

# 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](mailto:crystal@aas.org). Appropriate pictures are welcome. For information about deadlines and submitting articles, see [aas.org/publications/newsletter.php](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](mailto:crystal@aas.org).

### Front Cover

Starburst Galaxy M82. Image credit: Mark Westmoquette (University College London), Jay Gallagher (University of Wisconsin-Madison), Linda Smith (University College London), WIYN//NSF, NASA/ESA

# President's Column

Debra Meloy Elmegreen, [president@aas.org](mailto:president@aas.org)



Late winter and early spring have brought a flurry of astronomy activity (in addition to snowflakes!) to Washington. The Presidential budget request is out, the outlook is grim, and advocacy is needed. The Decadal report of necessity continues to dominate much of our thoughts and efforts in astronomy this season. Roger Blandford, chair of Astro2010, and others have continued to promote the “New Worlds, New Horizons” (NWNH) recommendations. In late February, Roger, Michael Turner (Vice-President of the American Physical Society), Don Shapero (Director of the National Research Council’s Board of Physics and Astronomy (BPA),

on which I serve) and I had a meeting at the Office of Science and Technology Policy (OSTP) with Associate Director for Science Carl Wieman (the 2001 Physics Nobel laureate). We stressed that JWST, the previous decadal report’s top space priority, is the cornerstone of the next decade, that it will be a gamechanger when it launches, and that it underlies a lot of science planned in NWNH. We also emphasized that NWNH’s highest priority space recommendation, WFIRST, is at risk because it cannot be considered for launch until JWST is launched; NASA cannot accommodate two flagship missions at once (even though they are very different in scale and scope). While we were pleased to receive a 45-minute audience, we left disheartened by the realities of the budget situation. Dr. Wieman underscored the fact that astronomy goals do not align well with national priorities. He acknowledged that the Decadal survey is always a worthwhile endeavor, well regarded in Congress and a model for other science communities, but that these are just tough economic times. He also pointed out that some disciplines fared even worse, but because the budget process is an annual event, astronomers should not lose hope for the Decadal recommendations. But I note that a good dose of patience and a continued astronomical presence in Washington will no doubt be required!

Thanks to Kevin Marvel’s efforts, Roger, Michael and I also met with NSF Director Subra Suresh and his senior advisor Dedic Carter in another 45-minute audience. We reiterated that the number one ground-based priority, LSST, is on track in its development and construction, is low risk, and will be unique in the world. We discussed the many positive aspects of the project, including the good partnership between NSF and DOE, and the broader cyber connections and public involvement through Citizen science that will be fostered through the development and operation of LSST. Regarding the second-ranked ground-based Decadal recommendation, the mid-scale innovations program (to enable competed projects that fall between the \$4M Major Research Instrumentation line and the \$135M Major Research Equipment and Facilities Construction line), Dr. Subresh noted that the National Science Board (NSB) is studying a possible NSF-wide mid-scale initiative since many disciplines besides astronomy have a need for this level of funding. He also spoke about the importance of international efforts and an NSF presence in other countries. We are all aware that the face of astronomy is changing, as huge projects ultimately will demand more cooperation internationally, and we lauded the success of ALMA as it comes online. Dr. Subresh expressed concern about the large fraction of the AST budget going to facilities, which is a subject in NWNH, and we discussed the success ratio of grants, both issues that he has to consider across the divisions in NSF. He too praised the Decadal process, so I think we can all at least take heart in

## President's Column continued

the fact that the federal leaders appreciate the efforts that the astronomical community put into NWNH and recognize its usefulness in setting priorities.

Coincident with these meetings, the Astronomy and Astrophysics Advisory Committee (AAAC), on which I serve, which gives advice to NASA, NSF, and DOE on interagency and Decadal issues, had a meeting in which Jon Morse from NASA, Jim Ulvestad from NSF, and Glen Crawford from DOE presented reports on their efforts to implement the Decadal recommendations. These presentations are available online (<http://www.nsf.gov/mps/ast/aaac.jsp>), along with the AAAC annual report soon to be made public. The bottom line is that all agencies are trying very hard to include as many of the recommendations as their diminished budgets will allow. The prospects look encouraging for an augmented Explorer program and several small NASA initiatives. Although the future of WFIRST is uncertain, a Science Definition Team has been named, and NASA is considering options for WFIRST as outlined in the “Implementing Recommendations for the NWNH Decadal Survey” (requested by OSTP, written by a panel formed from BPA and Space Studies Board (SSB) members, and released by the National Research Council (NRC) in December, [http://www.nap.edu/catalog.php?record\\_id=13045](http://www.nap.edu/catalog.php?record_id=13045)). While NSF and DOE are proceeding with plans for involvement with LSST, other initiatives in NSF will need to await a portfolio review. The future of federal investment in a Giant Segmented Mirror Telescope is uncertain. Discussions are coming along between NRC and the agencies to form an NWNH-recommended Decadal survey implementation advisory committee, which will be important for providing input on the way forward given the proposed low budgets.

As many of you have already seen through an AAS email alert, the Committee on Astronomy and Public Policy (CAPP) decided it would be prudent to submit written testimony to the House Appropriations subcommittee on Commerce, Justice, Science, and Related Agencies at the Member and Outside Witness Hearing in March. We also thought it would be useful to have a voice at the oral presentation, although we viewed our selection as a longshot. We were surprised to be selected, but that meant Bethany Johns, our AAS Bahcall Policy Fellow, and several of us put in long hours to get the written testimony submitted on short order. I came to appreciate the comparative luxury of the five-minute oral talks at AAS meetings, when I found I would have exactly four minutes to speak to the House committee. I will confess that this was my first Congressional appearance, and that I was rather terrified in advance of the meeting. But Bethany and Kevin, who spend a lot of time on Capitol Hill meeting with policy makers to emphasize astronomy issues, were a calming influence. There were 43 other nervous-looking scientists testifying too, including representatives from societies such as the American Physical Society (APS) and Mathematical Association of America and Sea Grant Association and Geological Society of America. As it turned out, the committee and staffers were friendly, and it

was actually enjoyable by the time it happened. Nearly everyone spent their four minutes supporting the budgets in general for NSF and NASA and other federal agencies, where appropriate, and then mentioning some specifics for their field. My message carried the same elements as our talking points at NSF and OSTP, in addition to noting the importance of restarting production of Plutonium-238 as a power source for deep space missions (particularly timely since the Planetary Decadal Survey report, “Visions and Voyages for Planetary Science in the Decade 2013-2022” had just come out that week; [http://sites.nationalacademies.org/SSB/CurrentProjects/ssb\\_052412](http://sites.nationalacademies.org/SSB/CurrentProjects/ssb_052412)), the role of astronomy in attracting and retaining young people in science, and the need to support research and technology to bolster our economy. If you missed the report, it is available through the AAS policy blog and also posted with the other witness reports on <http://appropriations.house.gov/index.cfm?FuseAction=Hearings.Detail&HearingId=48&Month=3&Year=2011>.

Ranking member Chaka Fattah (D-PA) afterwards said he supported the Pu-238 restart and also thanked us for the written testimony urging Congress to tackle the larger budget issue. Chairman Frank Wolf (R-VA) said that he, like most of the committee, supported science, and wished he could support not only the proposed level of science funding, but even more. Yet the reality, as he noted, is that 100% of the budget cuts are coming from 15% of the budget, which includes discretionary spending on science. They urged us—and urged us to urge our scientific communities—to write our Congressmen about these issues. So consider yourself urged. As a naïve youngster, I thought astronomy was above politics, but that is because I was clueless about the realities of funding to get science done. Now it is clear how important it is that we keep delivering our message.

That brings me to the final point for now: as this column goes to press, we have just finished this year’s Congressional Visits Day (CVD) on 6-7 April. This was the 16<sup>th</sup> Annual Science-Engineering-Technology CVD, which raises visibility and support in Washington for our fields. Astronomers from CAPP and the general astronomy community, including postdocs and younger astronomers, took part in a grand gathering of several hundred scientists on Capitol Hill for meetings with representatives and staffers, in addition to briefings with NASA, NSF, and OMB. Bethany did a great job preparing a brochure for us to distribute that highlighted some of the Astro2010 and Planetary Decadal recommendations. We reiterated the need for support of science in general and astronomy in particular, and policy makers appreciated our message.

Meanwhile the Boston meeting is almost upon us! Preparations are in full swing by our tireless AAS staff, and I can’t wait. It will be one of our biggest summer meetings in awhile, and I look forward to seeing lots of you there. Don’t forget to get your prize nominations in by 30 June.



# From the Executive Office

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

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As you can see in the news and in the public policy communications of the AAS, we are entering challenging times for science funding broadly. There is some good news in the negotiated continuing resolution between the House, Senate and President for fiscal year 2011 in that many science agencies did not end up being cut as much as was proposed in HR 1, a bill passed by the House that outlined substantial reductions across

all of government, not sparing R&D.

