS Division Meetings

### 221<sup>st</sup> AAS Meeting with HAD

6-10 January 2013, Long Beach, CA  
[aas.org/meetings](http://aas.org/meetings)

### 13th HEAD Divisional Meeting

7-11 April 2013, Monterey, CA  
[aas.org/head/meetings.html](http://aas.org/head/meetings.html)

### 44th Annual DDA Meeting

5-9 May 2013, Paraty, Brazil  
[dda.harvard.edu/meetings/2013/](http://dda.harvard.edu/meetings/2013/)

### 45th Annual DPS Meeting

6-11 October 2013, Denver, CO  
[dps.aas.org/meetings](http://dps.aas.org/meetings)

## Other Events

### \*Conferences for Undergraduate Women in Physics (CUWiP)

18-20 January 2013, held at six locations throughout the US  
<http://www.aps.org/programs/women/workshops/cuwip.cfm>

### Maui International Double Star Conference

8-10 Feb 2013, Pukalani, Maui, HI  
Russ Genet ([russmgenet@aol.com](mailto:russmgenet@aol.com))  
<http://www.AltAzInitiative.org>

### Exoplanets in Multi-body Systems in the Kepler Era

9-15 February 2013, Aspen, CO  
Eric Ford ([acp2012-soc@astro.ufl.edu](mailto:acp2012-soc@astro.ufl.edu))  
<http://www.astro.ufl.edu/~eford/meetings/aspen2013/>

### Infrared and Submillimeter Probes of Gas in Galaxies: From the Milky Way to the Distant Universe

17-20 March 2013, Pasadena, CA  
[gasconference@ipac.caltech.edu](mailto:gasconference@ipac.caltech.edu)  
<http://conference.ipac.caltech.edu/gasconf/>

### SnowPAC 2013-Black Hole Fingerprints: Dynamics, Disruptions & Demographics

17-23 March 2013, Snowbird Ski Resort, Utah

[snowpac@physics.utah.edu](mailto:snowpac@physics.utah.edu)  
<http://www.physics.utah.edu/snowpac/index.php/snowpac-2013>

### \*SnowCluster 2013: Physics of Galaxy Clusters

24-29 March 2013, Snowbird, UT  
<http://www.physics.utah.edu/snowpac/index.php/snowcluster-2013>

### The Next Generation CFHT: A 10m, Wide-Field, Spectroscopic Telescope for the Coming Decade

27-29 March 2013, Institute for Astronomy, Univ of Hawaii at Manoa  
[simons@cfht.hawaii.edu](mailto:simons@cfht.hawaii.edu)

### From Stars to Life - Connecting our understanding of star formation, planet formation, astrochemistry and astrobiology

3-6 April 2013, Gainesville, FL  
[starstolife@astro.ufl.edu](mailto:starstolife@astro.ufl.edu)  
<http://conference.astro.ufl.edu/STARSTOLIFE/>

### \*9th Chandra/CIAO Workshop

8-10 April 2013, Cambridge, MA  
Antonella Fruscione ([antonell@head.cfa.harvard.edu](mailto:antonell@head.cfa.harvard.edu))  
<http://cxc.harvard.edu/ciao/workshop/index.html>

### \*The 2013 STScI Calibration Workshop

8-11 April 2013, Baltimore, MD  
[cal2013@stsci.edu](mailto:cal2013@stsci.edu)  
<http://www.stsci.edu/institute/conference/cal13>

### Transformational Science with ALMA: From Dust to Rocks to Planets Formation and Evolution of Planetary Systems

8-12 April 2013, Hilton Waikoloa Village, The Big Island of Hawaii  
[loc2013alma@asiaa.sinica.edu.tw](mailto:loc2013alma@asiaa.sinica.edu.tw)  
<http://www.cv.nrao.edu/rocks/index.html>

### Huntsville in Nashville: The Seventh Huntsville Gamma-ray Burst Symposium

14-18 April 2013, Nashville, TN  
[michael.briggs@nasa.gov](mailto:michael.briggs@nasa.gov)

### \*Habitable Worlds Across Time and Space

29 April-2 May 2013, Baltimore, MD  
John Debes ([debes@stsci.edu](mailto:debes@stsci.edu))  
<http://www.stsci.edu/institute/conference/habitable-worlds>

### \*50 Years of the Seismology of the Sun and Stars

6-10 May 2013, Sunspot, NM  
Sushanta Tripathy ([stripathy@nso.edu](mailto:stripathy@nso.edu))  
<http://www.nso.edu/workshops/2013>

