

# AAS Newsletter

March/April 2012, Issue 163 - Published for the Members of the American Astronomical Society



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The *AAS Newsletter* (ISSN 8750-9350) is published bi-monthly by the American Astronomical Society, 2000 Florida Avenue, NW, Suite 400, Washington, DC 20009-1231; Tel: 202-328-2010, Fax: 202-234-2560, aas@aas.org; www.aas.org.

*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

NGC 1376, Credit: NASA, ESA, and the Hubble Heritage Team (STScI/AURA), Acknowledgment: R. Thompson (University of Arizona)

# President's Column

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



Deep in the heart Texas, the stars (and moon and Jupiter) were indeed bright as we enjoyed our 219<sup>th</sup> meeting in Austin. The “superbowl of astronomy” this year had over 2900 registrants, including over 600 junior members. The meeting was a memorable one, with terrific speakers and great sessions and workshops. Heineman prizewinner Bob Kirshner, Kavli lecturer Lyman Page, and Cannon prizewinner Rachel Mandelbaum gave lively and exciting talks on their cosmology work. Pierce prizewinner Gaspar Bakos impressed the audience with his live telescope operation while describing exoplanet discoveries, and Berkeley prizewinner Linda Tacconi closed out the meeting with beautiful gas measurements in redshift 2 galaxies. There were poignant NASA manned space mission reflections by Steve Hawley, among many other wonderful plenary talks. There were fun evening events too, both official and unofficial, with “Saving Hubble” and “The City Dark” and “Armageddon” movie showings, and a very lively Wednesday night dance party featuring Brown Dwarfs as the signature cocktail. Many thanks to Kevin Marvel and the AAS staff for their meeting planning efforts, and Lee Anne Willson and the science planning team for lining up such a great program.

We were pleased to have as our first meeting “media interns” several members of the Astrobites community who shadowed Press Officer Rick Fienberg and posted entertaining blogs about the meeting. This opportunity provided them an inside glimpse of a career in science media, which was also the topic of a panel discussion. Other career-building sessions and workshops included discussions about careers in science policy, effective mentoring, teaching diverse audiences, structuring scientific papers, building resumes, citizen science, and astronomers teaching climate change. Providing these kinds of training and awareness of opportunities to our members is part of our core strategic effort, and I thank the many committees and dedicated individuals who organized these and other informative events at the meeting.

We were excited to announce in Austin a brand new Division of the American Astronomical Society, the Laboratory Astrophysics Division, which will be officially recognized at the Anchorage meeting. This is the first new Division in over 30 years; Divisions were first started in the 1970’s for particular subgroups who felt that a focused effort was needed to help their field. Laboratory Astrophysics started as a Working Group five years ago, and their efforts culminated in approval of the new Division and By-Laws during the weekend Council meeting prior to the general meeting.

## President's Column continued

The charter and charge of the new Working Group on LGBTIQ, officially known as WGLE, was approved in Austin. Several WGLE members appeared onstage at the meeting's prize presentation ceremony, during which Charles Francis of the Frank Kameny Papers project accepted a certificate of appreciation to Dr. Kameny in honor of his efforts on behalf of the homosexual community. It was a moving event that led to a standing ovation from much of the audience.

It was a pleasure to award AAS prizes to Dave Leckrone, Grace Deming, Edward Cheng, and Hale Bradt, and to officially announce AAS honorary membership to Yasuo Tanaka. This was the first daytime prize ceremony, which was a nice way to recognize our awardees in front of a broad audience. You will recall that the prize ceremony used to occur during the closing banquet, which has morphed into a free closing reception for all (with fine barbecue in Austin!). We first tried out a closing reception in Boston after getting negative feedback about closing banquets, so we do pay attention to our members' input and keep trying to improve the meeting experience. The closing reception in Anchorage promises to have a fun twist to it, so plan to come and check it out.

Many members do not realize that the AAS has year-round business, including work that transcends the winter and summer meetings. Executive Officer Kevin Marvel and his amazing staff of 18 people are distributed across Membership, Meetings, Communications, Journals, Finance, Information Technology, Press, Education, and Public Policy. There is also the Secretary's office, in addition to the editorial boards and staff for *Astrophysical Journal*, *Letters*, and *Supplements*, *Astronomical Journal*, and *Astronomy Education Research*. The AAS staff works to help Council achieve its strategic goals and implement short-term and long-term initiatives. Council holds a full day of strategic planning at a retreat on the Saturday before AAS meetings, and a full day of business on the Sunday before the meetings, in addition to an autumn Executive Committee meeting which overlaps with the Division Chairs (which I described in the November-December newsletter). These planning sessions can lead to initiatives that may be AAS-wide or that feed back into the work of our numerous committees (six presidential appointment committees, the most recent being the Sustainability Committee and the Demographics Committee, including a longitudinal study; nine standing committees; two boards, the Astronomy Education Board and the Publications Board, whose elected chairs also serve as members of Council; four working groups, the most recent being WGLE; plus 14 prize committees). To

learn more about each of these, check out their webpages on <http://aas.org/comms>.

In Austin, we devoted our strategic Council meeting to ideas centered on some core goals of the AAS: improving diversity, addressing education, considering employment and postdocs, and discussing astropolitics. We reviewed metrics that we are beginning to accumulate in order to assess the effectiveness of our various activities. We had a guest speaker, Associate Dean Sarah Simmons from UT Austin, who described the university's Freshman Research Initiative as a broad program to engage students in scientific research as part of the curriculum as soon as they enter college. Her statistics on the retention of students in science, and the improved diversity in their science programs, bode well for other similar programs by AAS members. She has a brief write-up of the effort elsewhere in this newsletter. Sharing results of such initiatives helps provide those of us in departments with some ways to improve our effectiveness in training and educating students.

The political aspects of astronomy of course involve year-round efforts by Kevin Marvel and Bahcall Fellow Bethany Johns, along with our Committee on Astronomy and Public Policy chaired by Jack Burns, and Council and the Executive Committee. Bethany's gearing up now for Congressional Visits Day participation by about two dozen members in April, along with the new Communicating with Washington initiative that will bring a couple of astronomers to Capitol Hill each week. At the Austin meeting Representative Lamar Smith of Texas made a guest appearance, speaking of his commitment to science and his interest in astronomy. AIP executive director Fred Dylla talked about communicating the importance of science research, and Nobel Laureate Steven Weinberg gave a public talk on big science and its difficulties in this economic climate. It will be an interesting spring as we await the Presidential budget for FY2013 (which of course will be out before you read this), and undoubtedly we will have much work to do to advocate for the priorities of our broad astronomical community.

In December, Kevin and Bethany and I attended an AGU leadership meeting where several different physical society officers discussed how to get science messages across to the public and to Congress. Kevin pointed out that we can all make a positive difference in our communities in this election year by attending local Town Halls to ask

*continued on page 4*

## President's Column continued

this election year by attending local Town Halls to ask our candidates about their stance on science issues. This can be a learning opportunity for our fellow citizens as well. Stressing economic growth and recovery through continued U.S. leadership in science and technology research and in improving science literacy is always an appropriate message. The AAS will continue to issue email action alerts when it is important for the astronomy community to respond en masse to particular issues.

As the AAS elections have ended (congratulations to the winners, see Secretary's Corner, page 8) and we gear up for Anchorage, it is appropriate to remind everyone about the process by which slates for AAS positions are selected. Candidates for officers and councilors are nominated by the Nominating Committee, whose members are elected to three-year terms; see [http://aas.org/comms/Nominating\\_Committee](http://aas.org/comms/Nominating_Committee). Therefore the Nominating Committee is a very powerful committee. Candidates for the Nominating Committee are accepted during the

Members Meeting (aka business meeting) held on the Wednesday of the summer meeting. The Nominating Committee members must be full members of the AAS, but otherwise there are no restrictions. Someone must nominate the Nominating Committee candidate, and the candidate must accept the nomination, in person at the meeting or through prior written consent presented at the meeting. So if you want to have some influence on the slate for your future officers and councilors, this is your chance. The Members Meeting will feature a festive surprise in Anchorage, and I am hoping for a big turnout as I thank departing officers and councilors and introduce new ones, and pass the presidential gavel to David Helfand.

Newcomb (the stuffed) Moose, whom some of you saw at the close of the Austin meeting, is sitting on my computer reminding me to urge everyone to come to the Anchorage meeting. I can not wait! See you all there.

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# Letter to the Editor

## Time for AAS to take a stand on UTC

Dear Editor:

On 19 January 2012 the Radiocommunication Assembly of the International Telecommunication Union (ITU) debated whether to redefine Coordinated Universal Time (UTC) by ceasing leap seconds. At the end of the day the proposal was returned to the study group until 2015 for "further work." After a dozen years the proposal never reached a vote; little documentation supports the change; an ISO opinion suggests such a time-scale cannot be called "UTC." Why then should AAS members care about this issue?

The unmodified proposal remains before the ITU. It would sever the relationship that now exists between civil time (based on UTC and distributed by GPS and the Internet) and Earth's rotation. This link is essential to much astronomical software. Ceasing leap seconds would make UTC a purely atomic time-scale, systematically diverging from UT1, the basis for sidereal time.

In 2006 the DDA Working Group on Time and Coordinate System Standards first urged AAS to formulate a UTC position (<http://aas.org/files/DDA-UTCreport.pdf>), but

the AAS Leap Second Committee disbanded without taking a position (Sep/Oct 2008 *Newsletter*). A finding from the Committee: "The discontinuation of leap seconds, if approved, would therefore most affect those who have to develop and maintain operational software."

What is different now? The proceedings of the 2011 meeting "Decoupling Civil Timekeeping from Earth Rotation" (<http://futureofutc.org>) describe the situation and encourage a Y2K-like UTC software inventory.

This is a singularly astronomical public policy issue; the AAS has a responsibility to take an educated position. The ITU is explicitly asking for guidance, as is the U.S. Mission: "In the time leading up to WRC-15, the study group would undertake additional studies, in consultation with outside organizations with an interest in the issue."

We urge the AAS to take substantive and timely action.

Rob Seaman ([seaman@noao.edu](mailto:seaman@noao.edu))

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# Journals Update

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

## Happy 2012

I admit it is a little late for New Year's greetings, at least on the modern Gregorian calendar. Next year, I will try to remember to wish you New Long Count. The beginning of the year is a good time for me to describe some of the developments we are planning for in the journals program. The major enhancements that we are working on in the research journals fall into three areas: content delivery, content discovery, and data accessibility.

The “born digital” content of the *AJ* and the *ApJ* are delivered on IOP's platform called IOPscience. Our colleagues at IOP have adapted IOPscience so that the presentation of journal articles can be continuously improved, by adding new features and capabilities. (These kinds of developments have been called the “article of the future” in recent years; IOP calls it “article evolution,” which we think sounds more sophisticated.) We are looking forward to being able to deliver *AJ* and *ApJ* articles this way. We will update *all* the articles in our digital corpus—the *AJ* back to 1998, the *ApJ* to 1996—so that enhancements can be made for all those articles. Watch for this late in 2012.

One of the particular enhancements that will be part of IOP's article evolution is “semantic enrichment” of the content. You can think of this as a more capable search facility. It involves a semantic engine that takes advantage of the rich markup in the articles in combination with structured vocabularies to recognize information conceptually. For instance, you could form a search query that asked simply for “the celestial objects mentioned in this paper,” and you would get a reasonable answer. We are hoping this technology will be valuable for discovering a variety of concepts within articles.

Our colleagues at the Harvard Smithsonian Center for Astrophysics (CfA) have been re-inventing Astrophysics Data System (ADS) for the last couple years. The next generation ADS will also permit continuously improving content presentation, semantic enrichment, etc. If you haven't checked out ADS Labs yet, it is worth a look: <http://adslabs.org>.

We still want your data, especially the data that underlie the figures. Ask one of the editors about the suitability of the figure(s) in your next paper. At the moment, our data publishing efforts are confined to (relatively small) data sets that are germane to specific journal articles. The Society is determined to address the problem of data publishing more broadly. We joined the DataCite effort last fall via collaboration with the California Digital Library, and we have begun to engage data management experts in the community, all with the grand goal of creating a data publishing platform that can serve the astronomical community generally.