The AAS is marshaling resources to carry our message of support to the Hill in the coming years. We expect beginning a substantial lobbying effort in June of this year and continuing it throughout 2010 and 2011. I do not anticipate this particular year to differ substantially from the next several years. It will take a while to fully recover from the financial turmoil of the past years and begin growing the federal budget in the near future.

To succeed, we will need volunteers willing to be trained in effective communication with legislators who will not only visit when they are in Washington, during special AAS-sponsored visits to the Hill and in response to Action Alerts, but also when they are at home. All politics is local, so I call upon all astronomers, astrophysicists planetary scientists, and heliophysicists (and yes, dynamical astronomers and historians of astronomy too) to pledge 24 hours of time each year, at a minimum, to public policy activities. Write letters to your members of Congress, submit op-ed pieces to your local papers or your favorite blog site, reach out to your neighbors through rotary clubs and other speaking opportunities, and just bring up the issue of science funding whenever you can. Do this on top of trying to visit your member of Congress or Senators in Washington or their state and district offices. We are heading into a long dry spell for basic research and only through coordinated and unified effort from all of our members can we avert a long-term slow down in astronomy funding. Get active and stay active...your input and effort counts and will benefit our entire discipline.

In other news, the year-end financial results for 2010 are on my desk in draft form and I can safely predict a marginally positive bottom-line for 2010. Each year we close our prior fiscal year by the end of February in time for our annual audit. Council selects our external auditors, who arrive in our offices to review our financial results, inspect our innumerable financial transactions for accuracy, consistency and compliance with generally accepted accounting standards, federal guidelines and

non-profit corporate law. They prepare an audit report, which is presented to the Council at their summer meeting. The AAS Audit Committee provides an independent communication channel to the Council from the auditors as well. We always seek to get an unqualified audit result, which means the auditors cannot find any flaws in our financial reporting or errors in our financial transactions of a material nature. In addition, they provide advice to the Council on ways the organization can be more compliant with new laws or regulations. Audits are good for all organizations, despite the heavy toll they take on the time of our financial staff, CFO and myself. They are a tool to ensure we are properly fulfilling our charitable purpose within the applicable law and financial practice.

Be sure to read about our participation in the Congressional Visits Day organized by the Science, Engineering and Technology Workgroup elsewhere in this issue...each year we bring 12-14 astronomers into Washington to participate in this large event. Through the hard work of our Bahcall Fellow, Bethany Johns, we visited more than 35 congressional offices!

A series of articles in a recent issue of *Nature* caught my eye and I think they bear reading by everyone in our discipline, from undergraduates to emeritus faculty. The 21 April 2011 articles discuss the status of the Ph.D. and Ph.D. recipients, not just in the US, but worldwide. The outlook is grim. Most countries have produced too many Ph.D. recipients, while not actively working to increase the number of jobs available, either directly or indirectly. The result is a growing population of highly-educated, highly-trained professionals facing a career adjustment after at least a decade or more of education and research training. It is true that the unemployment percentage for those with a Ph.D. is minimal, in the low single digits, but if multiple years of training is not necessary for the careers they ultimately pursue, they lose out on both wealth-building and career advancement, essentially ending up behind their age cohort who jumped straight into a career track after college.

This bleak outlook is made worse with what appears to be an extended period of relatively constrained growth, or even shrinkage, of the federal budget for R&D. This could change, if the economy takes off, or if the President or Congress put more focus on research than they have currently (note that in the FY2011 budget debate and the president's FY2012 budget, R&D does fairly well compared to other government programs, but the funding being put in and planned to be put into R&D in the near future cannot match the needs of the expanding population of Ph.D. scientists). The AAS works actively to advocate for increased funding for research, especially for our discipline, yet, priorities shift and currently astrophysics is not

*continued next page*

## From the Executive Office continued

viewed by those in power as a priority (though thankfully the budget axe has not yet swung at the trunk of our funding tree, it should not be surprising that some branches have been lopped off while the general attitude of cutting the federal budget runs rampant in Washington).

So, what to do? First off, the AAS Employment Committee is actively discussing these trends and the impact on our student population. Knowing that training in our discipline does prepare students for a wide range of successful careers, they have been and continue to develop and oversee programs designed to provide the knowledge and training necessary to succeed outside of 'normal' astronomy research (and related disciplines). The Seattle meeting had five separate career-focused sessions and the Austin meeting will repeat this level of activity. We will be branding these activities so they stand out as a cohesive program and will expand what we do for our membership over time. Graduate students are not alone in needing access to this information, mid-career and even late-career colleagues have faced challenging career changes in recent years. Everyone should be prepared for these challenges and as your professional Society, we will do our best to help you be ready.

If you have particular ideas on programs or activities that you think would benefit you or your fellow members, whatever their career status, please take the time to send the Employment committee or myself your thoughts. We know that some of the best ideas do not come from committee teleconferences and are happy to hear how you think we can assist our members.

# AAS Recognizes the African Astronomical Society



New membership organizations for professional astronomers do not get formed every day. That is why it is so exciting that the AAS was able to recently recognize the founding of the African Astronomical Society, which took place in January 2011. A special ceremonial recognition for the AfAS took place in April at the 2nd Middle-East and Africa Regional IAU Meeting held in Cape Town 10-15 April 2011.

The certificate shown here was presented to the African Astronomical Society by IAU

President Robert Williams on behalf of the AAS and all US astronomers along with a letter from AAS President Debra Elmegreen welcoming the establishment of the AfAS and pledging cooperation for the future. A session at the meeting in Cape Town will also discuss the establishment of the IAU Global Office of Astronomy for Development, brought into existence by the IAU with partnerships from the South African Government and astronomical community. The Office will work to implement the strategic plan for Development using Astronomy, available for download from [iau.org](http://iau.org).

## Member Deaths

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

**James L. Elliot**  
**Gerson Goldhaber**  
**Myron "Mike" Lecar**  
**Leif J. Robinson**

## Letters to the Editor

Letters to the Editor on current issues of importance to astronomers are welcomed. Letters must be signed and should not exceed 250 words. Send to Jeff Linsky, Associate Editor, Letters, ([jlinsky@jila.colorado.edu](mailto:jlinsky@jila.colorado.edu); 303-492-7838 phone; or 303-492-5235 fax) one week prior to the *AAS Newsletter* deadline. Letters may be edited for clarity/length (authors will be consulted) and will be published at the discretion of the Editors.

## Opting In and Out of AAS Publications

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

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# Letter to the Editor

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Dear Editor,

As we submit proposals to Time Allocation Committees for observing time, review instrument manuals, and prepare target lists, we should bear in mind that it takes more than an award of telescope time, the telescope itself, and working instrumentation to make an observing run successful. It also takes clear, dark skies.

With increasing populations and urban sprawl comes, it seems inevitably, that light pollution makes having a good run more difficult. Our response to date has been that with each new telescope project, we seek a darker site than the one we are now using. Unfortunately, this approach is not sustainable for two reasons: (1) we are now running out of the next darker site, and (2) smaller budgets mean we will need to make better use of facilities at existing sites.

It is not a given, however, that increasing population automatically equates to more light pollution. The International Dark-sky Association (please visit IDA at <http://www.darksky.org/>) is working on several projects to mitigate the growth in

light pollution. A representative project is the model lighting code, while another is to lobby the Department of Energy to write rules regarding outdoor lighting for energy conservation. These projects require resources to pursue, and will be completed sooner if we all make a contribution to IDA.

Currently, 80% of IDA's membership are amateur astronomers, with the rest primarily professional astronomers and lighting engineers. Although there are far more amateur astronomers than professionals, members of the AAS are still proportionally underrepresented in the IDA membership.

Please consider becoming a member of IDA, for the protection of the skies that you depend on for your livelihood. Furthermore, perhaps the AAS Council could consider making a generous donation.

Mark Trueblood  
[mtrueblood@noao.edu](mailto:mtrueblood@noao.edu)

## A Response and a Challenge to the AAS Membership

The AAS has a long history of work in the area of light pollution, radio frequency interference and space debris issues in the form of a special committee working on these topics. The committee has organized sessions at AAS meetings, hosted an exhibit booth at AAS meetings, led the charge in direct lobbying efforts (e.g. fighting off planned development near Mt. Hopkins in Arizona and Hawaii, setting up a grassroots lobbying campaign when a proposal to lower limits on out of band emission levels for communications satellites and the planned launching of various space-based commemorative or advertising structures). Light pollution is particularly complicated in the US due to being subject to local legislation and regulation. Progress requires committed individuals at the local level, well-informed and consistent in their message, just the cadre of people that IDA enables.

Although the AAS Council has not deemed a large contribution of its funds to the IDA to be appropriate, numerous AAS members are individual members of the IDA and, in my opinion, more should consider joining. Personally, I am a life member and my predecessors were also members. IDA positively impacts not just research astronomy, but more importantly in many regards, the quality of life for people in the US and around the world. I always like to point out to locals and visitors to Washington, DC that before the widespread installation of electric lights, you could see the Milky Way from the National Mall, and this was in the 1920s.

