

AAS Newsletter

September/October 2011, Issue 160 - Published for the Members of the American Astronomical Society

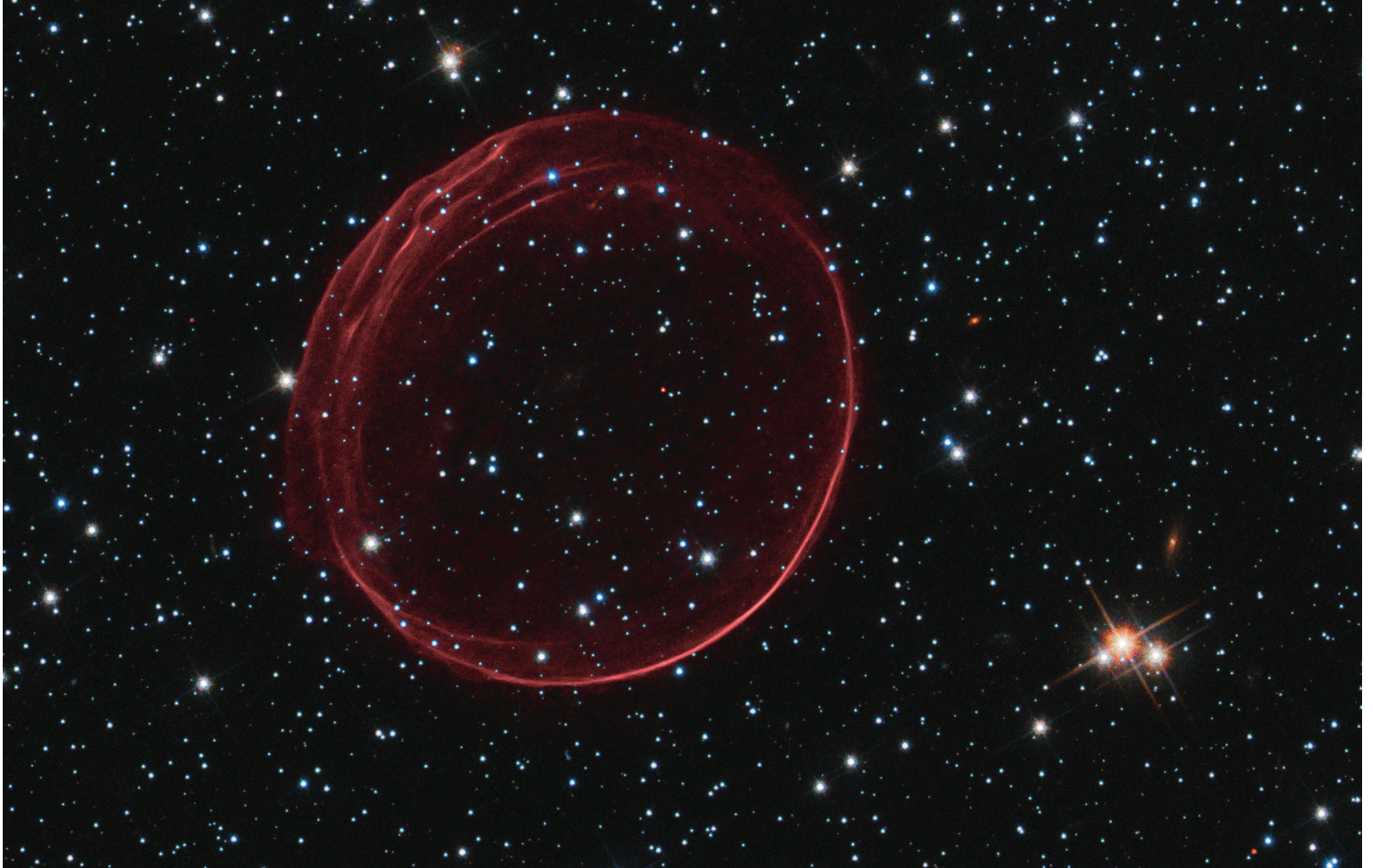


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Items of general interest to be considered for publication in the *AAS Newsletter* should be sent to crystal@aas.org. Appropriate pictures are welcome. For information about deadlines and submitting articles, see <http://aas.org/publications/newsletter.php>. 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

SNR 0509. Credit: NASA, ESA, and the Hubble Heritage Team (STScI/AURA)

President's Column

Debra Meloy Elmegreen, president@aas.org



As a new academic year looms, my thoughts turn to the mentoring and training we provide our young astronomers, as well as efforts to improve the percentages of underrepresented minorities. The Astro2010 *New Worlds, New Horizons* (NWNH) decadal report, now a year since its release, makes several observations and suggestions in chapter four regarding these issues, but falls short of formal recommendations because so many of them depend on departments (rather than the government or funding agencies) taking action. This is where AAS members can

step up to the challenges, as many already have done.

NWNH highlights the grim reality of graduate students being caught in long postdoctoral stints while awaiting a faculty position (as emphasized by Jim Ulvestad at the Boston meeting in his invited talk on demographics; available by video online on the members' pages). Yet there are many career opportunities for PhD astronomers beyond academia, in research and government institutions and private corporations as well as in media, museums, planetaria, and K-12 education. One action departments need to take, if they have not already done so, is to make sure their mentoring of undergraduate and graduate students and even postdocs includes a frank and open discussion about the many different types of opportunities that an astronomy-trained person may enjoy. It is important to reinforce the thought that students do not have to reproduce their advisor's career path in order to be considered a success. I have heard too many graduate students voice these concerns to me, and they need reassurance as well as guidance in considering many avenues. Toward this end, the January AAS meeting in Austin will feature many relevant special sessions, including one on the astrophysics postdoc job market (led by Employment Committee Chair Fred Rasio), on careers in media (past Press Officer Steve Maran), and in public policy (Bahcall Public Policy Fellow Bethany Johns). Plan to attend as many as you can, and encourage your students to attend as well. Note also that the Career Services page of the AAS site, <http://aas.org/career>, posts several non-academic career profiles from past newsletters that may also prove illuminating.

Some departments already have opportunities for graduate students to receive important training outside of traditional astronomy courses, such as in computation, instrumentation, pedagogy, science public policy, and science writing. Sometimes these are offered by the astronomy department, and sometimes in collaboration with other departments. I feel it is important to help develop the career aspirations of graduate students by

President's Column continued

giving them freedom to explore related opportunities if they so choose, and I encourage departments to consider giving graduate credit toward degrees for at least a course or two outside of astronomy per se (as I know several departments already do). This is not to diminish their astronomical training but to enhance it.

There are many online resources for guidelines on mentoring, such as the Boston AAS special session on mentoring and networking posted on <http://www.aas.org/cswa/>. Also noteworthy is the mentor training seminar offered by the American Physical Society in collaboration with the NSF-sponsored Center for Integration of Research, Teaching, and Learning (<http://www.aps.org/programs/education/undergrad/faculty>). An important component of mentoring is a discussion of ethics. The above site includes ethics case studies; it is also useful to review with students the AAS Ethics Statement: http://aas.org/about/ethics_statement. Note that Austin will include a special session on professional ethics (AAS Executive Officer Kevin Marvel).

Regarding efforts to increase diversity, I have asked AAS Councilors Bruce Balick and Bob Mathieu and President-Elect David Helfand to write brief articles for the newsletter because they are involved in some important initiatives that may prove useful to other departments. These include a program to engage underrepresented minorities in astronomy research as freshmen, a collaborative faculty program to encourage effective STEM teaching practices for diverse audiences, and a program that provides a bridge between the undergraduate degree and pursuit of a PhD, respectively. I intend these articles to be viewed not as ads for particular institutions, but as motivations for types of programs that others may wish to implement. Note that anyone can contribute to the *AAS Newsletter*, and I encourage others to share their efforts as well; guidelines are posted on <http://aas.org/publications/newsletter.php>. There will also be an Austin special session on increasing department diversity (Hannah Jang-Condell).

It has been a lively and difficult summer regarding federal funding of astronomy, so I find it inescapable to talk about decadal priorities in yet another newsletter column. It is always critical for the AAS to support the recommendations of decadal surveys in order to present a united front. At the time of this writing in mid-August, the House Appropriations sub-committee on Commerce, Justice, Science, and Related Agencies (CJS, to which AAS provided testimony in March) killed the James Webb

Space Telescope in the FY2012 proposed budget, and vetoed Rep. Schiff's (D-CA) amendment to reinstate it. As you know from the AAS info emails, Bethany Johns and Kevin Marvel have kept in close contact with key people to monitor activities on the Hill and to decide when and how to take action most effectively. The AAS released a public statement in support of JWST (posted on the AAS homepage) and sent letters to Congressional representatives in early July because it was the top-ranked space mission from the past decadal survey and underlies much of *NWNH*. The American Physical Society has also released a statement. In a show of international unity for this important mission, letters of support have also come in from the International Astronomical Union, the Canadian Astronomical Society, the European Astronomical Union, the French Society of Astronomy and Astrophysics, and the Italian Astronomical Society. Jack Burns, chair of CAPP, and I visited Capitol Hill in mid-August with Bethany Johns to meet with staffers in the CJS minority and majority offices and in the offices of Reps. Wolf (R-VA), Schiff (D-CA), Fattah (D-PA), and others, to discuss reinstatement of JWST into the budget. The NASA replan with new management structure, costs, and timelines is complete but awaits public release following approval from the Office of Management and Budget. The fact that JWST will become a NASA-wide priority will ease the burden on science divisions within the agency. Upcoming House and Senate discussions will be crucial in these matters, and more visits to the Hill by delegates from the AAS are in the works. Roger Blandford will lead a group in mid-August, as I write this. The AAS membership will be kept updated. Meanwhile it is very important for grassroots efforts to continue to rally the public, as emphasized in AAS email alerts; Congressional staffers emphasized that they appreciate the message of the science benefits, but need to hear from non-scientists as well as scientists that JWST is worthy of support.