There is growing concern in the academy about the apparent increase in unauthorized digital copying. We are in discussions about how best to utilize the CrossCheck service to detect potential plagiarism in manuscripts submitted to the AAS journals.

Let me conclude with a status report about digital quanta. We implemented this new mechanism for assessing author fees last April. The roll-out was very successful, and the digitally oriented approach to measuring an article's “length” (perhaps “volume” is a better way to think of it) has also proven itself. It is always a pleasure when our team effects a significant change like this so professionally, and to see how well the community adapts. Thank you, and Happy 2012, to everyone.

## Membership Anniversaries

Theodore Simon, thanks for your 41 years of dedication and service to the AAS.

## Letters to the Editor Policy

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

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

## Opting In and Out of AAS Publications

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

To unsubscribe from AAS emails, contact [address@aaas.org](mailto:address@aaas.org)

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# From the Executive Office

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



The American Institute of Physics (AIP) is an umbrella organization formed early in the 20th century by several physical science organizations to provide common services, especially in publishing, to its member societies and to also promote the physical sciences broadly. Many AAS members are not aware of the AIP or the services it provides them. A portion of AAS member dues are directed to AIP each year which provides AAS members a copy of *Physics Today* and supports the overall activities of AIP.

At the Austin AAS meeting, AIP CEO, Fred Dylla, was invited to an AAS member focus group consisting of members of Council, mid-career researchers and student members so he could gauge AAS member knowledge of AIP programs and how they perceived AIP and the services it provides. Much was learned by both AAS members and Fred. He provided a talking point

document on the directly supportive activities that AIP feels AAS members value (included below) and pledged to work with the AAS Executive Office to broaden our members' knowledge and appreciation of AIP activities.

The AAS currently holds three seats on the AIP governing board and one seat on the Executive Committee and commits about six weeks of effort each year directly supporting AIP governance and other activities. The AAS Treasurer, Peter Stockman, and the AAS Secretary, Fritz Benedict, serve on the AIP Governing Board along with myself and also assist AIP by serving on other committees. Additionally, AAS members serve on advisory committees for AIP, in areas like education and public policy.

Also not well known is that AIP hosts the Society of Physics Students and the Physics Honor Society, Sigma Pi Sigma. The upcoming SPS quadrennial meeting in November this year will be held in Orlando and I am proud to say that all the plenary speakers are AAS members. This is due to the focus on the NASA activities at the nearby Kennedy Space Center. It should be a good meeting, so ensure that your local SPS chapter is planning to attend...it is a great experience for students and advisors alike. See <http://www.spscongress.org/> for further information.

If you have ideas on how AIP can serve you better as an AAS member, let me know directly by email ([kevin.marvel@aas.org](mailto:kevin.marvel@aas.org)) and as always, I value all your input, ideas and comments.

## AIP/AAS Interaction

*Presented by Fred Dylla, AIP Executive Director and CEO, to a special focus group of AAS members on 8 January 2012*

### Student Outreach

AIP supports AAS in reaching the undergraduate physics and astronomy community through student membership opportunities, communication, and supporting students' participation in national meetings. An AAS representative also serves on the AIP Liaison Committee on Education.

Students joining AIP's Society of Physics Students (SPS) may join AAS simultaneously for no additional fee. SPS introduced over 400 prospective astronomers to AAS in 2011. SPS offers AAS the opportunity to include promotional materials in SPS's annual fall mailing to

its more than 700 chapters. Emails to SPS membership (~4,000) also promote AAS, its activities, and its meetings. SPS regularly includes AAS reports and features on [spsnational.org](http://spsnational.org) and in SPS publications. In conjunction with AAS, SPS has hosted undergraduate receptions/poster sessions at national AAS meetings. SPS provide \$200 travel grants for SPS members to present at AAS meetings, and \$200 travel grants for a few SPS reporters to attend AAS meetings and report on the meeting to the broader membership in web and print publications.

## **Physics Today (PT)**

*Physics Today* carries a substantial amount of astronomy-related material (astronomy, space, planetary, and cosmology), more than any other physics-related discipline. PT staff often attend AAS meetings to consider material for future magazine content. (Editor Toni Feder is attending this Austin meeting.)

## **Statistics/community demographics**

AIP's Statistical Research Center (SRC) studies education and employment in the field of astronomy, identifying trends and offering insight about the health of the discipline. SRC has several reports specifically on astronomy enrollments, degrees, and faculty. Reports that combine physics and astronomy feature astronomy-specific analysis.

Together with AAS, the SRC is conducting a longitudinal survey of astronomy graduate students and a survey of employers posting in AAS's *Job Register*. A survey of AAS members is slated to start in Fall 2012; it is expected to occur biennially. SRC Assistant Director Rachel Ivie was recently appointed to the AAS demographics committee, and gave two invited talks at the AAS January 2010 meeting, one on the longitudinal survey of graduate students and one on employment in astronomy. Ivie also served on the NRC decadal survey for astronomy in 2009.

## **Government Relations**

AIP and AAS work together to help influence effective government policy for STEM education and for emergent issues, such as shortages of Plutonium 238. We also work together to advocate adequate funding support for scientific research. In addition, AIP helps AAS organize Congressional Visit Days each spring. AAS provides financial support for the AIP State Department Fellowship Program; fellows contribute scientific and technical expertise to the State Department and raise awareness of the value of scientific input. AIP and AAS also work together on the Innovation Task Force and through the Coalition for National Science Funding. Kevin Marvel serves on the AIP Governing Board Task Force on Public

Policy and chairs the AIP Government Relations Advisory Committee.

## **Prizes/Awards**

AAS and AIP partner on the Dannie Heineman Prize for Astrophysics. AAS manages the nomination/selection; AIP communicates/reports to the funder (the Dannie Heineman Foundation), and publicizes the award. The 2011 Award was presented this morning to Robert P. Kirshner of the Harvard-Smithsonian Center for Astrophysics.

AIP and AAS often interact with the AIP Gemant Award, for significant contributions to the cultural, artistic, or humanistic dimension of physics. Most often this annual award is conferred during a national meeting of the AAS.

## **History programs**

Niels Bohr Library & Archives are the repository for AAS's historical records, and staff accessions additions to the collection regularly as they become available. The library currently houses over 150 linear feet of AAS's archival records, plus A/V recordings, photographs, and oral history transcripts. All the materials are stored in secure, climate controlled space and are cataloged online and available to AAS staff, members, and others. Library staff have recently digitized and put online the transcripts for a major oral history project on the Sources for History of Modern Astrophysics that we conducted in the 1980s.

AIP and AAS will hold a jointly-sponsored workshop on a Plan for Preserving Astronomy's Archival Records on 18-19 April 2012 at the American Center for Physics in College Park, MD. Joe Anderson, Director of the NBLA and Greg Good, Director of the Center for History of Physics serve on the planning committee.

## **News and Media Services (NMS)**

AIP collaborates informally with the AAS on media activities. At the Austin meeting, NMS is sponsoring a press reception, at which we will present AIP's science communication awards for 2011. AIP joined AAS at the Vancouver CESSE meeting (2011) to discuss the emerging media relations challenges in the era of new media.

# Secretary's Corner

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

## AAS Election Results

The results of the latest AAS election are presented below. The Society thanks all who agreed to stand for election, for their commitment and service to the community, and congratulates the winners. New AAS Officers and Councilors begin their terms after the Annual Members Meeting, June 2012, at the Anchorage Meeting. Other terms are as noted.

### Vice-President

(June 2012-June 2015)

Paula Szkody

### Nominating Committee

(Feb 2012-Feb 2015)

Arne A. Henden

Elizabeth L. Blanton

### Education Officer

(June 2012-June 2015)

Edward E. Prather

### USNC-IAU Representative

(Oct 2012-Sept 2015)

Arlo U. Landolt

### Councilors

(June 2012-June 2015)

Nancy S. Brickhouse

Steven D. Kawaler

Todd J. Henry

## AAS Prizes

Your Society awards a number of prizes and grants each year. Details can be found at <http://aas.org/grants>.

To address a dwindling number of nominations the Council approved a change to the ground-rules for the Warner and Pierce 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 committee will be blind regarding self-nominations versus outside-nominations. Consequently, a nominating letter should be drafted as a support letter, even if you are in fact nominating someone. Additionally, all nominations, self and otherwise, for the Warner/Pierce prizes will be considered by the Warner/Pierce committee to be eligible for both prizes.

The deadline for all prize nominations is 30 June 2012. 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).

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## 219<sup>th</sup> Meeting Council Actions

1. Council approved the minutes from the 218th meeting.
2. Council approved the Executive Committee interim actions.
3. Council approved the following statement be added to the Minutes, with one abstention: "The scientific journals of the AAS are and have been a key resource in implementing the mission of the society. The Council commends the journals, their editors, and their governing boards for many decades in constantly improving the mission of the AAS."
4. Council renewed the editorial terms of Ethan Vishniac and W. Butler Burton.
5. Council clarified that all nominations, self and otherwise, for the Warner/Pierce prizes be considered by the Warner/Pierce committee to be eligible for both prizes.
6. Council ratified the appointments to the AAS Prize Committees.
7. Council adopted the Executive Officer's Succession plan as proposed by the Council.
8. Council approved the formation and addition of the Laboratory Astrophysics Division (LAD).
9. Council approved a Working Group on LGBTQ, known as WGLE
10. Due to changes in USNC-IAU terms, and a conflict with the AAS election schedule, the Council approved extending the term of Sally Heap on the USNC-IAU to October 2014.



# An Update on the James Webb Space Telescope

Dr. John Mather, JWST Senior Project Scientist, [john.c.mather@nasa.gov](mailto:john.c.mather@nasa.gov)

The James Webb Space Telescope project was a major focus of the January AAS meeting in Austin TX. The JWST team organized a Town Hall meeting, collected inputs from the astronomical community through a user survey, gave a presentation at the NASA Hyperwall, and I hosted a student meet-up on Tuesday, 10 January. Well over a hundred undergraduate and graduate students attended the meet-up, and expressed great interest in the scientific capabilities of our next Great Observatory. Throughout the AAS meeting, the JWST team also interacted with astronomers at the Space Telescope Science Institute and Northrop Grumman Aerospace Systems booths in the poster hall, and distributed materials that describe the project status and science capabilities.

The past year has seen several major changes in the JWST project. At the Town Hall meeting, JWST Deputy Program Director from NASA HQ, Dr. Eric Smith, summarized the events of 2011 and described the JWST replan. The replan addresses the concerns raised by the Independent Comprehensive Review Panel (ICRP), and gives the project a new management structure and a new schedule. The JWST project is now a separate program office in NASA's Science Mission Directorate, and the new program director reports directly to the NASA Associate Administrator. JWST is one of the top three NASA priorities. The schedule for JWST was re-baselined for a 2018 launch date, at a capped total cost to launch of \$8B.

Since the replan began, the JWST project has completed more than 90% of its milestones on time, more than a third of which were delivered ahead of schedule. For example, in the past few months the project finished the assembly and initial testing of the telescope mirrors, completed the Aft Optic System integration and alignment, installed the helium shroud floor at the Johnson Space Center Thermal Vacuum Chamber A, which will be used for testing of the assembled telescope, and completed the electronics simulator model for the Integrated Science Instrument Model (ISIM). To keep the astronomical community informed, the JWST project has created a new web page that will be updated monthly, <http://www.jwst.nasa.gov/recentaccomplish.html>.

Looking forward towards 2012, Dr. Matt Greenhouse of the Goddard Space Flight Center (GSFC) described the status of the JWST science instruments and highlighted several upcoming milestones. The full field, cryogenic, optical simulator of JWST (OSIM) will complete cryo-

vac certification. The OSIM will provide simulated point source images for testing the optical performance of the JWST instruments in the ISIM. Presently, engineering models of the science instruments are being integrated within the flight ISIM at GSFC. A major milestone in 2012 will be the first delivery of the flight instruments to GSFC. NIRCcam, MIRI, and the FGS/NIRISS are on schedule for delivery in 2012, with NIRSpec following in 2013. With the delivery of the science instruments, the JWST project will enter its extensive integration and testing phase.