Motivating expanded personal membership, even in these challenging financial times, is how I think IDA will succeed over time and I encourage my fellow members to consider supporting IDA directly. If just 500 people join at the \$50 membership level, IDA would receive \$25,000, 2.5 times more than what the AAS budgets in its Special Projects fund, sometimes used for supporting external projects or organizations (do not forget you can also support the AAS's own committee on Light Pollution, RFI and Space Debris through our online donation form or by making a contribution by check).

Kevin B. Marvel  
Executive Officer

# Journals Update

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

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## Copyright and the AAS Journals

The AAS routinely asks authors of scholarly articles to transfer copyright to the Society when they publish papers in our journals. We maintain what we think is a sensible approach to copyright: we obtain copyright from authors because we believe it is good for scholarship in the long run, and we offer a liberal return of rights to authors for their scholarly purposes. The main reason the AAS asks for copyright in the first place is so the Society can ensure consistent rights management in the long term (after authors have died, basically). It is a provision that allows the Society to preserve scholarly integrity on long time scales, without depending on knowledge and actions by individual scholars' heirs.

Over the last decade, there has been an increased amount of suggestion that authors retain their copyright and only grant a license to the publisher to distribute the work, the argument being that authors thereby retain decision-making authority over the use of their work. Those decisions about rights of re-use are already what the Society grants back to authors for their lifetime. That means a right-to-use license compared with the AAS publication agreement does not change anything in the immediate term. However, if the Society is to carry out its rights management function in the long term, we have to be certain that appropriate provisions are made to that end. When the AAS holds the copyright, the Society simply assumes responsibility for making the decisions upon on author's demise. Right-to-use licenses do not accomplish this, so unless authors make other arrangements with the Society or address the ownership of these works in their wills, their articles would become "orphan works." Orphan works are an area of concern right now, and court rulings and changes to statutes concerning orphan works will be made in the coming years (decades, more likely). In the mean time, the Society believes that scholarship in the long term is best served by a traditional transfer of rights to the AAS at the time articles are published in AAS journals.

### *I'm with the government; I'm here to help*

There are rare circumstances that prevent a copyright transfer to the AAS. This situation arises when *all* of the authors of a paper are employed by the government of the US, UK, Canada, or Australia. In other words, *every* author of such a paper is a civil servant of one of those governments. When this happens—and in this age of inflating author lists, it's an unusual occurrence—copyright is held by the government or Crown, except for the US, where copyright is deemed not to exist. In this case, the corresponding author must sign the publication agreement in the "government employment" box, so the editorial office can give proper instructions to the production editors.

Government employment means that the individual's *employer* is the national government. If someone gets a grant from the NSF, it does not make them a US government employee. When there are authors who work for government contractors (Hughes, TRW, etc.), or when there are authors who work for state or local governments, or for universities (public or private), or for university research laboratories, they are not employees of the national government. Authors who work for the US national observatories (NOAO, NRAO, et al.) are usually employees of AUI or AURA, not the US government. In all these cases, there is individual copyright in the work, and one of the non-government authors should sign the publication agreement in the box that transfers copyright to the AAS.

### *Work for hire*

These days, more and more employers, including universities and laboratories, are asserting their rights to intellectual property created by their employees. In many of these circumstances, employees will not have the authority to transfer copyright to the AAS. There is an additional signature line on the copyright form that should be used by authorized personnel to make the copyright transfer.

### *Using other people's copyrighted work*

At the other end of the rights spectrum is *permissions*. When you re-use a copyrighted work, or even just a part of a work (such as a figure from a journal article), you must be sure that you are permitted to use it. There is some usage that is simply OK, for instance a reasonable amount of classroom distribution. When you use the material in a work of your own (e.g., you want to re-use someone else's figure 3 in your own paper), you must get explicit permission from that author, and you should notify the AAS through our email address for this purpose, [permissions@iop.org](mailto:permissions@iop.org). You are also expected to cite the original work properly, and to include the AAS copyright notice.

Further details and formal language concerning the AAS's copyright and permissions policies are found on the Society's website at <http://aas.org/copyrightPolicy>.





**Left:** Bethany Johns, John Bahcall Public Policy Fellow briefs Congressional Visits Day (CVD) participants. **Right:** Congressman Chaka Fattah (D-PA) speaks to all CVD participants at an early-morning breakfast before visits begin.



**Left:** Susan Kasson, Dan Wik and Alberto Conti stop briefly at the White House after visiting Office of Management and Budget (OMB) to advocate for increased astronomy funding in the 2012 budget. **Right:** The CVD breakfast event.



**Left:** NASA Administrator Charles Bolden briefs the Space Studies Board on NASA's 2012 program plans. **Right:** CAPP member Dennis Ebbets, CAPP chair Jack Burns, and Makenzie Lystrup prepare to visit Congressman Scott Tipton (R-CO).



# Congratulations to the New AAAS Congressional Fellows

The American Association for the Advancement of Science (AAAS) offers highly competitive Science & Technology Policy Fellowships to provide opportunities for accomplished postdoctoral to mid-career scientists and engineers to contribute to the public policymaking process while learning firsthand about the intersection of science and policy. The fellowships in congressional offices are funded by approximately 30 partner scientific and engineering societies.

This year two AAAS members were selected by the American Institute of Physics for a AAAS Congressional Fellowship. Congratulations to Makenzie Lystrup and Meredith Drosback. Both women also participated in this year's Congressional Visits Day. The fellowship starts this fall.

If you are interested in applying for a AAAS Science & Technology Policy Fellowship, you can find more information at <http://fellowships.aaas.org/index.shtml>.

Here is more about both fellows, the research they have been doing, and what inspired them to become more involved in science policy.



## Makenzie Lystrup

As long as I can remember I have been interested in both politics and public service. Over the course of my scientific training I have become increasingly aware of the intersections between science, society, and government. During my postdoctoral fellowship, I have had the opportunity to learn more about science policy by participating in Congressional

Visit Day events through the AAAS and American Geophysical Union and by serving on the Division of Planetary Science (DPS) Federal Relations Subcommittee. In advocating for the restart of domestic Pu-238 production during the last twelve months, I realized how much I do not know about how science policy is made in the U.S. These experiences led me to want to learn in far more depth, which is exactly what the Congressional fellowships allow scientists to do.

I think that many scientists have no interest at all in becoming involved in these kind of policy activities—they want to focus on doing great science! That means that those of us who are interested need to step up to make sure that the scientific perspective is considered in decision making.

As a current NSF Astronomy & Astrophysics postdoctoral fellow, I use ground-based observations (NASA IRTF, Gemini North, Keck, the VLT, and the UK Infrared Telescope) of the infrared aurora of the gas giant planets in our solar system in order to investigate the interactions between planetary atmospheres, magnetospheres, and the solar wind. Here at the University of Colorado in Boulder, I have also developed a mentoring and career development program for undergraduates in physics, astronomy, and related majors.

## Meredith Drosback



I received my Ph.D. in Astrophysics from University of Colorado at Boulder, an M.S. in Physics from North Carolina State University, and a B.S. in Chemistry from Duke University. I am currently a postdoctoral research associate in the star formation group

at University of Virginia where my research focuses on near-infrared observations of shocks in protostellar outflows. For the last two years I have also volunteered with Dark Skies Bright Kids (DSBK), an education outreach group in the Department of Astronomy that brings an after-school astronomy club to rural elementary school students in southern Albemarle County, Virginia.

My work with DSBK has played a significant role in solidifying my interest in a career that includes science policy. I have developed a strong desire in recent years to engage in issues that are broader in scope and address the impact of science on society. I intend to use this fellowship as an opportunity to apply the critical thinking skills I have honed while learning about the legislative process and collaborating with policy-makers and specialists out of my area of expertise.

I hope to use the experience I will gain in this fellowship as a foundation for a career that satisfies both my intellectual curiosity and my desire to effect change. As my interests shift away from traditional academic research, I am eager to design a career path that will allow me to apply my background in logical thinking and critical analysis to broadly explore practical issues in novel ways. It has become increasingly clear to me that there are many directions a scientist can go in her career and I envision the AIP Congressional fellowship as a launching point to combine my love of science with the demands and rewards of public service.

# John Johnson: Zen and the Art of Astronomy Research



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*Today we have the great pleasure to publish a guest piece written for Astrobites by John Johnson, exoplanet researcher extraordinaire at Caltech. We met John at his recent visit to the CfA and are grateful to him for sharing his insights into the graduate student experience.*

## Professor John Johnson, California Institute of Technology

I had the pleasure of visiting the Harvard Center for Astrophysics back in February when I stopped through to give a colloquium. One of the CfA traditions is for the graduate students to treat the speaker to lunch. So on the day

of my talk I hung out in a classroom with about two dozen graduate students where we munched on pizza and talked about everything from the difficulty of measuring stellar radial velocities at 1 m/s precision, to advice about applying for postdoctoral fellowships, to what it's like to be a professor.