While our attention has been focused on JWST since it explicitly fell out of the budget, we continue to advocate for other decadal survey priorities as well. LSST, while scheduled for a preliminary design review by NSF for late August, could also be impacted by the FY2012 proposed budget, which severely reduces the NSF Major Research and Equipment Facilities Construction line that LSST hopes to enter in a few years. And the priorities of the planetary decadal survey, *Vision and Voyages*, are also in jeopardy. The issue of the restart of Pu-238 production for deep space missions, which Bethany has been involved in all year, is still awaiting successful closure.

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From the Executive Office

Kevin B. Marvel, Executive Officer, marvel@aas.org



Summer is usually a slow time in the public policy realm, but this year proved to be the exception. Amidst the debt-ceiling debacle (ahem, I mean debate), the House Science Committee proposed cancelling the JWST, the highest ranked project in the last decadal survey. This action called for an immediate response, and President Elmegreen and CAPP

Chair Jack Burns worked quickly to draft a statement from the AAS and sought Executive Committee approval. This rapid action allowed us to garner a significant amount of media coverage, which was noticed on Capitol Hill. Subsequent efforts have focused on determining strategy moving ahead. Significant efforts from leaders in our community resulted in op-ed pieces and editorials appearing in all major newspapers. We began a sustained lobbying effort in mid-August to carry our community's support of the Decadal Surveys and their priorities including JWST's to Congress. It is unclear as I write this column if the full House will actually support the committee's recommendation for cancellation of JWST or not. A vote is expected shortly after the House returns from recess in early September. Whatever action they take, we have strong support in the Senate for the project and, barring a fix on the House floor, it is likely the matter will be resolved in conference discussion. We are putting our efforts into both the short-term tactical efforts needed to save JWST and the longer-term strategic efforts needed to ensure support and ultimate completion of all Decadal Surveys' recommendations. See our Informational Emails, Action Alerts and Bethany Johns's column in this newsletter.

Summer also provides some time to get large projects moving forward here at the Executive Office, and I thought I would share some of the progress on longer-term efforts we are making on behalf of our members and with the support of Council.

First and foremost, we are fulfilling the recommendations of our internal AAS-HQ communications working group and evolving the way we create and disseminate information with an eye to efficiency. Judy Johnson, our Director of Communications, has been working on

this for the better part of a year and we are now moving ahead with help from Scott Idem, our Director of Information Technology, and Crystal Tinch, our Manager of Membership Communications. Judy has already greatly enhanced the way we handle the obituary notification and production process with the help and input of Jay Pasachoff, obituary editor. As a side benefit, obit status is now available directly on our obituary web page <http://aas.org/baas/obits/all>. Lessons learned from this process will inform subsequent production and dissemination chains, enhancing our efficiency and, most importantly, improving how we communicate important information to our members and other communities. We have also signed a contract with an external firm, Bluespark, to help us redesign our website and effectively use the content management system that will support it. We are committed to using Drupal, as it is open source and widely used. Substantial progress will be made on this during this fall and early spring of 2012 and we will keep you informed going forward.

Second, we continue to enhance our meeting services efforts by improving our processes, controlling costs and expanding our support to the community. In particular, the Council approved an AAS-branded special topic meeting series. We are developing a detailed project outline for ExCom review in October and will widely announce the program once approved. The goal is to apply our meeting services expertise directly to our mission to enhance and share humanity's understanding of the universe by competitively selecting and carrying out specialized topical conferences. In addition, the AAS meeting services team has expanded their work by supporting non-AAS and non-Division meetings, such as the Extreme Solar Systems meeting in Jackson Hole this fall. Again, the goal here is to enhance the science impact of meetings by removing the burden of logistical organization from astronomer-organizers, allowing them to focus on the science, while our experienced team handles the logistics details. We will grow this effort slowly and organically, expanding staffing as we need and can afford. If you are organizing a meeting in 2013 or beyond and do not want to worry with details, give us a call—we can help.

Finally, I want to remind all members that we begin our membership renewal period in early fall with an email to

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Astronomy Goes Deep in the Heart of Texas

Rick Fienberg, AAS Press Officer and Education & Outreach Coordinator

Austin, Texas, bills itself as “The Live Music Capital of the World.” From 8 to 12 January 2012, Austinites will hear the live music of the spheres when the 219th AAS meeting convenes at the Austin Convention Center, 500 E. Cesar Chavez St., less than a mile south of the Texas State Capitol and not far from the University of Texas’s flagship campus. Meeting with us are the Society’s Historical Astronomy Division (HAD) and High Energy Astrophysics Division (HEAD).

More than a dozen prize and invited talks will be given by eminent astronomers, starting with the Kavli Lectureship by Lyman Page (Princeton Univ.) on neutrinos and the cosmic microwave background and ending with the Berkeley Prize lecture by Linda Tacconi (MPE) on molecular gas in star-forming galaxies in the early universe. Among the many compelling talks in between is a retrospective on 50 years of human spaceflight by astronomer-astronaut Steve Hawley (Univ. of Kansas), an address by AAAS CEO Alan Leshner, a sobering look at “Big Science in Crisis” by Nobel laureate Steven Weinberg (Univ. of Texas), and the AIP Gemant Prize lecture by our own Steve Maran, who served as AAS Press Officer for 25 years until his retirement in 2009.

Even before the main science program begins, you can attend your choice of hands-on workshops on Saturday and/or Sunday, 7-8 January. The Center for Astronomy Education (CAE) and the Collaboration of Astronomy Teaching Scholars (CATS) will offer their popular Astro 101 Tier I Teaching Excellence Workshop and Tier II Technology Special Topic Workshop, and the Center for Astronomy & Physics Education Research (CAPER) will offer clinics on getting started in astronomy-education research, on robust qualitative research methods, and on teaching diverse audiences. The National Optical Astronomy Observatory will conduct a workshop on protecting dark skies, the Virtual Astronomical Observatory is hosting one on science tools for data-intensive astronomy, and NSF will convene its annual meeting of Astronomy & Astrophysics Postdoctoral Fellows. Anyone interested in scientific and technical issues in exoplanet research will want to attend NASA’s Exoplanet Exploration Program Analysis Group workshop. And here is a workshop we can all use: “Personal Finance in Turbulent Times” with Ric Edelman, the nation’s #1 independent financial advisor (as ranked by *Barron’s* magazine). Note that workshops

require separate registration and—except for the personal-finance workshop—payment of a small fee.

HAD sessions also begin on the weekend, including one on the June 2012 transit of Venus—the last such event that anyone alive today will have a chance to witness, as the next one is in December 2117—and another on the funding of astronomy since World War II. HEAD sessions begin on Monday and include core-collapse supernovae and the variable and surprising gamma-ray sky.

Numerous other special sessions and splinter meetings occur throughout the week. Among them are sessions on early science from SOFIA and LOFAR, on diversity and professional ethics in astronomy, and on “cyber-discovery” in the era of large surveys with fire-hose data rates. Speaking of those, several are featured in their own special sessions, including SDSS-III, BOSS, BigBOSS, SEGUE, CANDELS, WISE, and CFHTLenS. (Perhaps we will

learn why you can’t do a sky survey if you don’t have an acronym.)

If you are an early-career astronomer, you will want to attend the special session on the postdoc job market, and astronomers at all career stages are welcome at the special sessions on scientists’ career options in the media and in public policy. With that last topic high on everyone’s minds these days, in Austin we will have a bumper crop of Town Halls, giving you an opportunity to interact with leaders from NSF, NASA, NOAO, NRAO, and the Gemini and JWST projects. Students will have a special opportunity to meet with JWST Senior Project Scientist and Nobel Laureate John Mather (NASA GSFC).

Austin offers a lot more than astronomy. In addition to nearly 200 live-music venues, the city hosts a vibrant community of musicians, artists, entrepreneurs, and progressive thinkers. It is home to some of the best Tex-Mex and barbecue in the U.S., and is the gateway to the beautiful Texas Hill Country. There are miles of hike and bike trails, more than 200 parks, and an astronomy-friendly 300 days of sunshine each year. If you live in the Snow Belt, a week in Austin in January could be just the thing to keep the winter blues at bay.

For more information about the 219th AAS meeting, and to register, visit our website, aas.org.



Letter to the Editor

Voids and Supercluster Structure

Dear Editor,

We sincerely congratulate Dr. Margaret Geller for the Russell Lectureship award acknowledging her lifetime contributions to astronomy. Although Dr. Geller's early research with John Huchra helped to map the filamentary structure with huge voids in the galaxy distribution, those who worked in this era will recall that this structure was actually discovered in 1978 when the first wide-angle 3D redshift survey maps were published by Gregory and Thompson (*ApJ*, 222, 784) and by Joeveer, Einasto and Tago (*MNRAS*, 185, 357). These early papers appeared some eight years before de Lapparent, Geller and Huchra (*ApJL*, 302, L1, 1986) published their award-winning research. In the intervening eight years, a number of other confirmation papers were published. As the large scale structure was being revealed, it was more complex than the most conservative cosmologists could personally accept, and this conservative group held their own threshold of discovery falsely high. Other cosmologists—including George Abell, Jan Oort, Allan Sandage and Yakov Zeldovich—fully embraced the new paradigm before Dr. Geller gained her prominence. As this eight year period came to a close, the new view became widely accepted in a form essentially identical to that proposed in 1978.