The final presentation at the JWST Town Hall was given by Dr. David Charbonneau (CfA, Harvard). As with many themes at the forefront of astronomical research today, JWST will provide unprecedented capabilities to characterize the growing sample of exoplanets. In his presentation, "Sniffing Alien Atmospheres with JWST," Dr. Charbonneau showcased exoplanet studies from Hubble and Spitzer, and remarked that "my dream would be a telescope at a different location with a large aperture."

[Ed Note: The AAS welcomes any mission or facility communications of interest to AAS or Division members.]

Monday, January 9, 2012  
12:45 PM - 1:45 PM  
Session 119 | Ballroom G

## JWST TOWN HALL

Ample time will be reserved for comments and questions from the audience.

<b>JWST: Implementing the Replan</b>	<b>Status of the JWST Science Instruments</b>	<b>Sniffing Alien Atmospheres with JWST</b>
Eric Smith (NASA HQ)	Matt Greenhouse (NASA GSFC)	David Charbonneau (CfA)

**JAMES  
WEBB  
SPACE TELESCOPE**

# 2012 Prize Winners



Left to right: W. David Arnett, Heather Knutson, Donald W. McCarthy, Chryssa Kouveliotou, John A. Johnson

## **W. David Arnett - Henry Norris Russell Lectureship**

The Henry Norris Russell Lectureship of the American Astronomical Society is awarded to W. David Arnett, Regents Professor at the University of Arizona, for a lifetime of seminal contributions to the fields of stellar explosions, nuclear astrophysics and hydrodynamics. Arnett has for many years been a leader in developing our understanding of core collapse processes and nucleosynthesis in massive stars. He has also done pioneering work on thermonuclear burning in White Dwarf stars and on the origin of Type Ia supernovae, which are at the center of contemporary observational cosmology.

## **Heather Knutson - Annie Jump Cannon Award**

The Annie Jump Cannon Award in Astronomy is awarded to Heather Knutson for her pioneering work on the characterization of exoplanetary atmospheres. Her ground-breaking observations of wavelength-dependent thermal emission of exoplanets over large fractions of their orbit enable a longitudinal mapping of brightness to reveal details of atmospheric dynamics, energy transport, inversion layers, and chemical composition. This work has expanded the rich field of planetary characterization by providing new windows into the atmospheres of planets beyond the confines of our solar system. It has inspired numerous other theoretical and observational investigations and will serve as an important technique used with current and future space observatories to gain fundamental insight into the properties of exoplanetary atmospheres.

## **Donald W. McCarthy - AAS Education Prize**

The AAS Education Prize is awarded to Donald W. McCarthy for his tireless efforts over the past three decades through the University of Arizona's Astronomy

Camp to educate and involve more than 1500 students, teachers and adults in astronomy and the scientific method using authentic inquiry; and for expanding the model internationally through the Tecnológico de Monterrey;

For encouraging numerous youth and adult campers to pursue science as a career, including several who now hold Ph.D.s in Astronomy;

For inspiring many students to pursue astronomy projects in international science fairs, leading to 11 National Young Astronomer Awards and 7 finalists in the Intel Science Talent Search;

For motivating and mentoring numerous graduate students and Astronomy Camp counselors to pursue teaching with the best practices in education, including facilitating a sense of exploration and passion for astronomy;

For providing outreach over the past decade to the adult leadership of the Girl Scouts of America and providing a model for instructing Girl Scouts in astronomy and science inquiry.

## **Chryssa Kouveliotou - Dannie Heineman Prize**

The Dannie Heineman Prize for Astrophysics is awarded to Chryssa Kouveliotou (NASA/MSFC) for her extensive accomplishments and discoveries in the areas of gamma ray bursts and their afterglows, soft gamma repeaters, and magnetars. Particularly notable are Dr. Kouveliotou's abilities to create collaborations and her effectiveness and insights in using multiwavelength observations.

## **John A. Johnson - Newton Lacy Pierce Prize**

The Newton Lacy Pierce Prize is awarded to John A. Johnson (Caltech) for major contributions to understanding fundamental relationships between extrasolar planets and their parent stars, including finding



Left to right: Ronald L. Gilliland, C. Megan Urry, Eric B. Ford, M. M. (Thijs) de Graauw, Tim Puckett

a variety of orientations between planetary orbital planes and the spin axes of their stars, developing a rigorous understanding of planet detection rates in transit and direct imaging experiments, and examining possible correlations between planet frequency and the mass and metallicity of their host stars.

#### **Ronald L. Gilliland - Beatrice M. Tinsley Prize**

The Beatrice M. Tinsley Prize is awarded to Ronald L. Gilliland (Penn State) for his innovative work on ultra-high signal-to-noise observations related to time-domain photometry and the opening of this new frontier.

#### **C. Megan Urry - George van Biesbroeck Prize**

The George van Biesbroeck Prize is awarded to C. Megan Urry (Yale) for her tireless efforts to enhance the participation of women in astronomy and other scientific disciplines, through the organization of meetings, written works, lectures and effective mentoring, done outside and in addition to her work as a scientist.

#### **Eric B. Ford - Helen B. Warner Prize**

The Helen B. Warner Prize is awarded to Eric B. Ford (University of Florida) for his theoretical and computational research in the field of extrasolar planets, including ground-breaking work on the dynamical evolution of planetary systems and planet formation. This work has established the importance of gravitational scattering within exoplanet systems, quantified the uncertainty in exoplanet orbits, led to immediately useful and testable observational predictions, and aided the efficient design of new exoplanet searches.

#### **M. M. (Thijs) de Graauw - Joseph Weber Award for Astronomical Instrumentation**

M. M. (Thijs) de Graauw (Joint ALMA Observatory) is awarded the Joseph Weber Award for Astronomical Instrumentation for his leadership in the construction of powerful new astronomical instruments including the Short Wavelength Spectrometer on ISO and the Heterodyne Instrument For the Infrared on Herschel.

#### **Tim Puckett - Chambliss Amateur Award**

In 1997, amateur astronomer Tim Puckett completed work on a custom 0.60-meter telescope at his observatory in Georgia (USA). Only a year later, he started the Puckett Observatory World Supernova Search program that has, to date, discovered more than 200 supernovae. The early detection of supernovae, while still on the rise, can lead to obtaining vital information on these objects. Understanding the several types of supernovae has profound implications in astrophysics and cosmology, e.g., the type Ia supernovae are the “yard sticks” used to measure the vast distances of the Universe. The quick identification of and discovery announcement of a new supernova and by Puckett and his team members has allowed astronomers to observe supernovae through important stages of their evolution and so advance theories on the physical processes that cause some stars to exit the stage in violent bursts of light and energy, sometimes outshining their host galaxy.

Puckett and his team have discovered some very unusual supernovae, including SN2002bj, the first supernova found that was apparently caused by helium flowing from a tiny, massive star to its companion dwarf star. Instead of months, this supernova faded away in mere days, which is entirely different behavior for standard supernova models.

*continued next page*

## Prize Winners continued



Left to right: Caleb A. Scharf, Don Reames, Dibyendu Nandy

The team's work has led to numerous papers in leading professional journals and is recognized world-wide by the professional community for its excellence.

For his efforts in developing and leading this effort to understand some of the most important and intriguing objects in the Universe and the advancements in astrophysics and cosmology that have been made possible through those efforts, the American Astronomical Society is proud to present Tim Puckett with the 2011 Chambliss Award Amateur Achievement Award.

### Caleb A. Scharf - Chambliss Writing Award

This year's Chambliss Writing Award is awarded to Caleb A. Scharf, for his groundbreaking textbook "Extrasolar Planets and Astrobiology" (University Science Books, 2009). This book provides a rigorous treatment of astrobiological topics of contemporary interest; it spans a wide range of subjects including physics, astronomy,

chemistry, and biology. This book thus breaks ground as a bridge between astronomy and biology, and is likely to become the standard textbook for advanced undergraduates, or beginning graduate students, interested in the emerging field of astrobiology. This area of study is becoming essential to the growing fields of exoplanet formation, detection, and characterization. As one reviewer remarked, "Scharf's book is a timely way of introducing young astronomers to this exciting new field."

This book is well suited to be a textbook. The text itself is readily accessible to a wide variety of students, well-written, and carefully referenced. It contains a useful index, as well as appendices with basic tables. Each of the 10 chapters (except the last) ends with selected-reading references and useful homework problems.

### Don Reames - Hale Prize

The 2012 Hale Prize is awarded to Don Reames for his pioneering work on the composition and transport of Solar Energetic Particles, and for the key insights that firmly established the modern paradigm for SEP production.

### Dibyendu Nandy - Harvey Prize

The 2012 Harvey Prize is awarded to Dibyendu Nandy for his advances in the use of kinematic dynamo models to elucidate the typical and atypical solar cycle, and for his outstanding leadership within the solar physics and space climate communities.



The AAS Committee on the Status of Minorities in Astronomy (CSMA) reports that astronomy had the largest number of abstracts, posters, talks, sessions, and participants of any section at the joint meeting of the National Society of Black Physicists and the National Society of Hispanic Physicists in Austin, Texas, last September. At each such meeting, the CSMA gives out three student prizes. Here Yale professor Hector Arce stands with the 2011 winners: Keith Hawkins (Ohio Univ., best undergraduate poster), Camille Avestruz (Yale Univ., best graduate poster), and Alejandro Nunez (Hunter College, best oral presentation). Each will receive a Junior Membership in the AAS and free registration to an upcoming AAS meeting. Photo courtesy Andrew A. West (Boston Univ.)/CSMA.

# The Pipeline: A Model for Creating Innovators through Freshman Research at The University of Texas at Austin

Sarah L. Simmons, Assistant Dean for Honors, Research and International Study,  
The University of Texas at Austin

Incredible potential exists at large research institutions to create a generation of science-minded innovators through undergraduate research, yet current models have limitations of scale, and often, access. The Freshman Research Initiative (FRI) at The University of Texas at Austin is a faculty-initiated reinvention of our undergraduate research paradigm that aligns our research and teaching missions, increases the number and diversity of students engaged in research and significantly impacts student success and engagement in science.

A quick rundown of the first half-decade of the FRI reads more like a college administrator's wish list than like an actual university program.

- Close to 600 first-year science students doing original scientific research every year – over 25% of each incoming class.
- More than 25 unique, faculty-led, year-long “research streams,” which engage students in original research on topics like Computational Intelligence in Game Design, Brain Tumor Pathology, Exploring the Universe with White Dwarf Stars, and Nanomaterials for Chemical Catalysis.
- Better retention of students across all ethnic groups, economic strata, and at-risk categories.
- Increased participation in research by Hispanic and African-American students.
- More than 100 papers published in peer-reviewed academic journals, co-authored by undergraduates.
- More students proceeding to advanced degrees in the sciences, with particularly striking increases in the numbers of women and first-generation students.

The program, begun in 2005 with a small pilot involving 45 students and three faculty, was developed with the explicit goal of tapping the resources of a research university to directly benefit the education of its undergraduates. Seed

funding from both the National Science Foundation and Howard Hughes Medical Institute catalyzed expansion and institutional buy-in, and what has emerged is a program that is actually moving the needle with regard to improving the number of and diversity of students recruited to and retained in degree programs in the sciences and mathematics.

The program is unique in that science and math students, drawn from all backgrounds and preparation levels, are given a multi-semester experience that is integrated into their degree plan and involves real faculty-generated research projects. These 18- and 19-year-olds immerse themselves in “research streams,” and there they swim for three semesters, wading deeply into projects such as programming artificially intelligent cars, searching for dark matter, screening potential drugs, and developing new materials for energy production and storage.

Data about these students are compelling. Students who participate in the FRI are 30-35 percent more likely to graduate with a science degree, and participation in the program more than doubles the graduation rate for Hispanic students. FRI students have higher GPAs and get more scholarships than a matched comparison group, and 128 students have become authors of publishable research papers.

The FRI model is scalable, exportable, discipline-independent and includes all aspects of research from conceptualization through execution and presentation. It opens avenues to research to students who have traditionally not chosen or not had access to such experiences, and by providing transformative educational experiences to large numbers of students, contributes to a diverse pipeline of future scientists.