Near the end of our conversation one of the students asked me if I had any career advice for them. I'm sure this is a common if not boiler-plate question to ask speakers, so I thought carefully about what advice they likely haven't heard before. Rather than talking about how many papers they should publish in order to get a named fellowship, or what fields of research are hotter than others, I decided to focus on a topic that I've found extremely important in my professional life lately: mental health.

Most people find the topic of mental health a bit unsettling, so I made sure to qualify what I meant by the term. I wasn't insinuating that anyone in the room was crazy or mentally unstable. And I wasn't trying to get all squishy with my audience by talking about warm fuzzies, or fuzzies of any  $T_{\text{eff}}$  for that matter. But in the same way that it's important for you to take care of your lower back by lifting with your legs, it's important to take care of your mental state while you tackle the rigors of science. After all, you can in principle reduce your data with a bad back. However, if you're not thinking clearly, or if you are perpetually unhappy with your lot in life, your astronomy research will certainly suffer.

I can't remember all of the specific advice I gave to the Harvard astro-grads because it wasn't really planned. So I hope the good folks who run Astrobites won't mind if I riff once again. Here's my advice about keeping things in order upstairs:

1) For most of us, if we were to wake up five mornings in a row with excruciating pain in our right arm, we'd probably go see a doctor and get it checked out. So why is it that we don't get our minds checked out if we, say, wake up five mornings in a row feeling stressed, burned-out, or otherwise unhappy?

The field of astronomy comprises extremely smart, technically-gifted people who could easily have made very comfortable salaries after they graduated with their B.S. degrees. Yet astronomy grad students spend their days in cramped offices working 10 to 14 hour days for annual salaries that place them squarely below the poverty line. My point is that we're not doing astronomy for the money. Most of us are in this field because we find it inspiring, exciting and...fun. Right? Isn't that why we're here? Yet, sadly, some graduate students spend a lot of their time being stressed-out and unhappy. I know my time in grad school certainly wasn't all roses and publications.

All of this is to say that if your arm hurts you should see a doctor. If you're unhappy, you need talk to someone. Your university has a counseling center set up just for this type of thing. They know how to help and they'll keep it confidential. Seeking help for your mental state isn't being weak or an indication that something is fundamentally wrong with you. This is 2011, after all, not 1950. Go get a checkup if you need it.

2) Spend a small part of your week pondering the Universe. I just wrote about how grad students are paid relatively little given their talent and expertise. The flip side of that is you all have pretty sweet jobs. It's your job to figure out how the Universe works. So focus solely on this part of your job for at least one hour a week away from any distractions, and away from your day-to-day grind. In so doing you'll simultaneously keep your mind limber and strong, while keeping yourself from burning out on seemingly menial tasks like tracking down that bug in your spectrum-fitting code.

Perhaps someone once mentioned that the reddest subgiants in the Solar neighborhood give a lower limit of the age of the Galaxy, but you were busy with something else and couldn't give the notion the reflection it deserves. Or after one of your recent research talks someone stumped you with a question that, while you were able to wiggle free of at the time, you really should have had a better answer for. Or maybe you can't



## John Johnson: Zen and the Art of Astronomy Research continued

seem to remember whether it's okay to use a preposition to end a sentence with. Make sure you have a small window of time in your week to give the matter some serious thought.

3) Identify something that poses a serious challenge for you and pick a fight with it. I'm being figurative, of course, so please don't apply this advice to your challenging office mate. Instead, I'm talking about that topic in your field or aspect of your job that you don't have a firm handle on just yet. Maybe you're still uncomfortable giving talks, or you're not satisfied with your writing style. Don't shy away from these things. Spend some time reading books on that tough topic. Sign up to give an extra journal club talk. Write a guest post on Astrobites!

By continuously looking for ways to shore up your perceived weak points you'll give yourself opportunities for small yet regular victories, all while adding variety to your work week. Remember, your time to learn didn't end with your qual exam; it continues throughout your career.

4) Periodically make it a point to give someone effusive yet specific praise for a job well done. Did a postdoc in your dept recently give an outstanding research talk? Stop by their office and tell them that you really liked it, and be specific about what aspects of the talk worked for you. Did a classmate recently post a paper on astro-ph? Read their paper, stop them in the

hallway and congratulate them on a job well done. Or how about this: we've all gotten one of those emails from someone congratulating us on our recent paper, and BTW they published on the topic last year and would appreciate a citation. Try sending one of those emails to someone, but without the last part requesting a citation. If nothing else, it's a lot of fun imagining the look of confusion on the recipient's face when they reach the end of your note.

Kind words, encouragement and praise are hard to come by in astronomy, but keep in mind that you're not the only person who needs these things.

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This might sound like strange advice coming from a professor. Shouldn't I be telling you about publishing or perishing? Shouldn't I tell you to suck it up and pull an all-nighter again? Well, science is fundamentally a human pursuit and we do ourselves and the field a disservice by forgetting this simple fact. Unhappy graduate students tend to be sloppy, less productive researchers. Happy students, on the other hand, vigorously pursue interesting science questions, give outstanding talks and churn out well-written papers. Thus, as a professor, it's in my best interest to work in a science field full of mentally-healthy students.

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# Secretary's Corner

G. Fritz Benedict, [aassec@as.org](mailto:aassec@as.org)



## AAS Prizes

Nominate someone for a prize this year! Nominate yourself for a prize this year! The nomination procedure, which can be viewed at the AAS website, is not arduous.

In recent years, the AAS prize committees have noted the small slate of worthy candidates from whom they may choose. This particularly applies to the junior prizes. To address this dwindling number of nominations your Council approved a change to the ground-rules for the Warner and Pierce Prizes. For these Prizes a nomination package will now consist only of a CV, a publication list, and three letters of support. Self-nominations are now

allowed. The Warner and Pierce Prize committee will be blind regarding self-nominations versus outside-nominations.

Bear in mind that it is not only the monetary amount but also the honor and distinction that can mean so much to a young astronomer's career. The award of a prize also adds luster to her/his department or institution in the eyes of the academic community.

Nominations and letters of support must be received in the Secretary's office by 30 June 2011. Submissions are welcome either electronically ([aassec@as.org](mailto:aassec@as.org)) or by mail (G. F. Benedict, McDonald Observatory, 1 University Station, Austin, TX 78712). Shortly after that date, they are distributed to the several prize committees. Consequently, late submissions cannot be accommodated.

# 25 Things About AAS Councilor...Meg Urry



1. Birthplace ... Midwestern city. (Am I paranoid, or is it a bad idea to say exactly where? Seems to me this is often used for a security question and would be valuable to an identity thief.)

2. My favorite movie is ... It's a tie between *Amadeus* and *Plenty*. (I'm stuck in the 80s.)

3. Motto ... "I'd rather be right than be President." Henry Clay. (I put that in

my high school yearbook.) Kind of an in-your-face sentiment but, what can I say, I guess principle always matters more to me than pragmatism.

4. At work, I like to wear ... Clothes.

5. When I get home, I like to wear ... Ditto. Okay, I can see you need more specifics here. I like to wear comfortable clothes. Bring on Eileen Fisher (discounted only)!

6. The most important thing I learned from my mother was ... The importance of education and family and speaking Italian.

7. The most important thing I learned from my father was ... How to be a scientist and a professor (and still spend a lot of time with your family).

8. My favorite time of day is ... Mornings or evenings.

Afternoons, not so much (they are meant for siestas).

9. My favorite holiday is ... Christmas (in the commercial, rather than religious, sense) because it is one of the great "cooking/food" holidays. I like the time spent with family and friends, especially on our annual pre-Christmas Baking Day.

10. Do you untie your shoes when you take them off ... If they have laces.

11. Web site I spend the most time on ... [aas.org](http://aas.org). Okay, really? [websudoku.com](http://websudoku.com) (I'm really good at it). Better answer: [Wikipedia](http://Wikipedia.org) or [nytimes.com](http://nytimes.com), but the truth is, I spend very little time surfing the web. I spend all my online time reading and deleting emails.

12. My first real job was ... Cleaning in a hospital—minimum wage, crummy hours, hard physical work, bottom of the very hierarchical hospital totem pole. Very useful and educational experience.

13. The location where I do my best thinking is ... Planes or trains, with an iPod.

14. Were you named after anyone ... My parents named me "Claudia" (my first name) because my Italian mother wanted an Italian-sounding name, and "Megan" (middle name) came from the short story, "The Apple Tree," by John Galsworthy. Parental legend is that I was such a squally little squirt that the nobility of the first name felt inappropriate and instead they called me "Meggy."

15. I prefer AM or FM radio ... FM for NPR and the Metropolitan Opera, Pandora for the rest.

16. I love to ... Hang with my family, work, read books, go to the gym, and travel.

17. Something that really annoys me ... People who use a laser pointer to "help" me read their PowerPoint slides. It's like "Sing Along with Mitch" (if you are old enough to remember that TV show). Grrrrr...

18. One word that best describes you ... (Nothing I say could possibly be accurate or palatable. You'd have to ask someone else.)