### F.O.E. - fifty-one ergs

13-17 May 2013, Raleigh, NC  
Davide Lazzati ([davide\\_lazzati@ncsu.edu](mailto:davide_lazzati@ncsu.edu))  
<http://grb.physics.ncsu.edu/FOE2013/WEB/>

### \*The Origins of Stellar Clustering - from Fragmenting Clouds to the Build-up of Galaxies

26 May-16 June 2013, Aspen, CO  
<http://www.mpa-garching.mpg.de/~diederik/aspen2013>

### \*Multi-Messenger Time Domain Astronomy

28-31 May 2013, Greenbelt, MD  
[http://asd.gsfc.nasa.gov/conferences/TDA\\_conference.html](http://asd.gsfc.nasa.gov/conferences/TDA_conference.html)

\*New or revised listings

Note: Listed are meetings or other events that have come to our attention. Due to space limitations, we publish notice of meetings 1) occurring in North, South and Central America; 2) meetings of the IAU; and 3) meetings as requested by AAS Members. Meeting publication may only be assured by emailing [crystal@aas.org](mailto:crystal@aas.org). Meetings that fall within 30 days of publication are not listed.

A comprehensive list of world-wide astronomy meetings is maintained by the Canadian Astronomy Data Centre, Victoria, BC. The list may be accessed and meeting information entered at [cadcwww.hia.nrc.ca/meetings](http://cadcwww.hia.nrc.ca/meetings).

# Announcements

## NSO Observing Proposal Deadline

### 15 November: Service Mode Information

The current deadline for submitting observing proposals to the National Solar Observatory is 15 November 2012 for the first quarter of 2013. Information is available from the NSO Telescope Allocation Committee at P.O. Box 62, Sunspot, NM 88349 for Sacramento Peak facilities (sp@nso.edu) or P.O. Box 26732, Tucson, AZ 85726 for Kitt Peak facilities (kptac@nso.edu). Instructions may be found at <http://www.nso.edu/observe/>. A web-based observing-request form is at <http://www.nso.edu/obsreq>. Users' Manuals are available at <http://nsosp.nso.edu/dst/> for the SP facilities and <http://nsokp.nso.edu/mp> for the KP facilities. An observing-run evaluation form can be obtained at [ftp://ftp.nso.edu/observing\\_templates/evaluation.form.txt](ftp://ftp.nso.edu/observing_templates/evaluation.form.txt).

Please note that the NSO will conduct a scheduling experiment at the DST/Sacramento Peak in preparation for ATST scheduling and operations. This experiment in service mode scheduling will take place in the first half of the quarter, leaving only the second half of the quarter available for regular scheduling. For further information on proposing for the experiment, contact [huitenbroek@nso.edu](mailto:huitenbroek@nso.edu). The deadline for regular proposals will still be 15 November.

Proposers are reminded that each quarter is typically oversubscribed, and it is to the proposer's advantage to provide all information requested to the greatest possible extent no later than the official deadline. Observing time at National Observatories is provided as support to the astronomical community by the National Science Foundation.

## International Research Experience for US Graduate Students (IRES)

This program is administered by the National Solar Observatory (NSO), sponsored by the National Science Foundation's (NSF) Office of International Science and Engineering (OISE), and is open to US graduate students in any discipline of astronomy or astrophysics who are US citizens or permanent residents, age 21 years or older, and have a passport. The main goal of the program is to expose potential researchers to an international setting at an early stage in their careers. The program will take place in Bangalore, India, under the auspices of the Indian Institute of Astrophysics (IIA), a premier national center devoted to research in astronomy, astrophysics and related physics.

The program supports up to four summer research positions for 8 weeks starting 12 June 2013 (this start date is firm). For each participant, the program will provide a stipend of US \$500 per week, round-trip air travel to/from India, accommodation, miscellaneous travel (field trips), incidental expenses, and medical expenses/insurance.

Additional information and application materials are available on the Web at <http://eo.nso.edu/ires/>. All application materials must be received by 30 January 2013.

## 2013 Carnegie Observatories Graduate Research Fellowship

We announce the continuation of the Graduate Research Fellowship at the Carnegie Observatories in Pasadena, California. This Fellowship provides a stipend to graduate students interested in carrying out all or part of their thesis research under the supervision of a Carnegie Staff member, in residence at Carnegie. We encourage applications from current Ph.D. graduate students in astronomy from an accredited (US or non-US) university, pursuing thesis research in observational astronomy, theoretical astrophysics, or instrumentation development. The student must have completed all requisite coursework and examinations prior to arriving at Carnegie. The Fellowship, beginning in September, 2013, will be awarded for one year and may be renewed for two additional years. Foreign students should note that Carnegie can only consider applicants who hold or are eligible to obtain a J-1 visa.