For more information about The Freshman Research Initiative (FRI), visit <http://cns.utexas.edu/fri>.

# Alaska Beckons: AAS to Meet in Anchorage

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

The Final Frontier comes to the Last Frontier when the American Astronomical Society's 220th semiannual meeting convenes in Anchorage, Alaska, 10-14 June 2012 (<http://aas.org/meetings/aas220>). Sessions will be held downtown at the Dena'ina Civic & Convention Center and the William A. Egan Civic & Convention Center, both within easy walking distance of some of the city's main attractions and most popular eateries. This will be the AAS's second gathering in the 49th state—the first was 49 (!) years ago, when 49 (!!) papers were given at our July 1963 meeting at the Geophysical Institute in College, a few hundred miles to the north outside Fairbanks. Thanks to the Society's and the field's growth since then, and even more to the lure of Alaska's breathtaking scenery, Anchorage could well be the biggest AAS summer meeting in our history.

Even in advance of the regular abstract deadline (March 1st), it's already clear that the Anchorage meeting will be a blockbuster, scientifically speaking. The AAS vice-presidents have assembled a magnificent program of invited and prize lectures and topical Meetings-in-a-Meeting, all enhanced by the participation of our Solar Physics Division (SPD), which is holding several sessions of its own.

As usual things will get started early, on Saturday, 9 June, when AstroZone sets up shop at the Anchorage Public Library to share the wonders of the universe with the local community. That same day sees the first of three workshops by the Center for Astronomy Education (CAE) and Collaboration of Astronomy Teaching Scholars (CATS), with two more on Sunday.

After the undergraduate and opening receptions on Sunday evening, the science program begins on Monday morning with words of welcome followed immediately by the Kavli Lecture by Ewine van Dishoeck (Leiden Univ. & MPI for Extraterrestrial Physics). Her topic, "Laboratory Astrophysics as Key to Understanding the Universe," celebrates the creation of the Laboratory Astrophysics Division (LAD), the Society's first new division in more than 30 years. Building on van Dishoeck's overview, LAD will convene several Meeting-in-a-Meeting sessions throughout the week devoted to bridging laboratory astrophysics and other fields in astronomy and related sciences.

There are 17 more plenary lectures, including public talks by Jay Pasachoff (Williams College) and Nobel laureate

Brian Schmidt (Mt. Stromlo Observatory) on planetary transits and the accelerating universe, respectively. Sandra Faber (UC Santa Cruz) will give her Russell Lecture, Steven Furlanetto (UCLA) his Warner Prize lecture, and Steve Maran his AIP Gemant Prize lecture, which was rescheduled after he couldn't make it to the Austin meeting. SPD will honor recent advances in our understanding of solar energetic particles and the solar cycle with the Hale and Harvey Prize lectures by Don Reames (Univ. of Maryland) and Dibyendu Nandi (Indian Institute of Science Education and Research), respectively. If the AAS gave a prize for the longest plenary-lecture title, our incoming Education Officer, Ed Prather (Univ. of Arizona), would win for "Mix One-Part Astronomy Education Research with One-Part General Education Astronomy Course and You Get a Very Potent Science Literacy Transformation Cocktail." And we will contemplate our relationship with the sky and the rest of our environment through a special invited talk exploring the perspectives of Alaskan native peoples.

Summertime is Meeting-in-a-Meeting (MiM) time, and in addition to the LAD MiM mentioned earlier, we will have nine more on topics as varied as multiple populations in globular clusters, science from the Moon, the extragalactic gamma-ray background, the scientific promise of WFIRST, galaxy mergers from the largest to the smallest scales, Lyman-alpha emitters as probes of galaxy formation and cosmology, exoplanets and astrophysics from the Kepler mission, whether Einstein or Schwinger deserves the last word on gravity, and Chandra's deepest-ever view of the X-ray universe.

As an experiment, the AAS Astronomy Education Board (AEB) will conduct an online session called the Student Virtual Forum (SVF) in which undergraduates who can't make it to Anchorage in person may nevertheless present short oral papers "virtually," that is, from remote locations via the Internet. The SVF will accommodate on-site meeting attendees (everyone is welcome), online student presenters, and other virtual participants worldwide.

At January's meeting in Austin (see page 16 the AAS offered numerous workshops and special sessions on professional development. These continue in Anchorage with "Straight Talk About an Astronomical Career" on Tuesday, 12 June, sponsored by the AAS Committee on the Status of Minorities in Astronomy (CSMA). Panelists will present information and strategies relevant to



# 220<sup>TH</sup> MEETING

OF THE  
AMERICAN ASTRONOMICAL SOCIETY

ANCHORAGE, ALASKA | 10–14 JUNE, 2012

becoming a professional astronomer, suggest techniques for making the most of each stage along your career path, and describe various trajectories on the way to a career that takes full advantage of your PhD. This interactive session will be most successful if it draws participants from all career stages, from students to postdocs to senior astronomers, to help build and strengthen connections among us.

Those interested in possible non-research career options should check out Tuesday's Town Hall organized by the NSF-funded Center for Advancement of Informal Science Education (CAISE). It will focus on how CAISE can help researchers strategize their engagement with the public and will introduce attendees to the landscape of the ISE field and the diversity of career paths within it. The AAS Committee on the Status of Women in Astronomy (CSWA) is presenting a Town Hall on Monday, June 10th, to explore issues related to astronomical bullying. And the new AAS Working Group on LGBTIQ Equality (WGLE), which promotes equality for lesbian, gay, bisexual, transgender, intersex, and questioning individuals within our profession, is holding a Town Hall on Wednesday to explore the anti-discrimination practices, workplace climate, and pay and benefit policies in four employment sectors: industry, the federal government, private colleges, and public universities.

The AAS Committee on Light Pollution, Radio Interference, and Space Debris is screening the new IMAX film *Space Junk 3D* on Wednesday evening, June 13th. Harnessing the beautiful imagery of 3D IMAX, the movie takes viewers from the depths of Meteor Crater to the heights of geosynchronous orbit. It tells a cautionary tale—what goes up doesn't always come down! — and suggests that we may have reached a tipping point in Earth orbit, jeopardizing space exploration for future generations. Why should astronomers care? Space junk threatens our orbiting telescopes and produces streaks in astronomical images that, in addition to being unsightly, can complicate image processing and data analysis.

Thursday night's closing reception will be unlike any in recent memory. Echoing the Society's earliest meetings, when group sing-alongs burst out on the sunny lake-shore in Williams Bay, Wisconsin, the AAS will host an informal talent show. We know that our members are wildly talented in areas outside research, and we want to provide a forum for you to shine. If you think you have talent, whether it's singing, playing a musical instrument, telling jokes, or balancing pool cues on your forehead while bouncing on a pogo stick, we need your help to make this inaugural event a success! Send a short video of your particular talent to [aastalentshow@aaas.org](mailto:aastalentshow@aaas.org) by Monday, 2 April. Executive Officer Kevin Marvel has promised a thrilling (or at least dangerously funny) juggling exhibition, and we can't let him win by default, so please join the fun and show us what you've got!

First and foremost, an AAS meeting offers the opportunity to talk with friends and colleagues about the latest advances in our scientific understanding of the universe. But our 220th meeting, in a city that's as far north as Helsinki, Finland, and as far west as Honolulu, Hawaii, offers so much more. With 24 hours of daylight, the Chugach Mountain Range looming on the horizon, and the sparkling waters of Cook Inlet summoning like a siren, Anchorage and its surroundings provide endless possibilities for adventure at every skill level and budget. Itineraries read like a wish list for those with a love of the natural world. Lose track of time on Anchorage's lush, maintained trails. Get up-close and personal with moose, bear, and fox. Hike to the top of Flattop Mountain, glide along glaciers, hook up a fly rod and reel in a huge king salmon, or tee off at 10 p.m. Go flight-seeing, sea-kayaking, or whale-watching. There are more than 60 glaciers, 30 lakes and ponds, and 200 recognized mountains to visit within 50 miles of Anchorage, including famed Denali (Mount McKinley), at 20,320 feet the tallest peak in North America.

This is one AAS meeting where you really owe it to yourself to come early or stay afterward to experience all that the venue has to offer. Go online to <http://www.anchorage.net> for complimentary visitor guides, maps, restaurant and entertainment information, and other useful tools to plan your vacation in Alaska. See you there!

# Highlights from the Austin AAS Meeting

Everything's big in Texas—even AAS meetings. Registrations for our 219th semiannual gathering got off to a slow start last fall, but by the time we assembled at the Austin Convention Center in early January the meeting had expanded to be one of the biggest ever held outside Washington, DC. A remarkable 2,928 registrants did their best to keep Austin weird, as instructed by countless bumper stickers, store-window signs throughout the city, and former AAS President J. Craig Wheeler, who opened the meeting. Even the science program had grown to Texas size, stretching through the late afternoon of the meeting's fourth and final day.

And by “fourth” I really mean “sixth,” since the weekend before the main program got under way was chock-full of workshops, committee meetings, and Historical Astronomy Division (HAD) sessions. As it always does, science took center stage, but the Austin meeting featured much more than the latest results in astrophysics and space science. For example, a series of special sessions and workshops offered professional-development opportunities for attendees at all stages of their careers. And there were so many public-policy Town Hall meetings that you literally couldn't attend them all, as they had to be scheduled in parallel sessions.

Now, if you think Texas is big, just wait till June, when we convene in the only state that is bigger. Judging from the intense interest in the Alaska tourism display in Austin, our 220th meeting in Anchorage may be one of the biggest summer meetings in AAS history. For a preview, see page 14. The photographs on these pages capture some of the highlights of our week in Austin, and we have posted them all, along with some more, in our Facebook gallery. Unless otherwise noted, all photos are by Kelley Knight Heins, © 2012 AAS.

*Rick Fienberg, AAS Press Officer and Education & Outreach Coordinator*



**Left:** HAD held two sessions on Sunday, including one on transits of Venus in celebration of the 5-6 June 2012, event, the last Venus transit anyone alive today will have a chance to witness. Speakers were Jay Pasachoff (Williams College), Bill Sheehan (*Sky & Telescope*), Nick Lomb (Powerhouse Museum, Australia), and Chuck Bueter (TransitOfVenus.org). **Middle:** Gina Brissenden (Univ. of Arizona) led a pre-meeting workshop for astronomy educators. **Right:** Jonathan Fay (Microsoft Research) and Mike Simonsen (AAVSO) talked about their work with huge cosmic databases during the Sunday-afternoon workshop “Science Tools for Data-Intensive Astronomy.”



**Left:** On Sunday afternoon the Univ. of Texas hosted a press tour of the Center for Electromechanics, where a new 11-meter-wide top end for the Hobby-Eberly Telescope (HET) is being built for the upcoming Dark Energy Experiment, HETDEX. **Middle:** Standing with the HETDEX camera are the scientists and engineers who explained to reporters how they'll use it to learn more about dark energy's influence on the cosmic expansion rate over time: Gary Hill, Marc Rafal, John Booth, Joe Beno, and Richard Hayes. **Right:** AAS Executive Officer Kevin Marvel welcomed students to Sunday evening's undergraduate reception. Joining him were Education Officer Tim Slater (Univ. of Wyoming), President Debra Elmegreen (Vassar College), and Vice-President Lee Anne Willson (Iowa State Univ.). All three photos by Rick Fienberg, © 2012 AAS.