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lthomps@illinois.edu

Stephen A. Gregory
sgregory58@gmail.com

25 Things About...President-Elect David J. Helfand

1. Birthplace...Mattapoisett, MA (it means quiet place by the peaceful waters, which is why I ran screaming at 17).
2. My favorite cereal is...unknown, since I don't eat breakfast.
3. Motto..."The examined life is not worth living."
4. The last concert I attended was...the Metropolitan Opera Orchestra at Carnegie Hall.
5. When I get home, I like to wear... nothing.
6. The most important thing I learned from my mother was... "Those who think they know everything are particularly annoying to those of us who do."
7. The most important thing I learned from my father was...how to work 14 hours a day and enjoy it.
8. My favorite time of day is...the cocktail hour.
9. My favorite holiday is...Bah Humbug, they all irritate me.
10. Do you untie your shoes when you take them off... No, because I don't wear shoes with laces.
11. Device I would never give up...the fork.
12. My first real job was...produce clerk at the A&P.
13. Farthest I've been from home...Dali in Yunnan, China.
14. Were you named after anyone...the Biblical King David.
15. I prefer AM or FM radio...NPR exclusively.
16. Web site I spend the most time on...New York Times.
17. Something that really annoys me ... everything.
18. My dream car is... none (the point of living in New York).
19. I make the best...Coquilles Saint-Jacques a'la Creole.
20. My favorite city is... .New York (this is a silly question).
21. My favorite actress is...my charming and talented wife, Jada.
22. I want to retire...never.
23. I refuse to play...yes.
24. Four people from history to have at a dinner party... Charles Dickens, Oscar Wilde, Winston Churchill, and Sophie Friederike Auguste von Anhalt-Zerbst-Dornburg (aka Catherine the Great)—seated in that order.
25. I love to...*****

President's Column continued from page 3

As astronomy continues to become more and more international in its endeavors, by necessity because of big budgets and by design because of the advantages of collaborating on large technological projects, we all face the need for new ways to approach the hurdles of uniting in these efforts, as emphasized in chapter three of NWNH. An instructive article in this regard is "A Dark Age for Astronomy?" by Roger-Maurice Bonnet and Johan A. M. Bleeker from www.sciencemag.org, 8 July, discussing new attempts by the IAU and COSPAR (Committee on Space Research) to establish a global program in space astronomy.

Looking ahead, we are just a year away from the XXVIII General Assembly of the International Astronomical Union, to be held for the first time in Beijing, China, 20-31 August 2012. Now is a good time to join the IAU, if you are not already a member: <http://www.iau.org/administration/membership/individual/qualification/>

Applications are due by 18 November to the US National Committee for Astronomy, whose chair is AAS Secretary Fritz Benedict; request information from IAU_Applications@nas.edu. This general assembly will be an exciting prelude to IAU XXIX, to be held in Hawaii in 2015 and co-hosted by the AAS, so there is much to look forward to internationally.

Meanwhile, it is time to get your abstracts and registrations in for Austin, as we approach our exciting January meeting in the Southwest!

From the Executive Office continued from page 4

each of you asking that you take a few minutes to renew your membership online. We do this once more and then we send a paper mailing to the remaining non-renewers. After that, we only remind you by email three more times before turning off your membership in February of the new year. Despite this large number of communications, we still have members having their membership turned off. Please help us save time and money for our core mission and goals by responding promptly to our notices for renewal. Also, take the time to consider donating to a Society or Division activity of your choice. Through your additional contributions we can accomplish much more. Contributions are fully tax deductible and allow you to support a project, prize or effort that is important to you personally and important to our field generally. If you have any questions about the renewal process or donations, including larger donations or including the AAS in your estate planning, please contact Faye Peterson, our Director of Membership Services.

See you in Austin in January!

Addendum: The note about the 2011 Gruber prize in the July/August *Newsletter* mentioned filaments and voids revealed for the first time by the 1981 CfA redshift survey. That survey did show the large-scale structure of the universe more dramatically than before, but earlier evidence for cosmic clustering and filaments of galaxies appeared in many earlier papers, such as W. G. Tifft and S. A. Gregory (1976, *ApJ*, 205, p. 696) and W. G. Tifft (1980, *ApJ*, 239, p. 445), the papers noted in the Letter to the Editor, and others.

Member Deaths

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

Dipak Basu

Tom Gehrels

Kimmo Innanen

Thomas H. Legg

Richard D. Schwartz

Einar Tandberg-Hanssen

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; 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 *AAS Membership Directory* or the *AAS Calendar*, please send an email to address@aaas.org or log in to your member record at aaas.org.

To unsubscribe from AAS emails, contact address@aaas.org

For address changes, email address@aaas.org

Journals Update

Chris Biemesderfer, Director of Publishing, chris.biemesderfer@aaas.org

Accessibility of AAS Journal Content

Over the past decade, there has been interest from many quarters about “access” to the results of scientific research. Recently, this has taken the form of advocacy at the highest levels for the dissemination and preservation of research data. The AAS has been interested in and involved with projects to do just that for many years, and our continuing efforts will be the subject of a future column.

The most appropriate ways to provide access to journal articles have been debated for more than a decade, starting with calls for open access (no payment required) for online journals in the 1990s. The open access debate was taken to the US Congress during the past decade. Several pieces of legislation that mandate open access have appeared in Congress over the last five years. The only legislative action that Congress has taken was in December 2007, when the public access mandate for NIH-sponsored research became law. In 2009, at the request of the House Science and Technology Committee, a panel was convened to seek consensus on feasible and effective ways to expand access to and preservation of federally funded research information. The group was called the Scholarly Publishing Roundtable (SPR), and its work was supported by the OSTP. In December 2009, the Office of Science and Technology Policy opened a public consultation concerning “Public Access Policy.” The AAS contributed formal comments as well as background material for both forums.

As a learned society of research and higher education professionals, the AAS has made a concerted effort to conduct its scholarly publishing enterprise with sensitivity to and balance among the need for prompt access to new results with a low barrier, the pressures on the budgets of technical libraries, and the challenges of obtaining grant and institutional funding to support author fees. We have always strived to achieve a balance that serves the two primary stakeholders (author-researchers and library-

readers) fairly, with a combination of reasonable fees and generous rights.

Authors

- The AAS makes publication agreements with authors of the research articles that are published in our journals. We make those agreements with authors as individuals. The agreements are generous in granting rights and permission for authors to share their research with students and colleagues, including by depositing their work in various repositories, such as arXiv or authors’ institutional repositories. However, the AAS regards the deposit of scholarly work in such repositories to be a decision of the individual scholar, as long as the individual’s actions respect the diligence of the journals and their reviewers.

Libraries

- The AAS makes agreements with institutions in the form of subscriptions. These agreements are also fairly generous in the ways that institutions are permitted to make our journals accessible to an institution’s immediate research community. The Society has had a policy of “delayed open access” since its journals appeared online starting in 1995; content from the AAS’s journal is available without charge one year after an article’s original date of publication.

The Society believes that these provisions more than adequately serve the needs of individual researchers and the astrophysics research community in general.

Working Group on Laboratory Astrophysics

R. Paul Drake (University of Michigan), Chair 2010-2011

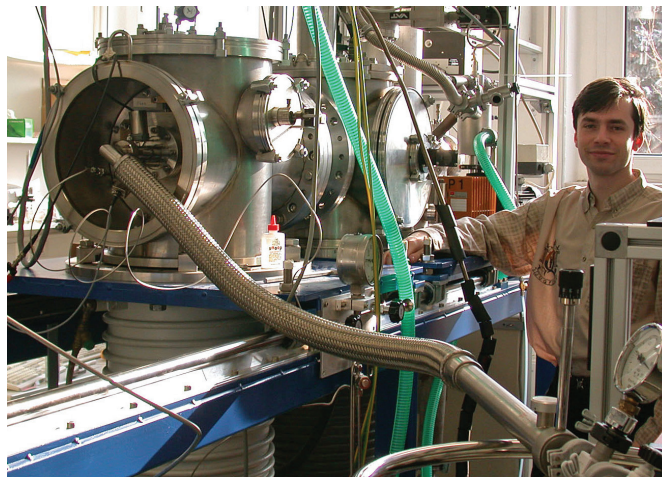
The Working Group on Laboratory Astrophysics is in its fifth year. The Working Group promotes the coordination of theoretical and experimental research in all branches of science aimed at advancing our understanding of astronomical phenomena, including but not limited to astrophysics, astrochemistry, astrobiology, and planetary science.

A key vehicle through which the Working Group has sought to increase the interactions of data users (astronomers, astrophysicists, and astrochemists) and laboratory astrophysicists has been through the organization of a “Meeting-in-a-Meeting” (MiM) on laboratory astrophysics at each of the past several spring meetings of the AAS. In May 2011 the theme of the MiM was nuclear and high-energy laboratory astrophysics. The sessions were well attended and provoked some lively discussion. In previous years, the MiMs have focused on plasmas; on molecules, dust, and ices; and on an overview. The proposed MiM for 2012 will again be an overview.

The Working Group maintains an email list for the lab astro community (<http://lists.aas.org/cgi-bin/mailman/listinfo/wgla>). The list went active in January 2010. The number of subscribers now exceeds 330. We are particularly interested in hearing about your data needs and your ideas for future AAS sessions as well as about meetings of interest to the community. The Working Group also maintains a website at http://aas.org/labastro/lawg_charter.php, which includes current activities and the history of the group.