Carnegie Observatories provides a vibrant environment for vigorous scientific research and academic excellence. Major areas of research include cosmology and the distance scale, physics of active galactic nuclei, searches for massive black holes, galaxy formation and evolution, galaxy groups and clusters, intergalactic medium, star formation, supernovae, star clusters, and nucleosynthesis and chemical abundances of stars.

Carnegie observing facilities at Las Campanas Observatory in Chile include the two 6.5-meter Magellan telescopes, the 2.5-meter du Pont telescope, and the 1.0-meter Swope telescope. In addition, the scientific Staff actively pursues research using a wide range of ground-based and space-based facilities, across the electromagnetic spectrum from radio to X-rays.

## Announcements continued

The application should include a curriculum vitae, bibliography, brief essay describing the applicant's current research, research proposal based on a project sponsored by a Carnegie Staff member, transcript of grades, approval letter from the department head of the applicant's home institution, and three letters of reference. Applications are due by 19 April 2013, 17:00 PST. Full details of the

program and application instructions can be found at this web site: <http://obs.carnegiescience.edu/fellowships/gradfellowships/>.

Email inquiries may be sent to Dr. Luis Ho at [gradfellowships@obs.carnegiescience.edu](mailto:gradfellowships@obs.carnegiescience.edu).

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# United Nations Basic Space Science Initiative (UNBSSI) 1991-2012

Hans J. Haubold, Office for Outer Space Affairs, United Nations, Vienna International Centre, Vienna, Austria, [hans.haubold@unvienna.org](mailto:hans.haubold@unvienna.org)

The UNBSSI is a long-term effort for the development of astronomy and space science through regional and international cooperation in this field on a worldwide basis, particularly in developing nations. UNBSSI workshops are co-sponsored and co-organized by ESA, JAXA, and NASA.

A series of workshops on BSS was held from 1991 to 2004 (India 1991, Costa Rica and Colombia 1992, Nigeria 1993, Egypt 1994, Sri Lanka 1995, Germany 1996, Honduras 1997, Jordan 1999, France 2000, Mauritius 2001, Argentina 2002, and China 2004; <http://neutrino.aquaphoenix.com/un-esa/>) and addressed the status of astronomy in Asia and the Pacific, Latin America and the Caribbean, Africa, and Western Asia. Through the lead of Professor Dr. Masatoshi Kitamura (1926-2012) from the National Astronomical Observatory Japan, astronomical telescope facilities were inaugurated in seven developing nations and planetariums were established in twenty developing nations based on the donation of respective equipment by Japan.

Pursuant to resolutions of the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) and its Scientific and Technical Subcommittee, since 2005, these workshops focused on the preparations for and the follow-ups to the International Heliophysical Year 2007 (UAE 2005, India 2006, Japan 2007, Bulgaria 2008, South Korea 2009; <http://www.unoosa.org/oosa/SAP/>

[bss/ihy2007/index.html](http://bss/ihy2007/index.html)). IHY's legacy is the current operation of 16 worldwide instrument arrays with close to 1000 instruments recording data on solar-terrestrial interaction from coronal mass ejections to variations of the total electron content in the ionosphere (<http://iswi-secretariat.org/>). Instruments are provided to hosting institutions by entities of Armenia, Brazil, France, Israel, Japan, Switzerland, and the United States.

Starting in 2010, the workshops focused on the International Space Weather Initiative (ISWI) as mandated in a three-year-work plan as part of the deliberations of UNCOPUOS. Workshops on ISWI were scheduled for Egypt in 2010 for Western Asia, Nigeria in 2011 for Africa, and Ecuador in 2012 for Latin America and the Caribbean. The latter one was held from 8-12 October 2012 at the Astronomical Observatory of Quito (<http://oaq.epn.edu.ec/iswi/index.html>). This workshop will review the results of the operation of the above instrument arrays and will discuss ways and means to continue space weather research and education, particularly focusing on programmes as implemented by the International Center for Space Weather Science and Education at Kyushu University, Fukuoka, Japan ([http://www.serc.kyushu-u.ac.jp/index\\_e.html](http://www.serc.kyushu-u.ac.jp/index_e.html)), which was established through the UNBSSI in 2012. Similar research and education centers were also established in Nigeria (<http://www.cbssonline.com/aboutus.html>) and India (<http://www.cmsintl.org/>).