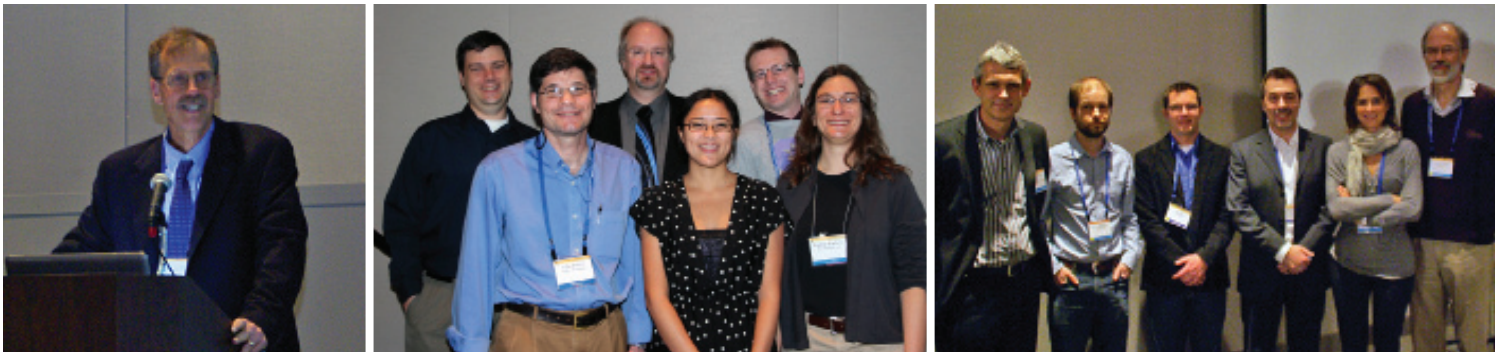
**Left:** If Jonathan McDowell (Harvard-Smithsonian CfA) wondered why he didn't get more interest in his graduate-program display at Sunday evening's undergraduate reception, this photo offers a possible explanation. **Middle:** David Helfand (Quest Univ.), who takes the reins as AAS President in June, held students' rapt attention. **Right:** Thomas Olsen (AIP) set up a table to attract new members to the Society of Physics Students, which held a reception and special poster session later in the week.



**Left:** Even though the hors d' oeuvres are supposedly "not to be construed as dinner," attendees who jammed themselves into the opening reception on Sunday evening found a Texas-size selection of tasty tidbits that left them with little appetite, or need, to go out to eat afterward. **Middle:** Thanks to generous support from the Kavli Foundation, the first invited talk at our meetings is the Kavli Lecture, given by a particularly distinguished astronomer. Receiving that honor in Austin was Lyman Page (Princeton Univ.), who described how studies of the cosmic microwave background can be used to constrain the masses of various types of neutrinos. **Right:** Page had much more than the whole world in his hands—he had the entire observable universe, represented by a globe charting the microwave glow of the Milky Way and the universe beyond.



**Left:** A full program of press conferences kicked off Monday morning with a briefing on dark matter and ways to map it on scales from individual galaxies to the large-scale "cosmic web." Reporters heard from Rachel Mandelbaum (Princeton Univ. & Carnegie Mellon Univ.), Sukanya Chakrabarti (Florida Atlantic Univ.), Catherine Heymans (Univ. of Edinburgh), and Ludovic Van Waerbeke (Univ. of British Columbia). **Middle:** At his Monday invited talk, Robert Benjamin (Univ. of Wisconsin, Whitewater) showed that the simple picture of the Milky Way as a bulge, disk, and halo has been made more complex with recent discoveries of new spiral-arm segments, multiple bar-like components, and other features. **Right:** Matt Greenhouse (NASA GSFC) was among the speakers at Monday's James Webb Space Telescope Town Hall, where attendees learned about recent progress in the observatory's construction and about some of the programmatic changes intended to keep the mission on track for launch in 2018.



**Left:** At Monday's National Science Foundation Town Hall, NSF's Director of the Division of Astronomical Sciences, Jim Ulvestad, provided an update on the ongoing Portfolio Review. **Middle:** At Monday's midday press conference, reporters learned how to build a Milky Way from scientists who've been figuring that out using the SDSS-III SEGUE Survey and the new APOGEE near-infrared spectrograph. SDSS scientific spokesmen Michael Wood-Vasey (Univ. of Pittsburgh, back row, left) and Jordan Raddick (Johns Hopkins Univ., back row, right) helped organize the briefing, which featured presentations by John Wilson (Univ. of Virginia), Steve Majewski (Univ. of Virginia), Judy Cheng (Univ. of California, Santa Cruz), and Constance Rockosi (Univ. of California, Santa Cruz). Photo by Rick Fienberg, © 2012 AAS. **Right:** Monday afternoon's news briefing, entitled "Science So Far from LOFAR," featured early results from the Low Frequency Array radio telescope along with previews of coming attractions from the new facility. The presenters were Heino Falcke (Radboud University Nijmegen, the Netherlands) and Jason Hessels, George Heald, Michael Wise, and Ger de Bruyn (all of ASTRON, Netherlands Institute for Radio Astronomy); they are joined here by their colleague Chiara Ferrari (Observatoire de La Cote D'Azur, France).



**Left:** As a NASA astronaut, Steve Hawley (Univ. of Kansas) deployed the Hubble and Chandra space telescopes and participated in the second Hubble servicing mission. He provided a personal retrospective on 50 years of human spaceflight. Photo by Rick Fienberg, © 2012 AAS. **Middle:** HAD Past-Chair Tom Hockey (Univ. of Northern Iowa) bestowed the Doggett Prize for Historical Astronomy on Woody Sullivan (Univ. of Washington) in recognition of his research, writing, teaching, and leadership in the history-of-astronomy community. Photo by Joe Tenn. **Right:** Nobel Prize-winning physicist Steven Weinberg (Univ. of Texas) gave a public talk on Monday evening. He expressed concern that new political and economic realities will spell the end of big-science projects such as particle colliders and large ground- and space-based telescopes.



**Left:** In a special award ceremony on Tuesday morning, Charles Francis, cofounder of the Kameny Papers Project, accepted a certificate of appreciation from AAS President Debra Elmegreen honoring the work of the late astronomer Frank Kameny toward securing equal employment rights for all, regardless of sexual orientation. **Middle:** The George Van Biesbroeck Prize honors a living individual for long-term extraordinary or unselfish service to astronomy. Hubble scientist Dave Leckrone (NASA GSFC) received the prize from Debbie Elmegreen. **Right:** Hale Bradt (MIT) received the Chambliss Astronomical Writing Award for his book *Astrophysics Processes: The Physics of Astronomical Phenomena* (Cambridge University Press).



**Left:** On Tuesday morning, High Energy Astrophysics Division Chair Chryssa Kouveliotou (NASA MSFC) presented the Rossi Prize to Peter Michelson (Stanford Univ.) and William Atwood (Univ. of California, Santa Cruz) for their work with the Fermi Large Area Telescope. **Middle:** At Tuesday morning's press conference Will Dawson (Univ. of California, Davis), Michele Trenti (Univ. of Colorado & Univ. of Cambridge), Larry David (Harvard-Smithsonian CfA), and Jack Hughes (Rutgers Univ.) presented new results on galaxy clusters. Photo by Rick Fienberg, © 2012 AAS. **Right:** Students were invited to a special Tuesday-morning "meet-up" with Nobel Prize-winner John Mather (NASA GSFC).



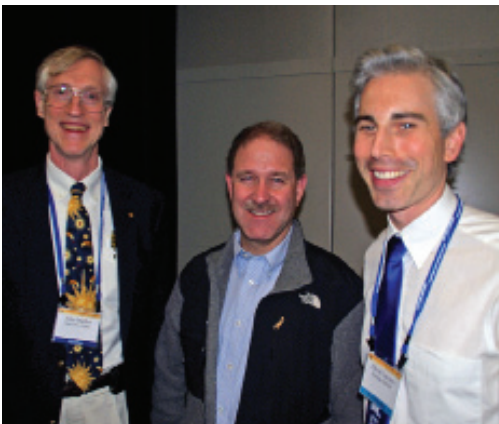
**Left:** Rachel Mandelbaum (Princeton Univ. & Carnegie Mellon Univ.) received the Cannon Prize from Debbie Elmegreen for her work on understanding and eliminating systematic effects inherent in data on weak gravitational lensing of galaxies. **Middle:** The very-high-energy universe was the subject of a midday news briefing on Tuesday. David Thompson (NASA GSFC) reported on Fermi observations of GeV sources, Greg Sivakoff (Univ. of Alberta) described a black-hole outburst, and Daniel Stern (JPL/Caltech) previewed NASA's upcoming NuSTAR mission. **Right:** Ric Edelman, one of the nation's top-ranked independent financial advisors, gave a Tuesday workshop entitled "Personal Finance in Turbulent Times."



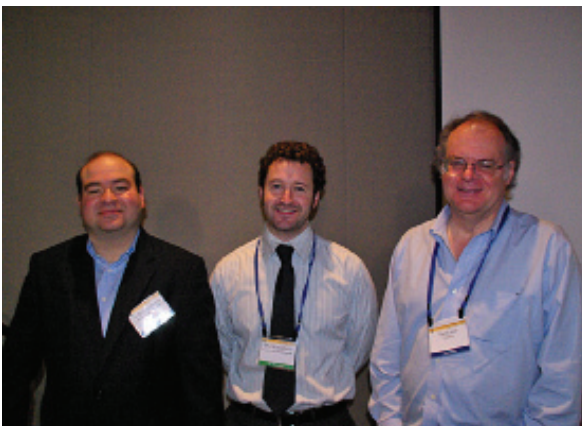
**Left:** A Tuesday-afternoon press conference featured the latest images from four high-flying infrared observatories: SOFIA, Herschel, Spitzer, and WISE. Presenting those images were Erick Young (USRA), Margaret Meixner (STScI), Joe Hora (Harvard-Smithsonian CfA), and Xavier Koenig (NASA GSFC). **Middle:** The AAS Rodger Doxsey Travel Prize provides graduate students or postdocs within one year of their PhD a monetary prize to enable the oral presentation of their dissertation research at a winter meeting. Among this year's winners and honorable mentions were Erik J. Tollerud (Univ. of California, Irvine), Barbara Rojas Ayala (Cornell Univ. & American Museum of Natural History), Geoffrey Mathews (Univ. of Hawaii), Jonathan C. Bird (Ohio State Univ.), Adric Riedel (Georgia State Univ.), Ashley Pagnotta (Louisiana State Univ.), Sarah Ballard (Harvard Univ.), Izaskun San Roman (Univ. of Florida), Mubdi Rahman (Univ. of Toronto), and (in the photo at right) Gail Zasowski (Univ. of Virginia).



**Left:** Gaspar Bakos (Harvard-Smithsonian CfA), seen here with Debbie Elmegreen, received the Pierce Prize for his leadership of HATNet and its use to discover transiting exoplanets. **Middle:** Lee Anne Willson introduced Dimitar Sasselov (Harvard-Smithsonian CfA), whose Tuesday-afternoon invited talk explored how exoplanet discovery and characterization is challenging our understanding of planet formation, planetary structure, and life as a planetary phenomenon. **Right:** Sandra Faber (Univ. of California, Santa Cruz) spoke at the Society of Physics Students special poster session on Tuesday evening, offering career advice based on her own experiences and those of the many students she has mentored over the years.



**Left:** On Tuesday evening filmmaker David Gaynes (right) screened his new movie *Saving Hubble* for a packed house that included JWST Senior Project Scientist John Mather (NASA GSFC) and three-time Hubble repairman John Grunsfeld (NASA HQ), the new head of NASA’s Science Mission Directorate. **Middle:** AAS President Debbie Elmegreen and AIP Executive Director Fred Dylla (right) jointly awarded the 2011 Dannie Heineman Prize in Astrophysics to Bob Kirshner (Harvard-Smithsonian CfA). Kirshner’s prize lecture was entitled “Exploding Stars and the Accelerating Universe.” **Right:** On display in the exhibit hall was the Prime Focus CCD Camera used in the 1990s on the 4-meter Blanco telescope at CTIO in Chile. Observations of Type Ia supernovae with this instrument played a key role in the discovery of dark energy.



**Left:** At Wednesday morning’s press conference Jeffrey Newman (Univ. of Pittsburgh) revealed the integrated color of the Milky Way (“snow white”), and Philip Rosenfield (Univ. of Washington) and Tod Lauer (NOAO) described two very different populations of unusually blue stars in the heart of the Andromeda Galaxy. **Middle:** NOAO Director Dave Silva briefed attendees at a Town Hall on Wednesday. **Right:** The press office in the Austin Convention Center was a very busy place all week. Photo by Rick Fienberg, © 2012 AAS.