19. I make the best ... Brownies.

20. My favorite city is ... Venice, Italy.

21. My favorite actress is ... Meryl Streep

22. My favorite athlete is ... I don't have one. I guess I don't follow many sports. How about: Secretariat?

23. I used to play ... Basketball, badminton and violin.

24. Four people from history to have at a dinner party ... Hypatia, Sophie Germain, Emilie du Chatelet, Sofia Kovalevskaya.

25. I think people should ... Read a lot. And think.

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## Irene Hansen Osterbrock Named Patron of the AAS

As detailed in its bylaws, the AAS Council may designate any person who has rendered conspicuous service to astronomy other than through scientific contributions as a Patron of the Society. Very few individuals have been so honored during the AAS's history. At its most recent meeting, the AAS Council, with unanimous approval named Irene Hansen Osterbrock a Patron of the Society to recognize her lifetime contributions to and support of astronomy.

Irene Hansen, a native of Williams Bay, Wisconsin, was working as an assistant to William W. Morgan at the Yerkes Observatory when she met graduate student Donald E. Osterbrock. They married shortly after he finished his Ph.D. in 1952. For the next 54 years Irene helped Don with his work. As he moved gradually into the history of astronomy in his later years she took a great interest, editing and indexing all of his books

and articles and contributing from her personal experience to *Yerkes Observatory, 1892-1950*. Irene volunteered to help Mary Lea Shane to organize and run the Mary Lea Shane Archives of the Lick Observatory, and she continued to help manage them after Mrs. Shane's death. She attended nearly all the HAD sessions for many years, accompanying Don, the most prolific contributor to these sessions.

A certificate was presented to Ms. Osterbrock at the Seattle AAS meeting and she will be listed in future issues of the *AAS Membership Directory* and on an AAS web page honoring all AAS patrons. We are undertaking a digitization of the minutes of all AAS Council meetings, which will facilitate a complete listing of the patrons of the society and allow us to honor them all appropriately.



# Committee on the Status of Women in Astronomy

Joan Schmelz (CSWA Chair, University of Memphis, jschmelz@memphis.edu)

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## Coming Out (of a Different Type of Closet)

At the recent AAS meeting in Seattle, I was forced to confront an issue that I had hoped (unrealistically) would just fade away: sexual harassment. Although incidents occur much less frequently than in years past and every university has a policy against harassment, new victims continue to

seek me out and tell me their stories. They know I'm chair of CSWA, may have attended our town hall, and might even read AASWOMEN. As much as I hate to admit it, our community appears to contain a (small) group of sexual harassers that have somehow managed to remain below the radar.

One of these young victims, who I have been mentoring for a number of months, pleaded with me to "come out" (of a different type of closet) to AASWOMEN. She wanted me to admit that I am a survivor of sexual harassment. I argued that my experience was years ago; what relevance could it have in this day and age? She insisted that knowing my story had helped her to deal with her own situation, and she argued persuasively that it would mean a lot to other victims too.

It is true that I have had at least one foot out of this (different type of) closet for a while now. Even the most superficial reading between the lines of my recent AASWOMEN posting entitled, "The Legacy of Anita Hill," will reveal that I was a victim of sexual harassment. If sharing my story could help even one young victim realize that she was not alone, would I do it? Should I?

[Note: The AAS lawyers have advised me that I might be liable if I were to reveal too many details of this experience, so I will simply refer to the individual as "the harasser" and the organization where I worked at the time as "ABC" institute/university/observatory.]

I have often felt that the term "sexual harassment" was somewhat misleading. Although there was certainly a sexual component to my relationship with the harasser, it was much more about his abuse of power. That being said, the harassment would never have occurred if I were not a woman. In fact, none of the other young astronomers (all men) at ABC faced what I faced.

At the time, I was a young student/postdoc/researcher in a vulnerable position and the harasser was my professor/advisor/supervisor. Writing this summary forced me to recall several unpleasant examples of his abuse of power. One rather poignant quote that I remember vividly goes like this, "I wish I could keep you in my pocket and take you out when it's convenient."

I should have run for the hills! That reaction, however, would have meant giving up not only my job, but maybe on astronomy itself. I stayed on at ABC and tried to tough it out.

Another example of the power dynamic involved specific instructions that I was never allowed to ask questions. The implication was that my ignorance would reflect badly on the harasser. "You have to be perfect," he said to me.

No pressure there! My job was hard enough without these added complications, but things soon went from bad to worse. After the first six months, my significant other moved to ABC. In retrospect, it now seems obvious that this move triggered a major change in the precarious power dynamic that existed between the harasser and me. After all, I would no longer be spending any time in the harasser's proverbial pocket. The harasser's response to this new dynamic was to start putting me down at every opportunity, destroying what little confidence I had. He soon stopped talking to me and started talking about me. His gossip spread to the senior researchers/faculty/staff at ABC and eventually diffused through a segment of the astronomy community.

My time at ABC was not easy, especially after the harasser began poisoning the environment against me. I continued to show up for work, however, struggling alone with the analysis. I confess that I also battled depression. My significant other didn't understand why I wasn't working 24-7, why I wasn't listening to my professor/advisor/supervisor, in short, why I wasn't behaving like a typical young student/postdoc/researcher. To be honest, I didn't understand it myself, but I've come to realize that I was spending a lot of my energy fighting off depression and insulating myself from the toxic environment the harasser had created at ABC. I needed a lot of sleep and a lot of downtime. I worked at ABC during normal business hours, read novels in the evening, and took weekends off.

I stumbled through the next year or so, doing analysis on my own and struggling to write up components of my work for publication. I found I could be highly focused, concentrating only on the next paper and ignoring just about everything else. I had a self imposed, very strict work schedule. If I stuck to it, I could make progress. If I tried to push it, to put in more hours or work weekends, my progress would grind to a halt. I realized that I had a choice. I could either write up my work a paragraph at a time or I could give up entirely; there seemed to be no middle ground. I chose the paragraph option, and celebrated every minor milestone. If I could finish another paragraph, then it was a good day.

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One thing that eventually tipped the balance in my favor was that my research papers—the ones that I wrote a paragraph at a time—were being published. The senior researchers/faculty/staff at ABC could not think that I was as bad as the harasser said I was if my work was appearing in a prominent publication. My position at ABC ended, but unfortunately the power the harasser had over me did not. It was time to find another position. Can you imagine the job application process with a vindictive sexual harasser as one of your references?

After a round of job applications, a rumor started by my harasser got back to me. Apparently, he was bad mouthing me to potential employers. He was careful to put nothing in writing and I don't know exactly what he said to them, but I got no job offers. For the next round of applications, I did not include the harasser as a reference. I attended a winter AAS meeting with the hope of making job connections but got no interviews. I do remember running into a certain astronomer that I had known before I went to ABC. We exchanged a few words about a job I had applied for at her institute/university/observatory, but she couldn't get away from me fast enough - as if she might catch whatever I had. As I watched her walk away, I realized that I would never get another job in the branch of astronomy where I had all my training.

Fortunately, there are other objects in the universe and other bands of the spectrum. A couple of broad-minded, creative-thinking scientists at another institute/university/observatory decided that a young astronomer with my background would make a fine addition to their team. The bad news was that I had no expertise in this new astronomical sub-field and would essentially be starting over. The normal scientific momentum that any young student/postdoc/researcher would carry from

one position to the next would be completely lost. As a result, I worked for years on other people's science and co-authored many articles that my significant other refers to as my "et al and Schmelz" papers. Eventually, I worked my way back up to a position of astronomical seniority.

In a very real sense, I still live with the repercussions of the harassment experience. How much better would those original papers have been if they had been written by the team of knowledgeable coauthors rather than a lone stressed out young student/postdoc/researcher? How much further could I have progressed as a scientist if I had not had to start over in another band of the spectrum in a completely different corner of the cosmos? It was clear that no one was going to nominate me for the Pierce Prize or the Warner Prize.

Because my harassment experience was so long ago, my only choice was to tough it out or give it up. Neither ABC nor any other institute/university/observatory had a sexual harassment policy at the time. In fact, I do not blame ABC for what happened to me; there was really nothing they could have done. The good news is that things have changed. If you are the victim of sexual harassment, please read the article on CSWA's Advice column entitled, "Yes, Virginia, Discrimination and Harassment Do Still Happen" at: <http://www.aas.org/cswa/advice.html#harass>

One important step is to talk to someone you trust: advisor, best friend, parent, sibling, etc. You can talk to me. In fact, the argument that convinced me to come out (of this different type of closet) was that it would put me in a better position to reach out to young victims. The harassment experience can be very isolating, but you don't have to tough it out alone. CSWA can help.

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## Committee on Employment

Liam McDaid ([mcdaidl@scs.losrios.edu](mailto:mcdaidl@scs.losrios.edu))

### The Scientist as Entrepreneur

This month's column is part one of a two-part column by Peter Foukal, a scientist and businessman who literally created his own career. His career path is an interesting one and shows that it is possible to make one's own path, however challenging it might be. Here he details how he got started. Part two will be in the July/August *AAS Newsletter*.