# Washington News

Bethany Johns, John Bahcall Public Policy Fellow, [bjohns@aaas.org](mailto:bjohns@aaas.org)



Telling our story has become more and more important as we begin to peer over the fiscal cliff. We must tell our story on the importance of investing in the astronomical sciences or we risk critical losses in funding. Contact policy makers and your members of Congress to tell your story on how the astronomical

sciences are important to you and to the nation.

Bloomberg Brief<sup>1</sup> says, “The term ‘fiscal cliff’ is shorthand to describe the mix of \$607 billion in U.S. taxes and spending that are scheduled to expire on 31 December 2012. The mix of tax and spending cuts include the Bush era tax cuts, the 2010 Obama tax holiday, partial expensing of investments and the onset of tax provisions to support the implementation of the 2010 Affordable Health Care Act. Accompanying these tax measures are spending changes that include the expiration of emergency unemployment benefits, a scheduled reduction in Medicare payment rates, and the start of what is referred to as “automatic sequestration” or across-the-board cuts in discretionary and defense spending under the 2011 Budget Control act.”

Members of Congress will not return to Washington, DC until after the election, on 6 November, and policy on the fiscal cliff is unlikely to be fully addressed during the lame duck session. Politico<sup>2</sup> asked House Speaker John Boehner about the prospects for a large-scale deficit deal in November and December. He said, “I think that’s difficult to do. You know, and frankly, I’m not sure it’s the right thing to do—have a lot of retiring members and defeated members voting on really big bills. Eh, probably not the appropriate way to handle the lame duck.”

The White House Office of Management & Budget released a report<sup>3</sup> that predicts the amount of across-the-board cuts if Congress does not stop sequestration by the 2 January 2013 deadline. NASA’s \$17,770 million budget may be cut \$1,455 million—about a third of the Science Mission Directorate, which includes Planetary Science, Astrophysics, Heliophysics, and the James Webb Space Telescope. NSF’s \$7,033 million budget may be cut \$586 million—over double the budget for the Astronomy Division at \$234.55 million.

Xi Jinping, Vice President of the People’s Republic of China, gave a speech on 22 August at the recent International Astronomical Union in Beijing and told a

story about how the astronomical sciences are important to his country and human civilization, “Astronomy, as the science to explore the universe, is one of the most important and the most active scientific frontiers that has pushed forward natural sciences and technology, and led to the advances of modern society...Every major discovery in astronomy has deepened our understanding of the mysterious universe, every significant achievement in astronomy has enriched our knowledge repository, and every breakthrough in the cross-disciplinary research between astronomy and other sciences has exerted both immediate and far-reaching impacts on fundamental science and even human civilization.”

The Rt. Rev. Mariann Edgar Budde articulated the importance of space science and exploration by telling the story of Neil Armstrong’s life at his Memorial Service at the Washington National Cathedral on 13 September, “Space exploration was for him but one way we human beings can marshal the best of who we are and learn the kind of cooperation that will save us from ourselves. He experienced the world coming together through space exploration.”

Bess Evans, White House Policy Analyst, is asking for our stories. She believes that sharing our stories is what is needed to help prevent our country from tumbling over the fiscal cliff. You can share your story with her at [Elisabeth\\_W\\_Evans@ostp.eop.gov](mailto:Elisabeth_W_Evans@ostp.eop.gov). Specifically, how federal funding for your research has helped you educate students, enhance our understanding of the universe and bring scientific results to the public...bonus points for all three components in one story!

Tell your member of Congress your story and how important astronomy is to the nation. You can find contact information on your Senators and Representatives using your zip-code at the Contacting Congress<sup>4</sup> webpage.

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<sup>1</sup><http://www.bloombergbriefs.com/files/2012-9-25-Fiscal-Cliff-Special-Issue.pdf>

<sup>2</sup><http://www.politico.com/news/stories/1012/82105.html#ixzz28pGwYPS2>

<sup>3</sup>[http://www.whitehouse.gov/sites/default/files/omb/assets/legislative\\_reports/stareport.pdf](http://www.whitehouse.gov/sites/default/files/omb/assets/legislative_reports/stareport.pdf)

<sup>4</sup>[http://aaas.org/policy/aaas\\_bios.php](http://aaas.org/policy/aaas_bios.php)