**Left:** Type Ia supernovae and their progenitors were the subjects of a midday briefing on Wednesday. It featured new findings by Steven Rodney (Johns Hopkins Univ.), Joshua Bloom (Univ. of California, Berkeley), and Ashley Pagnotta (Louisiana State Univ.) along with commentary by AAS Past-President Craig Wheeler (Univ. of Texas, Austin). Photo by Rick Fienberg, © 2012 AAS. **Middle:** Susana Lizano (Centro De Radioastronomia Y Astrofisica) described how magnetic fields affect the evolution of dense star-forming cores and protoplanetary disks. **Right:** At the meeting's final press conference William Welsh (San Diego State Univ.) and John Johnson (Caltech) announced new exoplanet discoveries, Eric Mamajek (Univ. of Rochester & CTIO) reported a multi-ring planetary-construction zone seen in occultation, and Virginia Trimble (Univ. of California, Irvine, and Las Cumbres Observatory) offered a historical perspective on paradigm shifts in astronomy.



**Left:** In her Wednesday invited talk, Kathryn Johnston (Columbia Univ.) considered what the distribution of stars in the Milky Way tells us about the messy baryonic physics that forms galaxies more generally. **Middle:** At the LSST exhibit, Sidney Wolff (LSST Corp.) gave away pieces of rock from the first blast on Cerro Pachon, Chile, to prepare the site for the telescope. Natalie Gandilo (Univ. of Toronto) was among the recipients. **Right:** Kim-Vy Tran (Texas A&M Univ.) reviewed multiwavelength studies of star formation in galaxy clusters from Coma to the most distant such objects yet discovered.



**Left:** At a press reception late Wednesday afternoon, Fred Dylla (center) presented the 2011 AIP Science Communication Awards to children's book author Vicki Oransky Wittenstein and *Scientific American* writer-editor George Musser. Photo by Rick Fienberg, © 2012 AAS. **Middle:** At the closing reception, Lee Anne Willson strode to the podium to show her winning ticket to Kevin Marvel. Tim Puckett (Apogee Instruments) had just drawn her number from the bowl held by AAS Member Services Coordinator Trace Beale. The prize: an Apogee CCD camera. **Right:** Linda Tacconi (MPI for Extraterrestrial Physics) received her Berkeley Prize certificate from Debbie Elmegreen on Thursday afternoon, then gave a prize lecture on her discovery that star-formation efficiency is not strongly dependent on cosmic epoch.

# An Introduction to the AAS Working Group on LGBTIQ Equality

Van Dixon, Space Telescope Science Institute, [dixon@stsci.edu](mailto:dixon@stsci.edu)

In 1957, a Harvard Ph.D. and AAS member named Frank Kameny accepted a position as a civilian astronomer with the Army Map Service. He was fired within the year, solely because of his sexual orientation. After his dismissal, Dr. Kameny began a decades-long campaign for gay rights. He played leading roles in the efforts to persuade the American Psychiatric Association to remove homosexuality from its Manual of Mental Disorders, to end the U.S. Civil Service Commission's ban on gay federal employees, and to prohibit discrimination based on sexual orientation in the issuance of government security clearances. At its 219<sup>th</sup> meeting in Austin, Texas, the AAS honored Dr. Kameny, who died in 2010, for his lifetime efforts to secure employment rights for all.

The world has changed since Dr. Kameny was thrown out of astronomy. Many gay people have become scientists, and many workplaces have adopted non-discrimination policies. Still, gay astronomers continue to face discrimination. In 29 states, it is legal to fire someone solely because they are lesbian, gay, or bisexual. In 35 states, it is legal to fire someone solely for being transgender. Gay astronomers are compensated systematically less than their non-gay peers, because many employers do not offer same-sex partner benefits. Same-sex couples, including those who were legally married in the U.S. or abroad, are denied federal recognition, creating special financial and legal hardships. One example that particularly affects gay scientists is their inability to sponsor a same-sex partner for a visa or green card.

To address these concerns, the AAS Council chartered the Working Group on LGBTIQ Equality in January 2012. WGLE (pronounced “wiggly”) is tasked with promoting equality for lesbian, gay, bisexual, transgender, intersex, and questioning (LGBTIQ) individuals within our profession. To that end, WGLE will work to

- end hiring and workplace discrimination on the basis of sexual orientation and gender identity or expression;
- eliminate the inequalities in compensation experienced by LGBTIQ individuals;
- create a professional climate that respects and values diversity;
- serve as a conduit for communication between the AAS Council and the LGBTIQ community;

- support networking and peer mentoring among LGBTIQ individuals; and
- provide resources to support LGBTIQ equality within the astronomical profession.

Some of the discrimination enumerated above is legal and systemic, and therefore beyond the power of the AAS to redress. Even so, some AAS members must deal with these issues every day, and WGLE will promote mentoring and networking within the LGBTIQ community. Some of this discrimination can be addressed through changes in institutional policy; WGLE can play a role by developing “best practices” for departments and institutions to follow and by helping colleagues to educate themselves about LGBTIQ issues and diversity. There is considerable common cause with CSMA and CSWA, and WGLE will work with those committees as appropriate. Finally, WGLE will partner with similar organizations in other fields to advance our common goals.

We have already begun our work: In Anchorage this summer, WGLE will sponsor a town-hall meeting to examine the anti-discrimination practices, workplace climate, and pay and benefit policies in the four employment sectors where most AAS members work: industry, the federal government, private colleges, and public universities. We plan to host a workshop and a networking reception at the Long Beach meeting next winter.

We invite all of our colleagues to join WGLE. We particularly encourage participation by AAS members who do not identify as LGBTIQ but who are interested in working for equality of opportunity for all. We also invite suggestions as to how we might best serve the society. Are there topics that you would like to see discussed at AAS meetings? Do you have questions about benefits, recruiting, or mentoring? Please let us know! Simply send a note to [wgle@aas.org](mailto:wgle@aas.org) or any member of the executive committee. Committee members are Rolf Danner (Northrop Grumman), Van Dixon (STScI), Chanda Prescod-Weinstein (MIT), Jane Rigby (GSFC), and Kris Sellgren (OSU). Our website will be [wgle.aas.org](http://wgle.aas.org). We will be adding pages frequently, so check back often.

# Committee on Employment

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

## The Clouds on the Horizon

*“There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things.” – Niccolo Machiavelli*

Imagine a landscape with an unbroken horizon, like Kansas without trees. The ground has the brown grass of late winter, the wind is constant and growing stronger. At the horizon is a small group of dark grey clouds. The compact ominous mass pulsates as it approaches. Yet at the moment it is so far away, it can be covered by a hand. There is no shelter or hint of succor in the ground. In the opposite direction not far off, there is a man and woman adjusting ropes attached to a large windsurfing type of conveyance. They see the gloom approach and prepare to ride its winds having no idea of how strong the winds will be, how far it may carry them. They wait patiently.

Yes. I am quoting Machiavelli. He is probably unjustly pilloried in our time—Frank Herbert (*Dune*) agreed as he wrote a whole story around Machiavelli’s unjust reputation. I suppose it could be worse—I did not quote Lincoln. The way things used to be done will **not** continue. Things will not get back to “normal” anytime soon, if ever. It could be argued that postdocs who expect things to get better are like British civil servants looking for Imperial postings in India in 1945. As a science mostly funded by the Federal Government, we are at an inflection point and it is pretty easy to guess the future sign.

Astronomy has put almost all its eggs in one basket with JWST. As the sole and large target, it is irresistible to policymakers—as has been recently seen. This is one of the reasons why Cassini faced resistance early in its creation. If something went wrong, NASA would have been out over \$1 billion. Cassini became a triumph but looking at the human track record for Mars landers caution was understandable. JWST will change astronomy again massively if we can just get the thing in orbit.

Historically, science was done by lone wolves (J. Willard Gibbs) or sponsored by lone rich (Lick, Carnegie, Yerkes, etc.). Sometimes the donor also tried to do science—Lowell is an excellent example. Government contributions were minimal and the Federal Government’s presence almost non-existent. This was the basic pattern until the early 20<sup>th</sup> century when large corporations (Bell Labs) had enough resources to have permanent science staff. This is also the direction that science now seems to be heading.

This is not a speed bump, it is being on a road that has run out of pavement. The long-term trend is that there will be fewer professional astronomers in the future than there are today. Yet the number of degrees awarded continues to rise.

So what does this mean for the postdoc or job seeker? The best will always find success, although even being from an outstanding school with powerful mentors may no longer be the slam-dunk it was. Academic research positions will become permanent rarities for most PhD job seekers, so the distinction between “soft” and “hard” money will be replaced by the distinction of being “employed” and “unemployed.” As money dries up, consulting work may go the way of the dodo as well. Will this be bad for the country? Undoubtedly, but too many policymakers don’t seem to understand this yet. The cost of being part of a species with a very short view of time. Having research done by fewer, more stressed out scientists can’t be a good thing in the long term. For anyone.

As astronomers, we look at the long term. Maybe we only fool ourselves that we take a longer view, but we can always act as if we do. That is why it is important to contact your representatives about astronomy issues and remind them they are so important. It is a way to act in the short term and help out the long term at the same time. Our version of the old environmental manifesto: “think cosmically, act on the Local Group.” It is also important to respond to (and **act on**) AAS action alerts. It does not matter that you may hate politics or feel it is debased, acting now is necessary. The job you save may be your own.

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

# Committee on the Status of Women in Astronomy

Hannah Jang-Condell, hannah@alum.mit.edu, and Caroline Simpson, simpsonc@fiu.edu

The Committee on the Status of Women in Astronomy (CSWA), along with the Committee on the Status of Minorities in Astronomy (CSMA) and the newly formed Working Group on LGBTIQ Equality (WGLE) helped sponsor a Special Session entitled “Increasing Diversity in Your Department” at the 219th AAS Meeting in Austin in January. We had four terrific speakers for this session, and the slides from the talks are available on the CSWA website (<http://www.aas.org/cswa/MEETINGS.html>). Hannah Jang-Condell of the CSWA was in attendance, and provides some key points from the talks:

- the numbers of URM’s earning PhDs in astronomy is really small, less than 10 per year,
- the biggest drop off in URM’s in physics and astronomy is after the first year in college,
- historically black small colleges produce 55% of the BS and BA physics degrees, so establishing relationships with those colleges is a good way to keep URM’s in the pipeline,
- directly ask people to apply for jobs, and post ads broadly.

Caroline Simpson chaired the session, and spoke about “Best Practices in Hiring: Addressing Unconscious Bias.” Dr. Simpson is an Associate Professor in the Physics Department at Florida International University and a member of the CSWA. Her talk was a recap of Dr. Abby Stewart’s talk from the 2011 winter AAS Meeting on unconscious bias (also available on the CSWA website listed above), but it is a message well worth repeating. Dr. Stewart is the Director of the University of Michigan ADVANCE program, which was originally created to improve the climate (and thus recruitment and retention) of women faculty in the sciences. Their program website (<http://sitemaker.umich.edu/advance/home>) provides many resources, and has a handy toolkit available ([http://sitemaker.umich.edu/advance/\\_toolkit\\_](http://sitemaker.umich.edu/advance/_toolkit_)) that provides resources and information on best practices in hiring, recruitment, and retention.

Van Dixon spoke about “Recruitment and Retention of LGBTIQ Astronomers.” (LGBTIQ stands for Lesbian, Gay, Bisexual, Transgender, Intersex, and Questioning). Dr. Dixon is a Staff Scientist at Space Telescope Science Institute and a member of the executive committee of the Working group on GLBTIQ Equity (WGLE), which he announced had just been formally approved by the AAS Council.

The main points of Dr. Simpson’s talk were that:

The main points for making workplaces more friendly to LGBTIQ astronomers were to:

- increased diversity leads to increased excellence,
- we all think about the world in terms of schemas that lead to unconscious biases,
- we can fight our unconscious biases by becoming aware of them
- and we should be sure to use objective criteria to evaluate job candidates.

- make an explicit commitment to inclusion in policies,
- be aware that benefits such as health insurance for same-sex partners are taxable, which can be offset by increasing the gross wages of the employee partner to compensate for the tax cost—but this must be usually be asked,
- remove discriminatory health insurance exclusions for transgendered people,
- make policies friendly to non-traditional families, such as including adoption and domestic partnerships in leave benefits,
- advertise your inclusive policies.