The Working Group, with colleagues from AAS/DPS, sponsored its first workshop at the 2010 meeting of the Division for Planetary Sciences in October 2010. Working Group members were also active in the organization of the NASA Laboratory Astrophysics Workshop in October 2010.

Based on the activities of the Working Group, and its success at involving scientists from a wide range of subfields, the Council of the AAS has appointed a committee to develop proposed bylaws for a Laboratory Astrophysics Division. If these bylaws are approved, the new division will be created during 2012.



Credit: Max Planck Institute for Astronomy.

There has been some rotation of members out of the Working Group, with replacement by others. The current members are:

- Chair: Daniel Wolf Savin (2007-2012; Chair 2011-2012)
email: savin@astro.columbia.edu
- R. Paul Drake (2007-2012; Chair 2010-2011)
- Steven R. Federman (2007-2012; Chair 2007-2008)
- Farid Salama (2007-2012; Chair 2008-2010)
- Michael F. A’Hearn (2009-2012)
- Nancy S. Brickhouse (2007-2012)
- Gary J. Ferland (2007-2012)
- Murthy Gudipati (2009-2012)
- Wick Haxton (2007-2012)
- Eric Herbst (2007-2012)
- Stefan Profumo (2009-2012)
- Hendrik Schatz (2011-2012)
- Lucy M. Ziurys (2008-2012)
- Ellen Zweibel (2010-2012)

Pre-Major in Astronomy Program (Pre-MAP) at the University of Washington

Bruce Balick, balick@astro.washington.edu



Pre-MAP* engages entering UW students who are interested in math and science and who are traditionally underrepresented in astronomy (women, African Americans, Latinos, Native Americans, Asians/Pacific Islanders, low-income and first-generation college students) in hands-on research in the first year of their matriculation. The goal of the program is to motivate these students to meet the rigors of STEM majors throughout the university.

Our Pre-MAP students have a unique opportunity to learn astronomical research techniques and apply them to research projects conducted in small groups. These projects involve the use of cutting edge facilities and/or data available to UW astronomers, such as the Apache Point Observatory in New Mexico or the Sloan Digital Sky Survey (SDSS) database. In addition, every Pre-MAP student receives one-on-one mentoring and peer support for at least the duration of the academic year, and has an opportunity to continue or expand their research project. Most PreMAP students elect to do so.

Graduating high school seniors and transfer students who wish to participate in Pre-MAP register for Astronomy 102, an introductory course taught in the autumn quarter. They also register for a three credit seminar, Astronomy 192, led by a specially trained graduate student.

PreMAP was started by UW Astronomy graduate students Andrew West, Kevin Covey, and Marcel Agüeros in the autumn of 2005. They received the “Distinguished Personal Initiative on Diversity in Astronomy” award from the National Society of Black Physicists. About a quarter of the faculty, postdocs, and grad students are active in the program each year, and most of the department has participated over the lifetime of the program. Pre-MAP is modeled on the UW’s highly successful Freshman Interest Group (FIG) program.

* <http://www.astro.washington.edu/users/premap/>

Photos courtesy of University of Washington Department of Astronomy

Building a Bridge to PhD Programs for Minority STEM Students

David J. Helfand, AAS President-Elect, djh@astro.columbia.edu

Fewer than one in a million African-American and Hispanic US citizens get graduate degrees in physics and astronomy each year. That is certainly a distinction for the recipients, but it is a demographic disaster for the future of the US STEM workforce.

The latest American Institute of Physics (AIP) statistical reports show that the 189 PhD programs in physics in the US award a total of 5769 degrees per year; 15 go to African-Americans and 16 to Hispanic-Americans. These numbers constitute an under-representation by factors of 13 and 15, respectively, compared to the US population. The numbers of bachelors degrees in physics are only slightly less egregious: in 2008, 150 African-Americans and 199 Hispanics received bachelors degrees, representing 2.60% and 3.45% of all such degrees awarded. More disturbingly, the percentage of African-American bachelors degrees has fallen steadily over the past 15 years, from 5.1% in 1996 to half that value today.

The reasons for the lack of undergraduate majors are numbingly familiar: ill-prepared K-12 teachers, under-equipped schools, social disincentives, a lack of role models, etc. As a university faculty member, it is easy to throw up one's hands. But the three or four factor leak in the pipeline between undergraduate and graduate school falls in our territory. At Columbia University, we have begun an effort focused on making a difference at this critical juncture.

Initially funded by a grant from the office of the Provost, and subsequently augmented by an award from the NSF, we have established the Bridge to the PhD in the Natural Sciences. Each year, a cohort of five underrepresented minority students with STEM bachelors degrees are hired as full-time Columbia employees with full benefits—benefits that include the opportunity to take Columbia courses. The appointments are for up to two years. Each student is paired with a faculty mentor and is integrated into a research group in his or her field of interest. Frequent Bridge program meetings cover topics from lab

culture and communication to help with graduate school selection and applications. All students receive GRE prep courses as well as free tutoring in their classes, which are carefully chosen at the undergraduate or graduate level to fill gaps as needed.

The results have been extremely encouraging. Fourteen students have graduated from the program to date; 12 have been accepted into leading graduate programs in their fields and two have obtained full-time research positions from which they intend to apply to MD/PhD programs. We have hosted four students in the Department of Astronomy: one is now thriving in our department's PhD program, a second is in the well-known Fisk-Vanderbilt program and a third, accepted to all four schools to which he applied, is in his second year at the University of Washington; the fourth student started this summer.

Professor Marcel Agüeros undertook the directorship of this program while on an NSF Postdoctoral Fellowship at Columbia, and continues in that role now that he is a member of our faculty and PI of the NSF grant. Dr. Summer Ash, also an astronomer, has just taken on the role of Assistant Director with responsibility for the many day-to-day activities. The American Physical Society (APS) has been looking at using our program as a model for other institutions and has applied for funding. While our university's support is strong, the lack of an obvious program to which to apply for support at NSF and/or in other federal agencies makes its future tenuous. As decades of experience—and recent trends—suggest, the problem of a STEM workforce unreflective of the population it must serve will not cure itself. I am hopeful that our Society, in conjunction with our counterparts in other STEM disciplines, can help motivate the agencies to seek out and fund successful programs that address this serious scientific and social problem.

Committee on Employment

Travis Metcalfe, travis@ucar.edu

Changing Priorities: the Hard Money Wild Card

If you are an astronomer who does not work at a university, the chances are good that you work at one of the many federally funded research facilities or observatories (e.g., STScI, NOAO). There are several types of positions at such institutions, including some supported by grants (soft money) and others supported by base funding from the sponsor (hard money). Some hard money positions can even be on a tenure track, with the usual disclaimer about being “contingent on the availability of funding.” These jobs generally involve some combination of research and service in support of the mission of the organization. Such positions are ideal for scientists who want to spend most of their time doing research rather than teaching—the only catch is that your research must be relevant to the strategic goals of the institution.

My first experience working in a federally funded research laboratory came during the summer before I finished my PhD. One of the external members of my thesis committee was a hard money scientist at the High Altitude Observatory (HAO) in Boulder, Colorado—part of the National Center for Atmospheric Research (NCAR), which is sponsored directly by the National Science Foundation. Growing up professionally in an academic environment, I was surrounded by scientists who decided that being a university professor was the best career choice. This was my first exposure to an institution filled with people who had made a different evaluation. It was a powerful experience that really resonated with my vision of the ideal job, and by the end of the summer I was convinced that a hard money career path was right for me.

After finishing my thesis, I spent several years as a postdoc before landing an NSF fellowship that brought me back to HAO. About a year later, I was hired as a tenure track hard money scientist. As the name suggests, the primary research focus at NCAR is Earth’s atmosphere—but because the Sun is responsible for the energy input at the top of the atmosphere and for the particle flux underlying disruptive “space weather” events, HAO is the NCAR laboratory devoted to solar physics. My job was to maintain a connection between this group of several dozen solar physicists and the wider astrophysics community—using stars to provide a broader context for our understanding of the Sun, and ensuring that stellar research could benefit from the laboratory’s detailed knowledge of our local star.

Life as a hard money scientist was good. In addition to having access to a 12-month salary without the requirement of writing grant proposals, each scientist was allocated a modest annual travel stipend while internal funds also paid for journal page charges and even helped bring in scientific visitors. In return, we worked on large-scale and long-term projects that were not amenable to funding through standard three-year grants, often with a focus on serving the scientific community with new modeling capabilities or public data. The primary disadvantage of being an astronomer in a solar physics laboratory was the difficulty of finding students and postdocs. Unlike a university environment where students are the lifeblood, only a few students could be supported by internal fellowships at HAO. Postdocs were also hard to find, since most of the fellowship applicants were interested in solar physics, not astronomy. Consequently, like many hard money scientists I still wrote grant proposals to help recruit students and postdocs, and to provide part of my salary.

Perhaps the greatest source of anxiety for a hard money scientist is the annual drama of the federal budget cycle. Flat budgets at the federal level generally translate into a flat budget for the NSF and all of its programs. As everyone knows, a flat budget in the face of rising operating costs really means a cut. When the budgets do get increased for inflation, salary levels within each laboratory are supposed to be adjusted according to merit—but in reality the extra funds either disappear entirely to offset a previous budget shortfall, or they are distributed evenly among the staff to compensate for the years without a cost of living adjustment. The leadership in Washington certainly recognizes the importance of scientific research as an engine of economic growth and innovation (read the America COMPETES Act), but these lofty pronouncements rarely seem to be reflected in national budget priorities.