A great strength of U.S. science is the multiplicity of funding sources and different kinds of employment open to young

researchers. Yet I still see Letters to the Editor complaining about limited opportunity for tenure track employment. When I was a post-doc at Caltech and Harvard in the 1970's, I used to write the same kind of letters. When a particle physicist friend was appointed to an assistant professorship at Harvard partially supported by a DOE grant, I suggested to George Field and NASA that some of the Skylab funding at the Center for

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## Committee News continued

Astrophysics be used to create faculty positions in solar physics. It eventually happened, but I wasn't the lucky beneficiary! After a few years of frustrating lobbying for a tenure track position located somewhere that I wanted to live, I realized that I'd be better off *creating* the kind of situation I wanted.

This opportunity would have been unheard of in any other country besides the US. But I liked the idea of running my own show and in 1978 I left Harvard to join a start-up—Atmospheric and Environmental Research Inc. (AER)—that had just been formed by some Harvard atmospheric physicists. One of the principals, Mike McElroy, was instrumental in promoting the nascent idea of Global Climate Change, and AER prospered. But in 1985, I decided to go off on my own with a couple of young engineers who shared my interest in commercializing ideas we had on measurement and the control of light. The new company was christened Cambridge Research and Instrumentation, Inc (CRI).

We rented a little windowless lab/office in Cambridge and my father, a graphic artist, contributed our letterhead logo. Our location happened to be across the street from American Science and Engineering, Inc., the 1950's MIT spin off led by Bruno Rossi and Riccardo Giacconi. AS&E was a poster child for what scientific entrepreneurship could achieve. Its x-ray imaging technology led the way both in astrophysics, and also in airport inspection and industrial quality control. Giacconi won the Physics Nobel Prize for his work, and AS&E had about 200 employees, so we had a shining example to guide us.

My wife, Elisabeth, learnt accounting and kept CRI's books on a part time basis. She continued her employment in software just in case CRI proved less successful than envisioned. We had two little children and a third one coming, and the only way to get a line of credit from the bank was to put our house on the line. Exciting stuff when you are young.

At AER and later at CRI I obtained funding for solar research from the NSF, NASA, DOD and also NOAA. This was new at the time, and I am grateful to several forward-looking Program Directors at these agencies, like Dennis Peacock, Dick Donnelly and Bill Wagner, for being willing to give this new initiative a try. Over the next few years I was fortunate to attract several skilled post docs like Larry Petro, Lee Fowler, and Tom Moran to join my fledgling group, and I also found some excellent post-bachelor's students like Brad Behr, who wanted time off before astronomy grad school at CalTech.

In the 1980s and 1990s we were amongst the heaviest users of Sac Peak (in Sunspot, NM) and Kitt Peak, developing new photometric methods to study solar magnetic structures, photospheric heat flow, and irradiance variation. We were the first to use the new 2-D IR arrays to image the photosphere. We also developed Stark effect techniques for detecting solar plasma electric fields. Another major project in the early 1990s was the digitization of archival Ca II K line plates taken at Mt. Wilson. This required hiring a reliable employee in Los Angeles who was willing to spend many months in the basement of Hale Observatories using the CCD digitizer and software we had developed at CRI to reduce plage areas on about 18,000 plates. Morgan Harman made an important contribution to solar studies by carrying out this task with great dedication.

Part two will conclude in the July/August *AAS Newsletter*.

The AAS committee on employment exists to help our members with their careers. Your ideas are important, so let's hear them!

*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-traditional" careers. If you are willing to contribute, or have an idea for a future column, please contact the Employment Column Editor, Liam McDaid ([mcdaidl@sc.losrios.edu](mailto:mcdaidl@sc.losrios.edu)).*

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

James Manning, Executive Director

## Keeping the Universe at Your Fingertips

*You cannot teach a man anything, you can only help him to find it within himself. - Galileo Galilei*

The cosmos is a grand and glorious place—not to say a laboratory in which most everything has probably been tried at least once by the forces of nature. And it is the nature of astronomy (and its practitioners) to sort out what’s working out there and what isn’t, and what it tells us about the nature of the universe, and ourselves.

This hands-on, practice-makes-perfect approach is an approach that those of us who also teach regularly try to emulate given today’s increasing evidence that doing is more effective than listening in our classrooms and down-to-earth laboratories. And so we engage our students directly in critical thinking, inquiry, collaboration, observing, hypothesis creation, testing, and sorting out what works and what doesn’t—useful skills all for negotiating one’s way through an increasingly science and technology-based future, not to mention in understanding the universe in ways more likely to stick.

The Astronomical Society of the Pacific (ASP) has been indulging in hands-on, inquiry-based astronomy and science education and training for some years now, and one of our signature products—associated with the long-time Project ASTRO program, which pairs scientists and teachers in the classroom to enhance science teaching—is *Universe at Your Fingertips*. This massive compendium of interactive activities and information, gleaned with permission and credit from the work of many educators and educational institutions as well as the ASP staff, has been a mainstay of our programs, a resource for classroom teachers of many ilks, and a darn good doorstop on a windy day.

But that science and technology future has even caught up with *Universe in the Classroom*. For the weighty hard-copy notebook has now been revised, updated, added to, and boiled down into DVD-ROM format. The down side is that it no longer makes a good doorstop, but the advantages very much outweigh its now-diminutive physical size.

Crammed onto the small silver platter are 133 classroom-tested hands-on activities, 43 astronomy background articles,

nine articles on teaching and learning space science in the 21<sup>st</sup> century, 17 guides to the best published and web resources on key topics, a dozen short video instructions for some key activities and ideas, and a passel of the best modern astronomical images and how to find many more. Expertly edited by Andrew Fraknoi and designed by Leslie Proudfit, with contributions by leading astronomy and science educators and many others, the resource has treasures for teachers in grades 3-12 who cover Earth and space science, college professors wanting to help their students understand basic ideas in a hands-on way, museum and planetarium educators looking to enrich their audience experiences, park rangers and naturalists guiding their visitors around the sky, and scientists and amateur astronomers looking to engage kids during their visits to local schools. Materials are organized by topic (in a baker’s dozen of major categories from Earth/Moon to the solar system to galactic and intergalactic space to space exploration, astronomers’ tools, skeptical thinking, cultural astronomy and astronomy across curricula). Materials are also organized by setting or skill set, in sequences of activities, and in general background areas. And it can now be slipped into a pocket; the dolly is no longer required.

To learn more about the new and improved *Universe at Your Fingertips*, you can go to [www.astrosociety.org](http://www.astrosociety.org) and follow the links from our home page. We hope that it continues to serve as a useful resource for the astronomy and space science education community.

The DVD-ROM will also be on display at our summer meeting in Baltimore, a national science education and public outreach conference organized in partnership with the American Geophysical Union (AGU) and the Space Telescope Science Institute (STScI) and a variety of co-sponsors. The conference theme is “Connecting People to Science,” and to learn more, you can go to [www.astrosociety.org/events/meeting.html](http://www.astrosociety.org/events/meeting.html). The meeting, running July 31 through August 3, provides an excellent opportunity to network, share and learn among a community of peers, and a variety of events are scheduled. Come join us for an invigorating gathering. It is another way to keep the “universe at your fingertips” as we seek to educate, communicate with, inspire and motivate a wider audience concerning the wonders of that cosmic laboratory.

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

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

### FY 2011 Budget

On the date that this is being written (8 April), another Continuing Resolution for FY 2011 is scheduled to expire; one hopes that there will be an NSF budget for the entire year by

the time the community is reading this item. However, this NSF budget may not yet have been translated into an AST divisional budget. Because of the ongoing uncertainties, AST has been deferring awards for most of its basic grant programs until there



is an actual budget for the Division. In light of an increase of ~20% in the number of Astronomy and Astrophysics Research Grant (AAG) proposals received for FY 2011, we expect the success rate in FY 2011 to be somewhat lower than FY 2010. Given the present uncertainties, we still expect the first FY 2011 AAG awards to be made by late May.

## **FY 2012 Budget and Plans for Portfolio Review**

The President's budget request for NSF for FY 2012 was released in February, and can be accessed on the web at <http://www.nsf.gov/about/budget/>. The request for AST does not follow the doubling path assumed by the decadal survey (Astro2010), with a relatively modest increase requested relative to FY 2010. For this reason, AST is attempting to move forward expeditiously in responding to a recommendation of Astro2010. Page 240 of the Astro2010 report, *New Worlds, New Horizons in Astronomy and Astrophysics* (NWNH), stated “[i]f the realized budget is truly flat in FY 2010 dollars...there is no possibility of implementing any of the recommended program this decade—without achieving significant savings through enacting the recommendations of the first 2006 senior review process and/or implementing a second more drastic senior review before mid-decade.” In fact, some of the 2006 senior review recommendations have been

implemented, including significant cuts in AST funding for NAIC (Arecibo), VLBA, and GONG. An independent study of operations and administrative costs of federal astronomy facilities, also recommended by the 2006 review, concluded that the observatories were running quite efficiently, and there were few savings that could be realized through reduction of such costs.