Andrew West spoke about “Tools for Recruiting a Diverse Applicant Pool.” Dr. West is an Assistant Professor in the Department of Astronomy at Boston University and a member of the CSMA. His talk focused on recruitment of under-represented minorities (URMs). Key points from Dr. West’s talk were:

Caty Pilachowski spoke about “Getting to Family-Friendly in Your Department.” Dr. Pilachowsky is a past President of the AAS and a Professor and Kirkwood Chair in Astronomy at Indiana University, which boasts 50% women among its tenured Astronomy faculty. The main point of Dr. Pilachowski’s talk was that it’s one thing to have a written policy of family-friendliness, but another to have a family-friendly department culture that is supportive of work-life balance. Ways to create a culture of family-friendliness include:

- unfortunately, there is no magic bullet,
- fortunately, most techniques for recruiting URM’s help everyone,

- making families visible by recognizing family milestones, including families in department



events, and setting up a department family bulletin board,

- recognizing that families include kids, parents, pets, etc.,
- bringing your kids and pets to work,
- offering help to others in need,
- leaving visible copies of the CSWA *STATUS Newsletter* and CSMA *Spectrum Newsletter* around.

Dr. Pilachowski acknowledged that cultural change is hard, and must be done incrementally, but in the end it benefits everyone.

The session had approximately 60 people in attendance, many of whom were early-career. It would have been nice to see more senior people, particularly department chairs and division heads, since they are the ones who are in the best positions to make changes. We cannot effect change without their help, and education is the best venue to enlist help.

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

James Manning, ASP Executive Director

### Say What?

*The single biggest problem in communication is the illusion that it has taken place. - George Bernard Shaw*

Ah, the perils of being a social animal. We communicate. A lot. We talk—and write, and explain, and argue, and fuss, and gesticulate. Some of us shout from Mars, others from Venus. We email and blog and tweet. We give each other knowing looks. We shift restlessly, letting our bodies speak for us. We draw it all out. Occasionally, we engage in interpretive dance.

And for all our trouble, the communication that actually happens can be surprisingly slim, as Shaw so succinctly observed.

Never minding the personal, social, institutional, cultural and geopolitical ramifications, consider just the effects on science and science teaching and learning. Is anything getting through, or do our students and the public just continue to find science and its practice a mystery, figure we're all just trying to blow up the world or spoil all their fun, cling to the conviction the seasons change because we get closer to or farther from the sun, scoff at the notion of basic research, and continue to dig their bunkers for next December when the Mayan calendar and the world both come to an end?

There are days when it is really hard to tell.

But it is also really important: we need to communicate science not only to each other, but to everyone else, for it is the everyone else who will ultimately decide the big questions about science and technology that will have enormous consequences for the future of us all. So what's a body to do?

Well, one thing is to come join us in Tucson this summer for the 124<sup>th</sup> annual meeting of the ASP, where our colleagues will cluster around the conference theme of "Communicating Science." For three days (6-8 August, with opening reception on 5 August), we will gather in the lovely setting of the American Southwest to consider the joys and the challenges of communicating our understanding of the universe and science in general—whether in the classroom, in a museum or nature center, to general and specific audiences, through books, journals and magazines, on the web, via festivals and fairs, on radio and television, or through the social media. Preceding the

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symposium will be a two-day workshop: In the Footsteps of Galileo, a national workshop of educators in grades 3-12 and in informal settings, to help enhance their communication of science to their students and audiences.

Anyone involved in or with an interest in science education and public outreach (EPO) and science communication is welcome, including scientists and EPO professionals from NASA and NSF projects, planetariums, museums, science centers, universities, scientific organizations, research institutions, parks, nature centers, and afterschool settings; K-14 teachers and instructors; administrators; education researchers and program evaluators; book authors, science journalists, podcasters, bloggers, public information officers, webmasters; amateur astronomers doing outreach; and those interested in these fields of endeavor. It is a chance for the science community to network with the education and communication communities as we all try to figure out and share the best ways to ensure that our messages are getting through, are

comprehended, and are interpreted as intended—to the ultimate benefit of society.

For details of the conference, go to <http://www.astrosociety.org/events/meeting.html> and check out the site; we will be updating the site regularly as plans develop.

Talking, writing, drawing, dancing, etc. can be pretty easy; using these activities to communicate really effectively—about topics like science—can be pretty hard. But if we can learn from each other, pool our collective wisdom and experience, and collaborate on new ways to get the right information in the right way to the right place at the right time with the right effect, we can improve our ability to communicate science—with no illusions that it will be easy, but perhaps with fewer illusions about what actually takes place.

So won't you please consider joining the conversation in Tucson this summer? Just nod, and I'll take that as a yes . . .

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

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

### FY 2012 Current Plan Budget

The NSF Current Plan for Fiscal Year (FY) 2012, responding to the appropriations “minibus” bill passed by Congress in late 2011, has been approved by Congress. The total budget allocation for AST is \$234.55M, a decrease of \$2.0M relative to the FY 2011 number and a decrease of \$14.6M relative to the President's request. This funding level will enable the Division of Astronomical Sciences to support a robust and vigorous program of astronomical research and education, but also necessitates some very difficult choices.

The FY 2012 plan is responsive to several Congressional directives relating to programs within the Division. Consistent with these directives, and with the necessity to maintain a balance between facilities and grants, the budgets for the Gemini Observatory and for NRAO operations and maintenance were increased above the original President's request level, while the budgets for NOAO, NSO, and ALMA Operations were reduced

below the President's request level. The funds available for the Astronomy and Astrophysics Research Grants program (AAG) in FY 2012 will be approximately \$43M, \$5M below the value in FY 2011, while the Advanced Technology and Instrumentation (ATI) program also will be reduced 10-15%. In addition, as announced in a previous edition of this newsletter, no new unsolicited mid-scale proposals will be funded in FY 2012. Funding of NSF CAREER awards, Research Experiences for Undergraduates, and the Astronomy and Astrophysics Postdoctoral Fellowships will remain at levels similar to those in FY 2011.

### President's Budget Request for FY 2013

The President's Budget Request for FY 2013 was released in mid-February. It includes a request for \$244.55M for AST, a \$10M increase over the allocated FY 2012 budget. For full details of this request, readers are referred to <http://www.nsf.gov/about/budget>, where the FY 2013 budget request may be found; the FY 2013 request also

contains information about the FY 2011 expenditures and the FY 2012 plan. Within the budget request document, the items of most relevance to AST may be found in the section for the Mathematical and Physical Sciences (MPS) Directorate, the section on Facilities, and the section on the Major Research Equipment and Facilities Construction (MREFC) line. Readers are cautioned that this budget request is not an appropriation; in both FY 2011 and FY 2012, the final appropriation for AST was approximately \$15M below the request level. Even at the President's request level, difficult choices have had to be made, as can be seen by accessing the referenced budget material. Except for ALMA Operations (still on an increasing trajectory) and NOAO (flat after being decreased in FY 2012), the requests for operations of all other national facilities are decreases relative to the FY 2012 plan. The request for construction of the Advanced Technology Solar Telescope (in the MREFC line) is \$25M.

Within the FY 2013 request, there is a substantial increase for the multidisciplinary program "Enhancing Access to the Radio Spectrum" (EARS), which was initiated in FY 2012 and is funded jointly by four separate directorates

of NSF. EARS is responsive to numerous committee and governmental recommendations to support research relating to more efficient use of the radio spectrum, a commodity under increasing pressure as societal use of wireless devices continues to increase at a rapid rate. As stated in the AST budget narrative, "[t]he AST EARS investment will concentrate on the radio-frequency-interference mitigation, advanced receiver design, propagation studies, and other radio-astronomy-related foundations of radio spectrum access and hardware design, as well as key national and international regulatory and public policy foundations for radio spectrum management." EARS may provide a significant opportunity for the AST research community to contribute to an issue of vital national importance.

If the President's budget request is passed, including both EARS and the requested facility budgets, we anticipate that funding for the rest of the AST programs will be approximately flat relative to FY 2012. Some adjustments may be made based on recommendations from the AST Portfolio Review, anticipated to report out in summer 2012. However, details will await the final Congressional actions on the proposed FY 2013 budget.

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# Announcements

## AAS Membership Calendar

As a membership benefit, the AAS Membership Calendar includes important dates, such as proposal and grant deadlines and AAS sponsored meetings. For only \$2,250, your institution or department can show support for the whole astronomical community and be featured prominently in astronomers' offices across the country. Sponsorship space is provided on a first-come, first-served basis. Groups interested in sponsoring a month may contact Crystal Tinch ([crystal@aaas.org](mailto:crystal@aaas.org)) for more information and pricing details for the 2013 calendar. Deadline for sponsorship is 1 September 2012.

## Astrophysics Source Code Library (ASCL)

The Astrophysics Source Code Library (ASCL), founded in 1999, is a free, on-line registry for source codes of interest to astronomers and astrophysics. All ASCL source codes have been used to generate results published in or submitted to a refereed journal. The library is housed

on the discussion forum for Astronomy Picture of the Day (APOD) at <http://asterisk.apod.com/viewforum.php?f=35>; it can also be accessed at <http://ascl.net>.

The ASCL has a comprehensive listing that covers a significant number of the astrophysics source codes used in peer-reviewed studies and continues to grow; it currently has more than 380 codes in it.

Scientists are encouraged to submit their codes for inclusion; doing so provides several benefits to scientist coders. ASCL is indexed by ADS and provides a reliable, consistent way for codes to be cited; it also provides a way to inform others of a code. Although the ASCL can house codes, most are hosted elsewhere and the ASCL links to them.

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## Announcements continued

You can request inclusion of your code by posting it to the forum or by emailing the following information to Alice Allen (alice.allen1@verizon.net), editor of the ASCL:

- Code title
- Description of the code
- Coders' names (those who hold the copyright/should receive credit for the code)
- Link to a source for the code
- Link to a refereed paper for the code or using the code

Additional information is available in the online Guide to the ASCL (<http://asterisk.apod.com/viewtopic.php?f=35&t=22980>), and news and information can be found on the ASCL's Facebook page (<https://www.facebook.com/ASCLnet>).

### Hubble Roadshow Update

We were thrilled to be at the 219th AAS meeting and to be able to present the film “Saving Hubble” to a room full of people who have worked with Hubble! And we were heartened by the enthusiastic response to The Hubble Roadshow, our plan for using the film as an ambassador for science.

We welcome all partners in our effort to create unique community screenings of the film around the world. If you have suggestions about venues, programming to go along with the film, or available funding, please be in touch!

If you were not able to see the film, please check out the trailer on our website: <http://www.savinghubble.com>.

David Gaynes (Director/Producer, “Saving Hubble”), [dg@savinghubble.com](mailto:dg@savinghubble.com), (212) 795-1616  
Carol Porteous (Executive Director, The Hubble Roadshow), [cp@savinghubble.com](mailto:cp@savinghubble.com), (212) 673-6537

### NSO Observing Proposal Deadline 15 May

The current deadline for submitting observing proposals to the National Solar Observatory is 15 May 2012 for the third 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](mailto:sp@nso.edu)) or P.O. Box 26732, Tucson, AZ 85726 for Kitt Peak facilities ([kptac@nso.edu](mailto: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](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.

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# Honored Elsewhere

## Genzel and Ghez Win 2012 Crafoord Prize

The Royal Swedish Academy of Sciences has awarded the Crafoord Prize in Astronomy 2012 to Reinhard Genzel, Max Planck Institute for Extraterrestrial Physics, Garching, Germany and Andrea Ghez, University of California, Los Angeles, USA, “for their observations of the stars orbiting the galactic centre, indicating the presence of a supermassive black hole.”

This year's Crafoord Prize Laureates have found the most reliable evidence to date that supermassive black holes really exist. For decades Reinhard Genzel and Andrea Ghez, with their research teams, have tracked stars around the centre of the Milky Way galaxy. Separately, they both arrived at the same conclusion: in our home galaxy resides a giant black hole called Sagittarius A\*.