Nobody needs to be reminded of the chaos surrounding the most recent federal budget cycles. A series of short-term “continuing resolutions” to fund the government at 2010 levels ultimately led to a budget for 2011 that finally passed more than halfway through the fiscal year. By this time the NSF and its programs were already

preparing budget scenarios for 2012, and the partisan rancor in Washington made it clear that difficult decisions were unavoidable. It was in this atmosphere that HAO concluded it could no longer support stellar research, and I was given 12 months notice that my position would be eliminated. Despite outstanding annual performance reviews and wide ranging contributions to programs across the organization, changing priorities motivated by federal budget cuts ended my career as a hard money scientist.

Fortunately there are other ways to survive as a research scientist. After my final year on hard money, I hope to continue working at NCAR for another year or so on soft money. In the longer term, I will probably need to seek an environment with lower overhead expenses to continue funding myself on grants. As a graduate student I formed a non-profit organization dedicated to scientific research and public education, thinking that it could always be

my backup plan in case a hard money position did not materialize. This unexpected career transition may be just the impetus I needed to build on this foundation, and hopefully make a soft landing on soft money. Wish me luck.

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 (<http://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@scc.losrios.edu). The Committee exists to help AAS members with their careers. Your ideas are important, so let’s hear them!

Committee on the Status of Women in Astronomy

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

Senior Women: A Comparison of Astronomy Organizations

Senior women in astronomy provide us with mentors and role models. They can change or even transform the culture, dynamics, and environment of a department or research group. They can stand with us and fight for us if we find ourselves the victim of gender discrimination, sexual harassment, or unconscious bias. They can make an organization more female friendly.

CSWA began compiling a list of the percentage of women among the tenured faculty members of PhD astronomy departments in the US. This list has now been expanded to include the percentage of women researchers/faculty/staff (with tenure or the equivalent) for US astronomy institutes/universities/observatories. Numbers and percentages were confirmed by a member of each organization.

The table (below) shows that the range is wide, with Indiana University leading the pack with 43% women on the tenured faculty, but with some other institutions still in the single digits. The average is 14.7%, with a standard deviation of 9.5%.

For comparison, 18% of full members of the AAS are women. In addition, 30% of named postdocs have been women for the past 20 years; these represent some of the most highly qualified potential candidates for tenure-track positions. Note: these data are public domain and were compiled by the demographics panel for Astro2010. We received special permission to share the results at the 2009 Women in Astronomy III conference. Here is a link to the paper:

https://umdrive.memphis.edu/jschmelz/public/WIA_Paper.pdf

Why tenured women? Other surveys of women in astronomy have been more general. See, for example, the article in the June 2004 issue of STATUS entitled, “Portrait of a Decade: Results from the 2003 CSWA Survey of Women in Astronomy” by Jennifer Hoffman and Meg Urry:

http://www.aas.org/cswa/status/STATUS_Jun04sm.

continued next page

Senior Women: A Comparison of Astronomy Organizations continued

In my mind, tenure means success. Of course, there are many ways to succeed in astronomy, but tenure may be the most universal. This survey was narrowly focused to begin to answer a very specific question: “Are women succeeding in astronomy?” One way to answer this question is, “Yes, individual women have always succeeded in astronomy.” Another answer, related to the group rather than the individual, is, “Yes, but progress is all too slow.”

This list is meant to be an evolving document, so as members of your organization get tenure, retire, arrive, leave, etc. we invite you to send the new numbers to CSWA so we can keep an accurate tally. Please feel free to contact us with any changes, updates, and questions. Also, if you would like to add your department or research group to the list, please let us know. We will be posting these data on the CSWA web page in the near future.

% Women	# Women	# Men	Institution	Department	Joint Appts.
42.9	3	4	Indiana Univ.	Astronomy	
33.3	4	8	Univ. of Washington	Astronomy	
33.3	3	6	New Mexico Tech	Physics	
33.3	1	2	Case West Res Univ.	Astronomy	
30.0	3	7	Yale Univ.	Astronomy	
29.2	3.5	8.5	Caltech	Astronomy	
28.0	1.75	4.5	Univ. of Wisconsin	Astronomy	1 at 0.75; 1 at 0.5
23.8	5	16	UCSC	Astronomy & Astrophys.	
23.1	3	10	Univ. Michigan	Astronomy	
23.1	3	10	Columbia Univ.	Astronomy	
22.4	3	10.4	Ohio State	Astronomy	1 at 0.25; 3 at 0.05
20.8	15	57	NASA GSFC	Astrophysics	
20.0	4	16	Univ. of Arizona	Astronomy	
20.0	2	8	Univ. of Minnesota	Astronomy	
19.0	2	8.5	Princeton Univ.	Astrophysical Sciences	1 at 0.5
16.7	3	15	UCLA	Astronomy & Astrophys.	
15.7	8	43	NASA GSFC	Heliophysics	
15.0	3	17	Univ. of Colorado	Astrophys. & Planet. Sci.	
15.0	3	17	Rensselaer Poly. Ins.	Physics	
14.3	4	24	Yale Univ.	Physics	
14.3	2	12	Univ. of Florida	Astronomy	
14.3	2	12	UMass	Astronomy	
13.6	3	19	Northwestern Univ.	Physics & Astronomy	2 at 0.5
12.8	5	34	STScI	Astronomy	
12.5	2	14	Penn State	Astronomy & Astrophys.	
12.5	1	7	Univ. of Illinois	Astronomy	2 at 0.5
11.8	2	15	UC Berkeley	Astronomy	
11.1	2	16	Florida Inter. Univ.	Physics	
10.5	2	17	NOAO	Astronomy	
10.0	5	45	Univ. of Hawaii	Physics & Astronomy	
10.0	2	18	Univ. of Texas, Austin	Astronomy	
10.0	1	9	Arizona State Univ.	Astrophysics	

Senior Women: A Comparison of Astronomy Organizations continued

% Women	# Women	# Men	Institution	Department	Joint Appts.
9.5	2	19	Cornell Univ.	Astronomy	
9.3	5	49	Smithsonian	Part of CfA	
8.3	3	33	Louisiana State Univ.	Physics & Astronomy	
8.3	1	11	Harvard Univ.	Astronomy; Part of CfA	4 at 0.5
8.1	2.5	28.5	Rice Univ.	Physics & Astronomy	5 at 0.5
7.7	1	12	Boston Univ.	Astronomy	
7.5	4	49	MIT	Physics	
7.4	1	12.5	Univ. of Maryland	Astronomy	1 at 0.5
7.1	4	52	Texas A&M Univ.	Physics and Astronomy	
6.8	2	27.5	Univ. of Delaware	Physics & Astronomy	1 at 0.5
6.4	3	44	Stony Brook Univ.	Physics & Astronomy	
5.6	2	34	Iowa State Univ.	Physics & Astronomy	
5.6	1	17	Univ of Toledo	Physics & Astronomy	
4.7	1	20.5	Univ. of Chicago	Astronomy & Astrophys.	3 at 0.5
4.2	1	23	NRAO	Astronomy	
4.0	1	24	Johns Hopkins Univ.	Physics & Astronomy	
0.0	0	21	Univ. of Utah	Physics & Astronomy	
0.0	0	13	Univ. of Virginia	Astronomy	

- Notes:
- These numbers are for Spring 2011;
 - For joint appointments, we include the fraction of time devoted to astronomy;
 - These data are for the entire department, not just the astronomy component of a department;
 - Assistant professors, research professors, junior members, part-time instructors, soft-money researchers, postdocs, emeritus faculty, etc. are not included in this list.

IAU Membership Deadline

Scientists seeking to become IAU members apply through the relevant National Committee of the country where they are working or living permanently. In the United States, the U.S. National Committee of the IAU (USNC-IAU) is organized through the Board on International Scientific Organizations at the National Academy of Sciences.

The USNC-IAU establishes an application procedure following IAU regulations and procedures and accepts applications in the year prior to each General Assembly. With the next General Assembly scheduled to be held in

August 2012 in Beijing, China, the USNC-IAU is happy to announce that the membership application process is now open. A new electronic membership application process has been established to make becoming a member easier. Interested scientists should send a request for membership information to the following email address: IAU_Applications@nas.edu. An access code will be provided to the online membership application system.

The deadline for applications for membership is 18 November 2011.

News from the Dynamical Astronomy Division

Alice Monet, Division Secretary

2011 Brouwer Award Winner

Each year since 1976 the DDA has honored the achievements of a major contributor to the field of dynamical astronomy, recognizing the awardee with an honorarium, a certificate, and presentation of an award lecture. Recent recipients include Victor Brumberg, Simon White, Jacques Laskar, James Williams, and Tim de Zeeuw.



The Brouwer Award was established to recognize outstanding contributions to the field of Dynamical Astronomy, including celestial mechanics, astrometry, geophysics, stellar systems, galactic and extra galactic dynamics. The 2011 awardee, selected at the division meeting in Austin, Texas, is Dr. Evangelia

Athanassoula, Laboratoire d'Astrophysique de Marseille and Observatoire Astronomique de Marseille-Provence.