Based on the decadal survey recommendation and the most probable future budget scenarios, AST is beginning the process of organizing a review of all aspects of its portfolio in order to assess the balance of programs and capabilities that are most essential for realizing the NWNH science program. Such a review will not revisit the priorities for new programs that were provided in NWNH, but will interleave priorities for existing facilities and programs with the NWNH recommendations in order to provide a realizable portfolio of capabilities staged over the next 15 years. This review has been discussed with various advisory committees, and AST now is moving forward to define a charge and management plan for the portfolio review. More information about this review, and the avenues for community participation, will be forthcoming in the next few months.

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# **Announcements**

## **Herschel Open Time Proposal Opportunity**

The schedule for the second in-flight AO cycle (AO-2) has been decided. Like the previous AO cycles it will consist of an initial guaranteed time phase (GT2), followed by an open time (OT2) phase. GT2 was released on 7 April 2011 with proposal submission deadline on 12 May 2011, while OT2 will be released on 9 June 2011 with the ESA proposal submission deadline on 15 September 2011. AO-2 is the last Herschel AO cycle for observing time proposals. As with AO1, there will be a NASA Call for funding proposals with a deadline one week after the ESA deadline.

For more details, please visit the NASA Herschel Science Center web pages to monitor further announcements (<https://nhscsci.ipac.caltech.edu>), and sign up for the NHSC Newsletter. We strongly encourage you to also sign up with the NHSC Helpdesk at <http://nhsc.ipac.caltech.edu/helpdesk/index.php>.

## **NSO Observing Proposal Deadline**

The current deadline for submitting observing proposals to the National Solar Observatory is 15 May 2011 for the third quarter of 2011. Information is available from the NSO Telescope Allocation Committee at P.O. Box 62, Sunspot, NM 88349 for Sacramento Peak facilities ([sp@nso.edu](mailto:sp@nso.edu)) or P.O. Box 26732, Tucson, AZ 85726 for Kitt Peak facilities ([nsokp@nso.edu](mailto:nsokp@nso.edu)). Instructions may be found at <http://www.nso.edu/general/observe/>. A web-based observing-request form is at <http://www2.nso.edu/cgi-bin/nsoforms/obsreq/obsreq.cgi>. Users' Manuals are available at <http://nsosp.nso.edu/dst/> for the SP facilities and <http://nsokp.nso.edu/> 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). 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.

## **New “Discoveries in Planetary Science” Classroom PowerPoints Available**

The DPS Education Subcommittee announces the 4th release of “Discoveries in Planetary Science” Classroom PowerPoints, covering six new topics: A Thousand New Planets; Buried Martian Carbonates; The Lunar Core; A Six Planet System; Martian Gully Formation; and Propellers in Saturn's Rings.

These are succinct summaries of discoveries too recent to appear in “Intro Astronomy” college textbooks; each set consists of just three slides to be shown: the discovery itself, a basic explanation based on good planetary science, and the “big picture” context. Another page for further information is provided as well. Powerpoints and PDFs can be downloaded from <http://dps.aas.org/education/dpsdisc>.

Feedback from the community on how these slide sets are used and received is welcomed, and will be used to improve future releases. Planetary scientists with recent or upcoming results of broad interest are encouraged to submit them for consideration by providing an initial draft using the template provided on the website. For more information, contact Nick Schneider and Dave Brain at [dpsdisc@aas.org](mailto:dpsdisc@aas.org).

# Calendar of Events

## AAS & AAS Division Meetings

### HAD Meeting

22 May 2011, Boston, MA  
<http://had.aas.org/meetings/>

### SPD Meeting

12-16 June 2011, Las Cruces, NM  
[http://spd.aas.org/navbar\\_meetings.html](http://spd.aas.org/navbar_meetings.html)

### 12<sup>th</sup> Divisional HEAD Meeting

7-10 September 2011, Newport, RI  
<http://www.confcon.com/head2011/>

### 43rd Annual DPS Meeting

2-7 October 2011, Nantes, France  
<http://dps.aas.org/meetings/>

### 44th Annual DPS Meeting

14-19 October 2012, Reno, NV  
<http://dps.aas.org/meetings/>

### HAD Meeting

8-10 January 2012, Austin, TX  
<http://had.aas.org/meetings/>

## Other Events

### 42nd Canadian Astronomical Society Meeting

30 May-2 June 2011, London, Ontario  
Dr. Sarah Gallagher (sgalla4@uwo.ca)  
casca2011@uwo.ca

### Frontier Science Opportunities with the James Webb Space Telescope

6-8 June, Baltimore, MD  
Massimo Stiavelli (mstiavel@stsci.edu)  
<http://www.stsci.edu/institute/conference/jwst2011>

### 9th Low Cost Planetary Missions Conference

20-24 June 2011, Laurel, MD  
lcpm9team@jhuapl.edu  
<http://lcpm9.jhuapl.edu/>

### Exploring Strange New Worlds: Gas Giants to Super Earths

1-6 May 2011, Flagstaff, AZ  
Charles Beichman  
(Charles.A.Beichman@jpl.nasa.gov)  
StrangeNewWorlds@ipac.caltech.edu  
<http://nexsci.caltech.edu/conferences/Flagstaff>

### Innovations in Data-Intensive Astronomy

3-5 May 2011, NRAO: Green Bank, WV  
Amy Shelton (ashelton@nrao.edu)  
<http://www.nrao.edu/meetings/bigdata/>

### Unveiling the Far-IR and Sub-mm Extragalactic Universe: Herschel, ALMA, CCAT, SPICA, and Beyond

12-14 May 2011, Irvine, CA  
Asantha Cooray (acooray@uci.edu)  
<http://physics.uci.edu/submm/>

### The First International Science Symposium with the SOAR Telescope

15-19 May 2011, Maresias Beach, Brazil  
Robert Blum (rblum@noao.edu)  
<http://www.lna.br/FISSS2011/>

### Neutron Stars and Gravitational Waves: The Next Steps Toward Detection

22 May 2011, Boston, MA  
Keith Riles (kriles@umich.edu)  
<https://www.lsc-group.phys.uwm.edu/ligovirgo/cw/public/NS/May11/>

### Galaxy and Central Black Hole Coevolution: Gravitational Wave and Multi-messenger Astronomy

22 May-5 June 2011, Aspen Center for Physics  
Matthew Benacquista  
(benacquista@phys.utb.edu)  
[http://phys.utb.edu/~benacquista/Aspen\\_2011\\_SMBH](http://phys.utb.edu/~benacquista/Aspen_2011_SMBH)

### Frontier Science Opportunities with the James Webb Space Telescope

6-8 June 2011, Baltimore, MD  
Jason Kalirai (jkalirai@stsci.edu)  
<http://www.stsci.edu/institute/conference/jwst2011>

### 8th International Planetary Probe Workshop

6-10 June 2011, Norfolk, VA  
David H. Atkinson (atkinson@uidaho.edu)

### Summer School in Statistics for Astronomers VII

6-10 June 2011, University Park, PA  
Eric Feigelson (edf@astro.psu.edu)  
<http://astrostatistics.psu.edu/su11scma5/>

### The 24th Space Cryogenics Workshop

8-10 June 2011, Idaho  
[www.spacecryogenicsworkshop.org](http://www.spacecryogenicsworkshop.org)

### Very Wide Field Surveys in the Light of Astro2010

13-16 June 2011, Baltimore, MD  
widefield2011@pha.jhu.edu  
<http://widefield2011.pha.jhu.edu/>

### Statistical Challenges in Modern Astronomy V

13-17 June 2011, University Park, PA  
Eric Feigelson (edf@astro.psu.edu)  
<http://astrostatistics.psu.edu/scma5>

### \*NASA Herschel Science Center: OT2 Proposal Planning Workshop

20-21 June 2011, Pasadena, CA  
Science: <https://nhscsci.ipac.caltech.edu>  
Workshops: <https://nhscsci.ipac.caltech.edu/sc/index.php/Workshops/HomePage>

### BUKS2011 Workshop on MHD Waves and the Seismology of the Solar Atmosphere

27-29 June 2011, Palma de Mallorca (Spain)  
J. L. Ballester (joseluis.ballester@uib.es)  
[www.buks2011.org](http://www.buks2011.org)

### Stellar Polarimetry: Birth to Death

27-30 June 2011, Madison, WI  
starpol@etsu.edu  
<http://arwen.etsu.edu/starpol>

### International Summer Institute for Modeling in Astrophysics (ISIMA) 2011

27 June-5 Aug 2011, Santa Cruz, CA  
Pascale Garaud (pgaraud@ams.ucsc.edu)  
<http://isima.ucsc.edu/current.html>

### \*Astrophysics of Intermediate-Luminosity Red Transients

28-30 June 2011, Baltimore, MD  
Howard E. Bond (bond@stsci.edu)  
<http://www.stsci.edu/institute/conference/redtransients>