The Royal Swedish Academy of Sciences, founded in 1739, is an independent organization whose overall objective is to promote the sciences and strengthen their influence in society. The Academy takes special responsibility for the natural sciences and mathematics, but endeavors to promote the exchange of ideas between various disciplines.

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## New Frontiers in Astronomy

The New Frontiers in Astronomy and Cosmology International Grant Competition is offering opportunities for innovative research on the following topics:

- (I) What was the earliest state of the universe?
- (II) Is our universe unique or is it part of a much larger multiverse?
- (III) What is the origin of the complexity in the universe?
- (IV) Are we alone in the universe? Or, are there other life and intelligence beyond the solar system?

Grants are offered for theoretical work, up to \$300,000 for two years; and experimental research, up to \$500,000 for two years. Proposers are required to complete a pre-application DUE APRIL 16, available on the website [www.NewFrontiersinAstronomy.org](http://www.NewFrontiersinAstronomy.org) in mid-March.

In addition to the grants program, the New Cosmic Frontiers Essay Contest offers prizes for high school and college student essays. Further details can be found at [www.NewFrontiersinAstronomy.org](http://www.NewFrontiersinAstronomy.org)

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# Honored Elsewhere

## Genzel and Ghez Win 2012 Crafoord Prize

The Royal Swedish Academy of Sciences has awarded the Crafoord Prize in Astronomy 2012 to Reinhard Genzel, Max Planck Institute for Extraterrestrial Physics, Garching, Germany and Andrea Ghez, University of California, Los Angeles, USA, "for their observations of the stars orbiting the galactic centre, indicating the presence of a supermassive black hole."

This year's Crafoord Prize Laureates have found the most reliable evidence to date that supermassive black holes really exist. For decades Reinhard Genzel and Andrea Ghez, with their research teams, have tracked stars around the centre of the Milky Way galaxy. Separately, they both arrived at the same conclusion: in our home galaxy resides a giant black hole called Sagittarius A\*.

The Royal Swedish Academy of Sciences, founded in 1739, is an independent organization whose overall objective is to promote the sciences and strengthen their influence in society. The Academy takes special responsibility for the natural sciences and mathematics, but endeavors to promote the exchange of ideas between various disciplines.

# Washington News

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



I have noticed a trend during the town halls at the AAS meetings over the years—hardly any one asks questions. The town halls are where NASA, NSF, and other missions and major observatories present how they are managing their astronomical programs.

There is usually ample time for questions. The almost audible chirp of crickets in the silence surprises me as scientists are trained to be inquisitive.

The lack of questions may be due to the aversion many scientists have toward politics and the desire to focus on their research. However, many major astronomical missions and observatories, as well as the livelihood of many in the astronomy discipline who receive grant funding, depend on federal funding. The AAS follows issues related to federal funding for astronomy and informs members when it is imperative to take action. However, you should be informed of the general process.

Here is a quick description of what you need to know about federal funding:

The President released his FY2013 budget request on 13 February 2012. The President's Budget Request begins the budget cycle. According to the Budget and Accounting Act of 1921, the president is responsible for preparing the Budget of the United States.

The next step is Congressional approval for federal spending before the budget can be enacted. Between February and when the fiscal year starts on 1 October of each year, Congress debates the levels of federal spending and uses the budget request as a starting point.

Traditionally, the appropriations process starts in the House of Representatives. The Appropriations Committee has twelve subcommittees, which each work on a separate appropriation bill. The Senate has corresponding appropriations committees.

During these months are when you can visit your members of Congress to advocate for astronomy and your issues.

Since this year is an election year, no one expects that any of the appropriations bills will reach the floor of either chamber of Congress for a vote and the government will run on continuing resolutions, which fund the government at previous year levels.

However, the subcommittees are still planning on completing their work to show, during an election year, they are still committed to reducing the federal deficit. Appropriation bills will still be written even if they may not be passed. Advocating for astronomy this year is not a futile endeavor. Getting language in a bill can create a record that Congress supports your issue.

If you would like to advocate for astronomy you can sign-up for the new AAS Communicating With Washington program. Our goal is to have two to three astronomers on the Hill each week Congress is in session to advocate for astronomy. The program will help train you for visits and encourage you to continue communicating with Washington policy makers as part of your career. To learn more please visit: <http://as.org/policy/cww>

# Calendar of Events

## AAS & AAS Division Meetings

### 43<sup>rd</sup> Annual DDA Meeting

6-10 May 2012, Mt Hood Oregon  
<http://dda.harvard.edu/meetings/2012/>

### 220<sup>th</sup> AAS Meeting

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

### 43<sup>rd</sup> Annual SPD Meeting

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

### 44<sup>th</sup> Annual DPS Meeting

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

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

6-10 January 2013, Long Beach, CA  
<https://aas.org/meetings>

## Other Events

### The Faint Early Sun: Problem, paradox, or distraction?

9-10 April 2012, Baltimore, MD  
David Soderblom (drs@stsci.edu)  
<http://www.stsci.edu/institute/conference/faint-sun>

### Solar Origins of Space Weather and Space Climate: Connecting the Interior to the Corona

NSO Workshop #26  
30 April-4 May 2012, Sunspot, NM  
<http://www.nso.edu/general/workshops/2012/>

### HEDLA2012: 9th International Conference on High Energy Density Laboratory Astrophysics

30 April-4 May 2012, Tallahassee, FL  
info@hedla2012.org  
<http://www.hedla2012.org/>

### 2012 STSci May Symposium: Gas Flows in Galaxies

7-10 May 2012, Baltimore, MD  
Andrew Fox (afox@stsci.edu)  
<http://www.stsci.edu/institute/conference/gas-flows>

### Extreme Space Weather Events

14-17 May 2012, Boulder, CO  
Lierin Schmidt (lierin@predsci.com)  
<http://www.predsci.com/meetings/eswe/>

### \*Testing General Relativity (GR) with Astrophysical Systems

14-17 May 2012, Cambridge, MA  
<http://www.cfa.harvard.edu/events/2012/sackler/>

### A Window on the Formation of the Milky Way

20 May-10 June, Aspen, CO  
<http://www.aspenphys.org/documents/program/summerworkshops2012.html>

### Thirteenth Synthesis Imaging Workshop

29 May-5 June 2012, Socorro, NM  
Amy Mioduszewski (amiodusz@nrao.edu)  
<http://www.aoc.nrao.edu/events/synthesis/2012/>

### \*The 1st Interplanetary CubeSat Workshop

29-30 May 2012, Cambridge, MA  
iCubeSat.org

### Non-gaussianity as a window to the Primordial Universe

20 May-10 June 2012, Aspen, CO  
<http://www.aspenphys.org/documents/program/summerworkshops2012.html>

### Transiting Planets in the House of the Sun: A workshop on M dwarf stars and their planets

3-6 June 2012, Maui, HI  
mauitransit@gmail.com  
<http://www.soest.hawaii.edu/GG/FACULTY/GAIDOS/haleakala.html>

### \*Energetic Astronomy: Richard Mushotzky at 65

4-6 June 2012, Annapolis, MD  
Susan Lehr (slehr@umd.edu)  
<http://jsi.astro.umd.edu/conferences/energetic-astronomy.html>

### The Physics of Feedback Processes and their Role in Galaxy Evolution

10 June-1 July 2012, Aspen, CO  
<http://www.aspenphys.org/documents/program/summerworkshops2012.html>

### The Origins of Stars and Planetary Systems

10-15 June 2012, Hamilton, Ontario  
Ralph Pudritz (pudritz@physics.mcmaster.ca)  
[http://origins.physics.mcmaster.ca/oi\\_planets/](http://origins.physics.mcmaster.ca/oi_planets/)

### \*Bridging Laboratory and Astrophysics

11-14 June 2012, Anchorage, AK  
Farid Salama (Farid.Salama@nasa.gov)  
<http://aas.org/meetings/aas220>

### Centenary Symposium 2012: Discovery of Cosmic Rays

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

### The Baryon Cycle

14-16 June 2012, Irvine, CA  
baryoncycle2012@gmail.com  
[http://www.cge.uci.edu/baryon\\_cycle.html](http://www.cge.uci.edu/baryon_cycle.html)

### The Evolution of Massive Stars and Progenitors of Gamma-Ray Bursts

17 June-1 July 2012, Aspen, CO  
Emily Levesque (Emily.Levesque@colorado.edu)  
<http://casa.colorado.edu/~emle6425/aspen/>

### The Great Andromeda Galaxy: A workshop to celebrate Martin Schwarzschild's Centennial

17-20 June 2012, Princeton, NJ  
Tod R. Lauer (lauer@noao.edu)  
<http://www.noao.edu/meetings/m31/>

### Ultraviolet Astronomy: HST and Beyond

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

## Calendar of Events continued

### 7th International Conference on Numerical Modeling of Space Plasma Flows - ASTRONUM-2012

24-29 June 2012, Sheraton Keauhou Hotel on the Big Island, Hawaii  
np0002@uah.edu  
icnsmmeetings.com

### Centenary Symposium 2012: Discovery of Cosmic Rays

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

### Star Formation and Gas Reservoirs in Groups and Clusters

8-11 July 2012, Schenectady, NY  
Rebecca Koopmann  
(koopmanr@union.edu)  
<http://muse.union.edu/galaxygroups2012/>

### X-ray Binaries - Celebrating 50 years since the Discovery of Sco X-1

10-12 July 2012, Boston, MA  
Paul J Green (xrb12@cfa.harvard.edu)  
<http://cxc.cfa.harvard.edu/cdo/xrb12/>

### \*NASA Lunar Science Forum

17-19 July 2012, Moffett Field, CA  
<http://lunarscience.nasa.gov/LSF2012/>

### \*2012 Gemini Science and User Meeting

17-20 July 2012, San Francisco, CA  
P. Barmby, SOC chair (pbarmby@uwo.ca)  
<http://www.gemini.edu/gsm12>

### 2012 Sagan Summer Workshop: Working with Exoplanet Light Curves

23-27 July 2012, Pasadena, CA  
Dawn Gelino (sagan\_workshop@ipac.caltech.edu)  
<http://nexsci.caltech.edu/workshop/2012/>

### The Pluto System on the Eve of Exploration by New Horizons: Perspectives and Predictions

24-26 July 2013, Columbia, MD  
<http://pluto.jhuapl.edu/conference/>

### Rattle and Shine: Gravitational Wave and Electromagnetic Studies of Compact Binary Mergers

30 July-3 Aug 2012, Santa Barbara, CA  
<http://www.kitp.ucsb.edu/activities/dbdetails?acro=chirps-c12>

### Communicating Astronomy: The 124th Annual Meeting of the Astronomical Society of the Pacific

4-8 August 2012, Tucson, AZ  
meeting@astrosociety.org  
<http://www.astrosociety.org/events/meeting.html>

### \*13th Annual Summer School on Adaptive Optics

5-10 August 2012, Santa Cruz, CA  
cfao@ucolick.org

### Optical Engineering + Applications 2012 - Part of SPIE Optics + Photonics

12-16 August 2012, 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)

### \*GALEX Fest: Exploring the UV Universe: A Conference to Celebrate Nine Years of Exploration

4-7 September 2012, Pasadena, CA  
<http://www.galex.caltech.edu/galexfest/>

### \*The Many Faces of 30 Doradus: A Mini-workshop

17-19 September 2012, Baltimore, MD  
Danny Lennon (lennon@stsci.edu)

### Fourth International Fermi Symposium

28 Oct-2 Nov 2012, Greenbelt, MD  
Julie McEnery  
(julie.e.mcenery@nasa.gov)  
<http://fermi.gsfc.nasa.gov/science/symposium/2012/>

### \*Multi-Messenger Time Domain Astronomy

13-15 November 2012, NASA's Goddard Space Flight Center, Greenbelt, MD  
Joan M. Centrella  
(joan.m.centrella@nasa.gov)  
[http://asd.gsfc.nasa.gov/conferences/TDA\\_conference.html](http://asd.gsfc.nasa.gov/conferences/TDA_conference.html)

### 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@aaas.org. Meetings that fall within 30 days of publication are not listed.

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