Lia Athanassoula is distinguished for her perceptive work in numerical dynamics of disk galaxies. With Jerry A. Sellwood in 1986, she demonstrated how the gravitational field of the dark halo and the velocity dispersion of the disk can both contribute to the stability of the disk. Her studies of angular momentum transport between galactic bars and dark halos showed how angular momentum transport can affect the strength, shape and pattern speed of the bar: the dark halo can make a bar become more prominent, instead of simply stabilizing the disk against bar formation as was previously believed. Her pioneering papers (1992ff) on gas flows and shock structures in galactic bars, and the observable consequences made her the leading authority on this subject. Her more recent work on the formation of boxy and peanut-shaped bulges via bar formation is particularly useful because of its direct application to the large amount of new observational data on the kinematics of the Galactic bulge and boxy bulges in external systems. Her institute in Marseille is a leading center for research and postdoctoral training in galactic

dynamics. (Citation by Ken Freeman)

Student Stipend Awards

At its annual meeting, the DDA awards stipends on a competitive basis to students who wish to attend the meeting and present a talk on their research. In addition to the stipend award, meeting registration and banquet fees are waived for the stipend winners.

The competition is open to all students currently enrolled in an academic program at any college or university and doing research in the area of dynamical astronomy. Such research areas include, but are not limited to:

- the dynamics of planetary systems
- star and planet formation
- star cluster dynamics
- hydro- and plasma dynamics
- galactic and extragalactic dynamics
- cosmology
- coordinate systems
- astrometry.

The Student Stipend winners for 2011 were Rebekah Dawson (Harvard-Smithsonian CfA), Daniel Jontof-Hutter (UMd), and Sarah Miller (Oxford Astrophys. and CalTech).



Rebekah Dawson receives Student Stipend Award from Marc Murison

scientific research. Discretionary spending is divided between security and non-security (plus covered entitlements). The cut to Medicare is capped at 2%. NASA and NSF funding are in non-security. Before the cuts go into effect, the discretionary spending is revised to be about 50/50 between security and non-security without changing the capped amount. The security portion of discretionary spending is reduced and put into non-security.

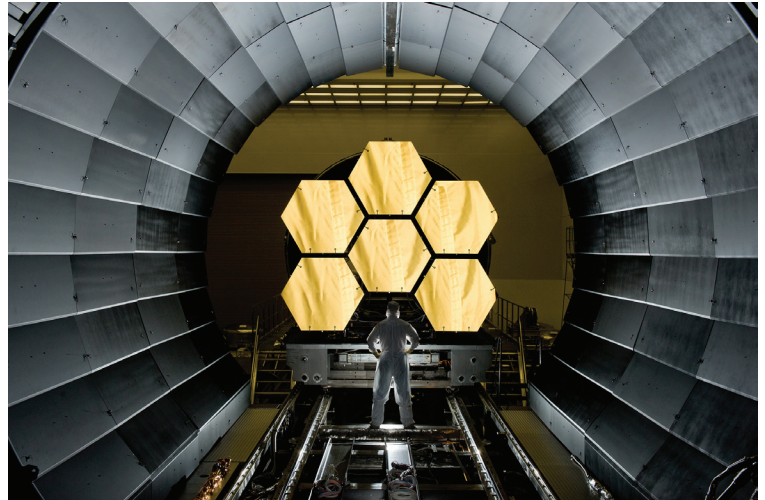
The triggered cuts apply to the revised version of discretionary spending by a formula. Starting with \$1.2T, subtract the amount of deficit reduction achieved by the enactment of a joint committee bill, reduce the difference by 18% to account for debt service, and spread out evenly over the decade, nine years.

Security discretionary spending will reduce from \$546B to \$492B if the Committee fails entirely. That is 10% less, a \$54B cut in defense discretionary spending in 2013. Non-security discretionary spending will reduce from \$501B to \$461B if the Committee fails entirely. That is 8% less, a \$40B cut in non-security discretionary spending in 2013. Medicare spending would be cut 2% in 2013.

Whether the Joint Committee is successful or not, the discretionary percentage cuts are on top of the 2013 share of the \$917B of discretionary spending cuts enacted when the Budget Control Act is signed. Discretionary spenders will correctly argue that they are paying once up front to offset the initial \$900B debt limit increases, and then again to offset almost all of the \$1.2T debt limit increase if the Joint Committee process fails.

Congress is not the only branch of government tightening the purse strings. On 17 August 2011, the Office of Management and Budget in The White House released a memo for the Heads of Departments and Agencies giving budget guidance for FY2013:

“Your overall agency request for 2013 should be at least 5 percent below your 2011 enacted discretionary appropriation. As discussed at the recent Cabinet meetings, your 2013 budget submission should also identify additional discretionary funding reductions that would bring your request to a level that is at least 10 percent below your 2011 enacted discretionary appropriation ... These 5 and 10 percent reductions from the 2011 enacted



A NASA engineer looks on as the first six flight-ready primary mirror segments for the James Webb Space Telescope are prepared for cryogenic testing at NASA's Marshall Space Flight Center last April. Courtesy NASA/MSFC/David Higginbotham.

level should not be achieved by proposing across-the-board reductions.”

In FY2011 NASA received \$18.5B and NSF \$6.873B. A reduction of 10% to NSF is almost half of the Mathematical and Physical Sciences Directorate where both Astronomy and Physics are funded. For NASA a 10% reduction is about twice the whole Astrophysics budget, including JWST.

A reduction in spending will be happening from Congress and from the White House. Science and innovation will feel the hit. The concern is not only for the next generation of scientific facilities like JWST, but also inspiring the next generation of young scientists.

Where is the hope? The hope is that next year, 2012, is an election year.

¹<http://i2.cdn.turner.com/cnn/2011/images/08/02/re112a.pdf>

²http://www.washingtonpost.com/lifestyle/style/whats-congress-less-popular-than-among-other-things-human-cloning/2011/08/09/gIQAznM26I_story.html

Agency News

News from the Astronomical Society of the Pacific (ASP)

James Manning, Executive Director

Reaching Out

You can't stay in your corner of the forest waiting for others to come to you.

You have to go to them sometimes.

-A. A. Milne

As I write, I am (reasonably) fresh from the Astronomical Society of the Pacific's annual conference—a national EPO conference held in Baltimore at the very beginning of August, in conjunction with the co-hosting Space Telescope Science Institute (STScI) and American Geophysical Union (AGU) and a host of co-sponsors including the American Astronomical Society (AAS).

We met in grand style in the beautifully restored old Baltimore Masonic Temple, managed by the Tremont Plaza Hotel, and had three grand days of posters, short orals, longer hands-on demonstrations and professional development sessions, and networking opportunities. The opening reception at the Maryland Science Center featured a screening of the “Hubble 3D” IMAX film introduced by Frank Summers and the “Hubble Repairman” himself, John Grunsfeld, and one evening, STScI provided a quartet of scientists to share Hubble-enabled research highlights—all knitted together by the conference theme of “Connecting People to Science.”

The communal plenary sessions also built on this theme. NASA Chief Scientist Waleed Abdalati pointed out the importance of space-based imagery in connecting people to a greater understanding of our home planet. David Blewett of Johns Hopkins University and the Applied Physics Laboratory demonstrated how missions like MESSENGER, LRO, and the Vesta-circling Dawn are linking us in new ways to other rocky worlds of the solar system. Karen Peterson, Jolene Jesse, and Laura Huerta Migus of the Nationals Girls Collaborative Project, NSF, and ASTC respectively discussed the challenges of connecting girls in particular to science career trajectories. And Randi Korn of Randi Korn and Associates spoke of the challenges of evaluating the effectiveness of our informal education efforts to connect in the 21st century.

But it was only when the dust cleared that I realized that the conference's bracketing plenaries—the opening keynote and the closing talk—had reinforced an important if obvious sub-theme: that it really does take two to tango, to make the connections we seek, and to advance science literacy as a result.

The keynoter was Chris Mooney, author of *The Republican War on Science*, *Storm World: Hurricanes, Politics, and the Battle Over Global Warming*, and *Unscientific America* (the latter with co-author Sheril Kirshenbaum). In his presentation, “Unscientific America: What's the Problem? What's the Solution?”, Mooney laid out the state of science literacy today, and argued that it's not just a case of the public not “getting” science; it's about the social, cultural and political factors that affect whether or not people are even receptive to the message. And that if things are to change, the scientific community needs to actively reach out to people, and engage them where they live, not where we do.

How? Neil deGrasse Tyson, in the closing plenary “Tales from the Twitterverse,” offered one fascinating example. After likewise laying out the sorry state of science literacy today, Tyson entertainingly related his experience in engaging the denizens who live online in Twitter mode. Through clever 140-character (max) posts, he uses popular culture to provide and propagate soupçons of science—observations, subtle commentaries, mini-exercises in scientific and critical thinking. The effort has earned him 200,000 followers and counting (admittedly less than Lady Gaga and the Kardashians, but growing), and a spot on *Time Magazine's* 140 best Twitter feeds.

That's saying something—in all meanings of the phrase.

And the one-two Mooney-Tyson punch nicely illustrated not only the challenges of improving science literacy, but the importance of proactive and cultural engagement of people by the science and EPO communities.

So—how are you reaching out to the public, where they live, in ways that don't simply present science, but also

work to change attitudes and receptivity to the message? Let us know—and come share your experience at our next national EPO conference!

As Winnie-the-Pooh's creator once wrote, we need to be willing to leave our corner of the forest and go to those we want to reach out to, rather than waiting for them to come

to us. As Owl once told Pooh, that's being an "astute and helpful bear."

May we be successful in our efforts, as we all work to enable a more scientifically literate future.