### SKA 2011: International Square Kilometre Array Forum, Science, and Engineering Meetings

4-8 July 2011, Banff, Canada  
<http://www.ska2011.org>

**Sixth NAIC/NRAO School on Single Dish Radio Astronomy**

10-16 July 2011, Green Bank, WV  
Karen O'Neil (koneil@nrao.edu)  
<http://www.nrao.edu/meetings/sds6/>

**4th Kepler Asteroseismic Science Consortium Workshop**

11-15 July 2011, Boulder, CO  
Travis Metcalfe (travis@hao.ucar.edu)  
<http://www.hao.ucar.edu/KASC4/>

**Four Decades of Research on Massive Stars. A Scientific Meeting in the Honour of Anthony F.J. Moffat**

11-15 July 2011, Montreal, Québec  
Nicole St-Louis  
(stlouis@astro.umontreal.ca)  
<http://craaq-astro.ca/moffat/>

**Structure in Clusters and Groups of Galaxies in the Chandra Era**

12-14 July 2011, Cambridge, MA  
Paul Green (pgreen@cfa.harvard.edu)  
<http://cxc.harvard.edu/cdo/xclust11/>

**Origins of Solar Systems Conference**

17-22 July 2011, Mt. Holyoke College in South Hadley, MA  
<http://www.grc.org/>

**IAU Symposium No. 282**

From Interacting Binaries to Exoplanets: Essential Modeling Tools  
18-22 July 2011, Tatranska Lomnica, Slovakia  
Contact: Mercedes Richards  
(mtr@astro.psu.edu)  
<http://www.astro.sk/IB2E/>

**\*NASA Lunar Science Forum**

19-21 July 2011, Moffett Field, CA  
<http://lunarscience2011.arc.nasa.gov/>

**\*Center for Astronomy Education (CAE) Workshop**

23-24 July 2011, The Big Island of Hawai'i  
<http://astronomy101.jpl.nasa.gov/workshopdetails/index.cfm?workshopID=89>

**2011 Sagan Summer Workshop: Exploring Exoplanets with Microlensing**

25-29 July 2011, Padasena, CA  
Dr. Dawn Gelino (Sagan\_Workshop@ipac.caltech.edu)  
<http://nexsci.caltech.edu/workshop/2011/>

**\*Connecting People to Science: The 2011 Education and Public Outreach Conference of the Astronomical Society of the Pacific**

31 July-3 August 2011, Baltimore, MD  
Albert Silva (asilva@astrosociety.org)  
<http://www.astrosociety.org/2011meeting>

**2011 X-ray Astronomy School**

1-5 August 2011, Cambridge, MA  
Randall Smith  
(xas2011@head.cfa.harvard.edu)  
<http://cxc.harvard.edu/xrayschool/>

**\*12th Annual Summer School on Adaptive Optics**

7-12 August 2011, Santa Cruz, CA  
Leslie Ward (laward@ucolick.org)  
<http://www.cfao.ucolick.org/aosummer/2011/index.php>

**\*Stars, Companions, and their Interactions: A Memorial to Robert H. Koch**

10-12 August 2011, Villanova, PA  
Bruce Holenstein (RHKochConference@Gravic.com)  
[www.gravic.com/RHKochConference](http://www.gravic.com/RHKochConference)

**\*Structure and Dynamics of Disk Galaxies**

12-16 August 2011, Petit Jean Mountain, AR  
Marc Seigar (mxseigar@ualr.edu)

**Optical Engineering + Applications 2011 - Part of SPIE Optics + Photonics**

21-25 August 2011, San Diego, CA  
customerservice@spie.org  
[http://spie.org/Optical-Engineering.xml?WT.mc\\_id=RCal-OPOW](http://spie.org/Optical-Engineering.xml?WT.mc_id=RCal-OPOW)

**Extreme Solar Systems II**

11-17 Sept 2011, Jackson Hole, WY  
Fred Rasio (rasio@northwestern.edu)  
<http://ciera.northwestern.edu/Jackson2011/>

**Fourth SONG (Stellar Observations Network Group) Workshop**

15-20 September 2011, Charleston, SC  
James Neff (neffj@cofc.edu)  
[go.cofc.edu/SONG4](http://go.cofc.edu/SONG4)

**Cosmology with X-ray and Sunyaev-Zeldovich Effect Observations**

19-22 September 2011, Huntsville, AL  
Max Bonamente, bonamem@uah.edu  
<http://icnsmeetings.com/conference/xray/index.html>

**IAU Symposium 285: New Horizons in Time Domain Astronomy**

19-23 September 2011, St. Catherine's College, Oxford, UK  
Mark Sullivan (sullivan@astro.ox.ac.uk)  
<http://www.physics.ox.ac.uk/IAUS285/>

**\*Joint Assembly: CPS 8th International School of Planetary Sciences & JSPS-DST Asia Academic Seminar**

26 Sept - 1 Oct 2011, Minami-Awaji Royal Hotel  
<https://www.cps-jp.org/~pschool/pub/2011-09-26/index.html>

**\*Through the Infrared Looking Glass: A Dusty View of Galaxy and AGN Evolution**

2-5 October 2011, Pasadena, CA  
<http://www.ipac.caltech.edu/exgal2011/>

**\*IAU Symposium 286: Comparative Magnetic Minima: Characterizing Quiet Times in the Sun and Stars**

3-7 October 2011, Mendoza, Argentina  
[iaus286@iafe.uba.ar](mailto:iaus286@iafe.uba.ar)

**\*Fourth Biennial Frank N. Bash Symposium**

9-11 October, 2011, The University of Texas Department of Astronomy and McDonald Observatory  
[www.bashsymposium.org](http://www.bashsymposium.org)

\*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 Liz Bryson, Librarian C-F-H Telescope in collaboration with the Canadian Astronomy Data Centre, Victoria, BC. The list may be accessed and meeting information entered at [cadwww.hia.nrc.ca/meetings](http://cadwww.hia.nrc.ca/meetings).



# Washington News

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



On the eve of a possible government shutdown, the Science, Engineering, and Technology Work Group hosted its Congressional Visits Day on 6-7 April. The government shutdown was averted at 11:20pm on 8 April with a deal between Republicans and Democrats to cut \$38 billion in federal spending. The timing of

the visit and the debate on federal spending was happenstance and we'd like to think our visit may have had a positive impact, but the billions of cuts will affect federal support for the sciences. Most notably is the cease in the effort of doubling funding for key research and development (R&D) agencies of National Institute of Standards and Technology (NIST), National Science Foundation (NSF) and the Department of Energy Office of Science. However, the White House says there will still be "strong investments."<sup>1</sup>

Congressional Visits Day (CVD) is an event held annually to enable scientists and scientific societies to come to Capitol Hill to advocate for federal support for the sciences. Over a dozen members of AAS came to visit their member of Congress, including Debra Elmegreen, President of the AAS, Jack Burns, Chair of the Committee on Astronomy and Public Policy (CAPP), and Dennis Ebbets, a member of CAPP. We also had the pleasure of having two participants who will be new AAAS Congressional Fellows this coming year, Meredith Drosback and Makenzie Lystrup. Participants spanned the United States, from California, Washington, Colorado, Illinois, New York, Pennsylvania, Maryland, and Virginia.

Each participant met with their member of Congress to talk about the importance of science as an investment in our country's future. We also discussed important issues to the astronomical community, such as, the astronomical decadal

surveys in planetary science, heliophysics, and astronomy & astrophysics, support for the completion of the James Webb Space Telescope (JWST), support for the FY2012 budget requests for NASA, NSF, and Office of Science, mandatory and entitlement spending reform, and restart production of plutonium-238.

Before we met with our members of Congress we were briefed by Jim Ulvestad, NSF Astronomy Division Director, and the NASA Science Mission Directorate Administrator, Ed Weiler, and the Division Directors, Jon Morse from Astrophysics, Eric Smith from JWST, Jim Greene from Planetary Science, Richard Fisher from Heliophysics, and Steve Merkwowitz. The briefings gave us an update on the great science being done in astronomy and astrophysics by each agency and how they are aligning the priorities of the decadal surveys within a constrained budget.

We also heard from Patrick Clemins, Director of AAAS R&D Budget and Policy Program, on the trends in federal funding for research and development and Kei Koizumi, Assistant Director for Federal R&D in the Office of Science & Technology Policy, on the President's initiative to invest in areas of innovation, education, and infrastructure.

Thank you to the participants of CVD and Kara North who helped organize the event.

CVD is an annual event to visit with Congress. However, you can speak with your member of Congress at any time by calling the local or Congressional office, writing a letter, or scheduling a meeting when the member of Congress is back in the state, or inviting your member of Congress to your research facility.

<sup>1</sup><http://www.whitehouse.gov/blog/2011/04/09/details-bipartisan-budget-deal>



**Left:** Congressional Visits Day (CVD) meeting with Rep. Benjamin Cardin (D-MD). L-R: Jen Greenamoyer from AIP, Alberto Conti, Rep. Cardin, Dan Wik, and Susan Kassin. **Right:** CVD participants tower over the public policy process in front of the Rayburn Building