News from NSF Division of Astronomical Sciences (AST)

Jim Ulvestad, Division Director, julvesta@nsf.gov

FY2011 Budget Information and Future Budget Outlook

The NSF Operating Plan for FY2011 has been approved by Congress and is in the process of being executed. The operations budget for AST is \$236.6M, down from \$246.5M in FY2010. This decrease of approximately 4% is only the second decrease in the AST budget since 1995; there was a small decrease of less than 1% between 2004 and 2005. AST anticipated the possibility of this decrease and smoothed it out by forward-funding some mid-scale and University Radio Observatory programs in FY2010. However, the Re-STAR program for instrumentation improvement in medium size optical/infrared telescopes had no additional funding allocated in FY2011, and funding for the Telescope Systems Instrumentation Program (TSIP) was reduced. Finally, the planned increase for operations of the Atacama Large Millimeter Array (ALMA) was approximately balanced by a scheduled decrease in funding for the Expanded Very Large Array (EVLA) program as it nears its conclusion. These various steps allowed us to keep the total funding for the Astronomy and Astrophysics Research Grants (AAG) program approximately level with that in FY2010; the final AAG success rate in FY2011 will be between 19.5% and 20.0%.

The President's budget request for AST for FY2012 asks for \$249.1M. However, as readers will note from following their favorite news media, the federal discretionary budget is under severe pressure, and there is no guarantee that the AST budget will be close to the requested number. If

the actual budget is, in fact, another decrease relative to FY2011, significant program reductions may be required.

The Major Research Equipment and Facilities Construction (MREFC) line of the budget was cut back to \$117M in FY2011, compared to the President's request of \$165M. The FY2012 President's request asked for \$226M for the MREFC line, but this has been reduced to \$100M in the first appropriations committee markup in the House of Representatives. Readers should recall that this budget line is NSF-wide, and funds major construction in all disciplines, not just astronomy and physics. If the lower MREFC budgets were to become the norm, progress of the Advanced Technology Solar Telescope (ATST) and other projects currently being funded by MREFC would be difficult to maintain. This, in turn, would cause potentially large delays in future construction projects across the NSF.

AST Portfolio Review

We have been working hard to empanel our Portfolio Review Committee, and hope to be finished with that process by the time this newsletter is issued. We thank those in the community who have sent us thoughtful nominations for membership. Further information is available at http://www.nsf.gov/mps/ast/ast_portfolio_review.jsp.

Announcements

NSO Observing Proposal Deadline 15 Nov

The current deadline for submitting observing proposals to the National Solar Observatory is 15 November 2011 for the first quarter of 2012. 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/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.

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.

NASA's Kepler Mission Releases New Data to Public Archive

The Kepler science team announced on 12 August the next release of data to the public archive. Quarter three science data collected during the months of September to December 2009 will be available for download on 23 September 2011 from the Multimission Archive at STScI (MAST) at: <http://archive.stsci.edu/kepler>.

Kepler is the first NASA mission capable of finding Earth-size planets in or near the "habitable zone," the region in a planetary system where liquid water can exist on the surface of the orbiting planet. Although additional observations will be needed over time to reach that milestone, Kepler is detecting planets and planet candidates with a wide range of sizes and orbital distances to help us better understand our place in the galaxy.

"The team recognizes a strong demand from the scientific community for more public data," said Nick Gautier, Kepler Mission project scientist. "This is evident by the volume of papers on exoplanet science as well as stellar astrophysics that have been published using Kepler data."

In particular, independent researchers have used publicly available data to both confirm the existence of Kepler candidate planets and provide new details on planetary systems far beyond our own. For example, one team used the 1,235 planet candidate catalogue to confirm the planet KOI-428b, a hot Jupiter, and further characterize its planetary system.

For a perspective on the body of referred journal articles from the science community, as well as those led by the Kepler science team, see the following publication tables on exoplanet science (<http://keplergo.arc.nasa.gov/PublicationsExoplanets.shtml>) and astrophysics (<http://keplergo.arc.nasa.gov/PublicationsAstrophysics.shtml>).

Enthusiasm from the public about the search for alien planets has also generated profound results powered by the Kepler data. The popularity of sites like the Planet Hunters (<http://www.planethunters.org>), which enlists the help of citizen scientists to identify planet candidates in the Kepler data, demonstrates the groundswell of broad public interest in exoplanet research. Since its launch in December 2010 this website has been used by 40,000 "planet hunters" worldwide to analyze more than 3.5 million observations, netting 69 potential candidates, all from their web browsers.

For more information about Kepler, visit: <http://www.nasa.gov/kepler>.

Cosmic Origins Program Analysis Group (COPAG) Workshop

The Cosmic Origins Program Analysis Group (COPAG) will be holding a community workshop 22-23 September at Space Telescope Science Institute in Baltimore, MD. The key goal of this workshop is to determine technology priorities and a draft technology roadmap for future strategic missions within NASA's Cosmic Origins program. This roadmap will provide necessary input to and help guide the NASA technology program. Possible future Cosmic Origins strategic missions include a 4-meter class UV/optical/near IR mission, specifically called out by *New Worlds*, *New Horizons*, an 8-m class UVOIR mission, and far IR/sub-mm missions. The 4-8 m UVOIR mission would likely serve a dual purpose as a nearby near-Earth exoplanet imaging and spectroscopy mission. The concepts and technologies will be discussed

Announcements continued

in the context of this mission requirement. Topics for the workshop include: science objectives of future Cosmic Origins strategic missions, candidate mission concepts, technology requirements for these missions, technology readiness, required investments to mature these technologies, and a logical sequence of development steps and decision points to obtain the necessary new capabilities (roadmap). All interested members of the community are invited and will be accommodated on a first come, first served basis.

For more information visit: <http://www.stsci.edu/institute/conference/copag2011>

Detector Virtual Workshop

The Center for Detectors at the Rochester Institute of Technology presents the “Detector Virtual Workshop,” a year-long program dedicated to the advancement of UVOIR detectors. The objective of the workshop is to enable future detector capabilities by disseminating knowledge; increasing interdisciplinary opportunities; enhancing interactions between academia, industry, and government; and providing student and professional training opportunities. There will be a particular emphasis on informing the scientific community of potential detector developments in the next ten years for next-generation observing platforms. The workshop will include avenues for brainstorming by all participants, and it will culminate in a report that summarizes promising detector developments. The workshop will start in September 2011.

An organizing committee will select speakers who can deliver material to support the objective of the workshop, especially those with the ability to present the most promising detector technologies. A subset of invitations will be reserved specifically for talks that primarily present grand challenges and breakthroughs. The talks will be given twice per month, one at RIT and the other at the speaker’s home institution. The talks will be delivered to audiences around the world through RIT’s Adobe Connect streaming audio/video facility, and they will be recorded and archived for later public use. Talks will be advertised through community newsletters and email exploders.

To be put on the distribution list for talk announcements or to propose a talk, contact Don Figer (figer@cfid.rit.edu). To view the talks, click on the “DVW” link at <http://ridl.cfd.rit.edu/>. This workshop is funded by a grant from NSF.

Seeking Nominees for COSPAR Awards and Medals

COSPAR, the Committee on Space Research of the International Council for Science, is seeking candidates to be nominated for COSPAR awards and medals, which recognize the outstanding achievements of space scientists throughout the world. The awards will be presented at the 39th COSPAR Scientific Assembly, to be held in Mysore, India, 14-22 July 2012.

It is important to honor the contributions of your colleagues. Please take a moment to consider nominees for the following awards and medals:

- **COSPAR Space Science Award** honors a scientist who has made outstanding contributions to space science.
- **COSPAR International Cooperation Medal** is awarded to a scientist (or group of scientists) who has made distinguished contributions to space science and whose work has contributed significantly to the promotion of international scientific cooperation.
- **COSPAR William Nordberg Medal** is presented to a scientist who has made a distinguished contribution to the application of space science.
- **COSPAR Massey Award** is awarded in recognition of outstanding contributions to the development of space research, interpreted in the widest sense, in which a leadership role is of particular importance.
- **COSPAR Distinguished Service Medal** serves to honor extraordinary services rendered to COSPAR over many years.
- **Vikram Sarabhai Award** is awarded by the Indian Space Research Organization for outstanding contributions to space research in developing countries. Eligible candidates for next year’s award must have performed relevant work mainly in the period 2006-2011.
- **Jeoujang Jaw Award** is bestowed by the Chinese Academy of Sciences and is intended to recognize scientists who have made distinguished pioneering contributions to promoting space research, establishing new space science research branches, and founding new exploration programs.
- **Zeldovich Medal** is conferred by the Russian Academy of Sciences to scientists, under 36 years of age on the last day of 2011, for excellence and achievements. Medals are presented to a scientist in each of COSPAR’s Scientific Commissions.

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Calendar of Events

AAS & AAS Division Meetings

12th 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/>

219th AAS Meeting

8-12 January 2012, Austin, TX
<http://aas.org/meetings/aas219>

HAD Meeting

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

220th AAS Meeting

10-14 June 2012, Anchorage, AK
<http://aas.org/meetings/aas220>

Other Events

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

26 September - 1 October 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

Decoupling Civil Timekeeping from Earth Rotation

5-6 October 2011, Exton, PA
Rob Seaman (seaman@noao.edu)
<http://futureofutc.org/>

100th Annual Meeting of the American Association of Variable Star Observers (AAVSO)

5-8 October 2011, Boston, MA
Rebecca Turner (rebecca@aaavso.org)
<http://www.aaavso.org/aaavso-100th-annual-meeting>

Fourth Biennial Frank N. Bash Symposium

9-11 October, 2011, The University of Texas Department of Astronomy and McDonald Observatory
www.bashsymposium.org

Archean to Anthropocene - the past is the key to the future

9-12 October 2011, Minneapolis, MN
Pamela Fistell (pfistell@geosociety.org)
<http://www.geosociety.org/meetings/2011/>

Hinode 5

11-14 October 2011, Cambridge, MA
Kathy Reeves (kreeves@cfa.harvard.edu)
<http://hinode5.cfa.harvard.edu/>

AGN Winds in Charleston

15-18 October 2011, Charleston, SC
Dr. George Chartas (chartasg@cofc.edu)
<http://chartasg.people.cofc.edu/winds4/winds/Welcome.html>

Signposts of Planets

18-20 October 2011, Greenbelt, MD
Marc.Kuchner@nasa.gov
<http://science.gsfc.nasa.gov/667/conferences/signposts.html>

*Midwest Astrochemistry Meeting 2011

21-22 October 2011, Urbana, IL
David E. Woon (davidewoon@gmail.com)
<http://midwest.astrochemistry.us/MWAM11/>

Galaxy Mergers in an Evolving Universe

23-28 October 2011, Hualien, Taiwan
<http://events.asiaa.sinica.edu.tw/workshop/20111023/registration.php>

First International Planetary Cave Research Workshop: Implications for Astrobiology, Climate, Detection, and Exploration

25-28 October 2011, Carlsbad, NM
Tim Titus (ttitus@usgs.gov)
<http://www.lpi.usra.edu/meetings/caves2011/>

21st Midwest Relativity Meeting

4-5 November 2011, Univ of Illinois at Urbana-Champaign
Vasileios Paschalidis (vpaschal@illinois.edu)

Workshop on the Formation of the First Solids in the Solar System

7-9 November 2011, Kauai, HI
Sasha Krot (sasha@higp.hawaii.edu)
<http://www.lpi.usra.edu/meetings/solids2011/>

*Fermi and Jansky – Our Evolving Understanding of AGN

10-12 November 2011, Harbourtowne Conference Center, St. Michaels, MD
Roopesh Ojha (Roopesh.Ojha@gmail.com)
http://fermi.gsfc.nasa.gov/science/fermi_jansky/

First Kepler Science Conference

5-9 December 2011, Moffett Field, CA
Matt Holman (mholman@cfa.harvard.edu)
<http://kepler.nasa.gov/Science/keplerconference/>

Portable Meter-Class Astronomy

20-22 January 2012, Waimea, HI
Russell Genet (RussMGenet@aol.com)
Bruce Holenstein (BHolenstein@gravic.com)
www.AltAzInitiative.org

The Physics of Astronomical Transients

21-27 January 2012, Aspen Center for Physics
Enrico Ramirez-Ruiz (enrico@ucolick.org)
<http://cargo.ucsc.edu/tasc/aspen/>

***Planets around Stellar Remnants**

23-27 January 2012, Arecibo Observatory, Arecibo, Puerto Rico
Alex Wolszczan (alex@astro.psu.edu)
<http://www.mpia-hd.mpg.de/PLANETS2012/index.html>

***Science with a Wide-field Infrared Telescope in Space**

(held in tandem with the 16th International Conference on Gravitational Microlensing)
13-15 February 2012, Pasadena, CA
Dawn Gelino (wfir2012@ipac.caltech.edu)
<http://www.ipac.caltech.edu/wfir2012/>

First Light and Faintest Dwarfs: Extreme Probes of the Cold Dark Matter Paradigm

13-17 February 2012, KITP, UC Santa Barbara
Julio F. Navarro (kitpconf@kitp.ucsb.edu)
<http://www.kitp.ucsb.edu/activities/dbdetails?acro=dwarfgal-c12>

***16th International Conference on Gravitational Microlensing**

(held in tandem with the Science with a Wide-field Infrared Telescope in Space)
15-17 February 2012, Pasadena, CA

Dawn Gelino (wfir2012@ipac.caltech.edu)
<http://www.ipac.caltech.edu/wfir2012/>

***Outflows, Winds and Jets: From Young Stars to Supermassive Black Holes**

3-6 March 2012, Charlottesville, VA
<https://science.nrao.edu/facilities/alma/naasc-workshops/jets2012>

Centenary Symposium 2012: Discovery of Cosmic Rays

12-14 June 2012, Denver, CO
Jonathan F. Ormes (JFOrmes@comcast.net)
<http://portfolio.du.edu/CR2012>

Ultraviolet Astronomy: HST and Beyond

18-21 June 2012, Koloa, HI
James Green (james.green@colorado.edu)

***Centenary Symposium 2012: Discovery of Cosmic Rays**

26-28 June 2012, Denver, CO
Jonathan F. Ormes (JFOrmes@comcast.net)
<http://portfolio.du.edu/CR2012>

***Structure and Dynamics of Disk Galaxies**

12-16 August 2013, Winthrop Rockefeller Institute, Petit Jean Mountain, AR
Marc Seigar (mxseigar@ualr.edu)
<http://astro.host.ualr.edu/conferences/galaxies2013/>

*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. 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.

Announcements continued

Additional details concerning the awards, together with instructions and nomination forms, can be found at <http://cosparhq.cnes.fr/Awards/awards.htm>. Completed nominations forms must be received by the COSPAR Secretariat in Paris no later than 30 November 2011. Questions can be addressed to David H. Smith, executive secretary of the U.S. National Committee for COSPAR, at dhsmith@nas.edu.

Meter-Class Astronomy: Telescopes, Instruments, and Observational Programs

20-22 January 2012, Canada-France-Hawaii Telescope Headquarters, Waimea, Hawaii

The conference is devoted to the development, instrumentation, and use of meter-class telescopes—with emphasis on lightweight, low cost telescopes in

the aperture range of 0.5 to 2.0 meters. Advances in lightweight, low-cost meniscus, foam glass, and spin-cast epoxy mirrors will be covered, as will low cost active primary and secondary mirror systems. The structural design of lightweight telescopes will be examined with a detailed look at a recently designed portable 1.5 meter telescope that weighs less than 500 lb. Instruments and observational programs well suited to meter-class telescopes include high-speed photometry, near IR photometry, low resolution spectroscopy, and polarimetry. There will be special sessions and a workshop on high-speed photometry and occultation observations. The conference will conclude with a panel discussion on the current status and future prospects for meter-class telescopes, instruments, and observational programs. To register visit <http://www.AltAzInitiative.org>.

Washington News

Bethany Johns, John Bahcall Public Policy Fellow, bjohns@aaas.org



Debt Limit Deal Effect on Science

Take a deep breath, take another, and then one more, because the federal debt debate is far from over.

You are not alone if you are frustrated with your members of Congress and how they have been doing their job. Congress's approval rating sunk to a notably all-time low after the passage of the Budget Control Act of 2011 (S. 365), also known as the Debt Limit Deal. A recent CNN poll¹ found that just 14 percent of Americans surveyed approved of how Congress has been doing its job. A Washington Post poll² found that only 17 percent of Americans surveyed thought their representative should be reelected in 2012.

The Debt Limit Deal reads like a complicated logic diagram. Reading it may make you wonder if Congress took advice to better understand science and took a course in Boolean algebra. But how does the Debt Limit Deal affect you? Your research? And astronomy?

First, the deal caps discretionary spending for the next decade. Discretionary spending is the wedge of spending that includes every penny of federally funded research. The discretionary cap is \$1,043B for the federal FY2012, a decrease from the \$1,049B enacted for FY2011. The House started debate back in the spring on discretionary allocations capped at \$1,019B. The Senate will probably use the \$1,043B figure for appropriations and use the "extra" \$24B to refund pet projects, such as Senator Mikulski's support for the James Webb Space Telescope (JWST). The discrepancies in the appropriations between the House and Senate ensure an omnibus FY2012 spending bill to be debated in conference.

The deadline for passing appropriations bills for the next fiscal year is 30 September 2011—less than a month once Congress is back from recess. There will be a continuing resolution (CR) funding the government at previous year levels likely to extend until 23 November 2011, which is the deadline for Congress to vote on a bill by the Joint Select Committee on Deficit Reduction.

The deal ties the amount of cuts to the amount the debt limit can be raised. The debt limit was immediately raised to prevent the government from defaulting on its loans. However, there are conditions on when and how much the debt limit can be raised. The President may raise the debt limit in two steps:

Step 1:

There is \$900 billion available now. The immediate increase is \$400 billion. Congress has the opportunity to disapprove of the debt limit increase by 22 September 2011. If Congress fails to pass a resolution to disapprove, then the debt limit will increase an extra \$500 billion. February 2012 is the approximate time when the first \$900 billion of the debt limit increase runs out, though the President can ask for more based on the results of the Joint Committee.

Step 2:

The Joint Committee is formed and tasked with cutting \$1.2T from the budget over the next decade (with a goal of \$1.5T). 23 November 2011, is the deadline for Congress to vote on the Joint Committee's plan. Congress has the choice to decide where the \$1.2T in cuts come from or on 15 January 2012, there will be triggered, across-the-board, spending cuts in discretionary spending.

There are three possible outcomes.

- If Joint Committee negotiations implode OR agreed on cuts are less than \$1.2T, then the President gets a debt limit increase of \$1.2T and discretionary spending has automatic triggered cuts.
- If Joint Committee negotiations lead to cuts between \$1.2-1.5T, then the President gets a debt limit increase equal to amount of cuts.
- If Joint Committee negotiations lead to cuts greater than \$1.5T, then the President gets a debt limit increase of \$1.5T.

The across-the-board triggered spending cuts will have a profound impact on federal funding for science and

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