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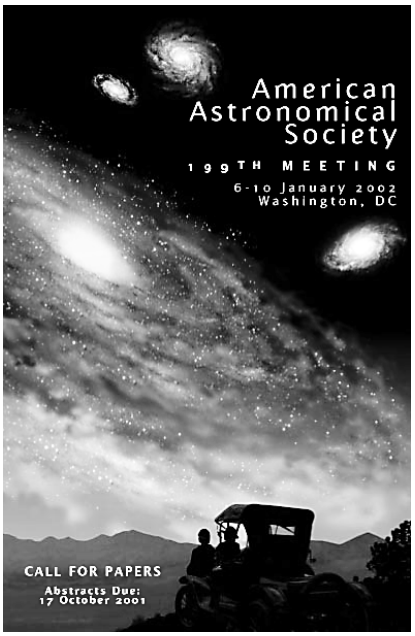
NEWSLETTER

The American Astronomical Society•2000 Florida Avenue, NW, Suite 400•Washington, DC 20009-1231•202-328-2010•aas@aas.org



AAS NEWS
Winter Meeting in DC: Crowds Expected!

The 199th AAS Meeting, **6–10 January 2002**, will return to the Hilton Washington and Towers, located on Connecticut Avenue just a short walk from the Dupont Circle Metro Stop, in an area filled with many good restaurants and within easy distance of most of Washington's most popular tourist attractions.

Prize Lectures and Others

The meeting features all of the AAS Prize Lectures as well as exciting Invited Talks and Special Sessions. Opening with a talk on studying nearby galaxies by invited speaker, **Vera Rubin**, the meeting will include other invited talks on Astrobiology, Galactic Nucleosynthesis and Supernova Remnants, Cosmological Structure Formation and High Energy Astrophysics. Among many special sessions, there will be a number of programs on astronomy education (see page 4 for details) and sessions organized by HEAD and HAD (in which Donald Osterbrock will be presented with the 2001 Doggett Prize).

The Washington meeting venue permits a number of timely public policy sessions. In addition to an Invited Public Policy Lecture (**John H. Marburger**, III, OSTP Director Designate - Invited), there will be special sessions in the format of panel discussions on "How to Lobby Congress Effectively" and a "Policy Insider Panel." Town Meetings by **NASA**, **NSF**, **HST** and **NGST** will be presented during lunch time slots.

HAD and **HEAD** will hold business meetings. The AAS **Job Center** will be operated as normal and there will be a **Career Workshop** on Sunday, 6 January. Limited space is available for a tour to the **US Naval Observatory** on Tuesday Evening.

The AAS Executive Office is hosting the meeting with special assistance from members of the University of Maryland, George Mason University, the US Naval Observatory, the National Research Laboratory, Goddard Space Flight Center, the National Air and Space Museum and the Division of Terrestrial Magnetism.

Banquet entertainment will be a return performance of the satirical **Capitol Steps**. See http://www.aas.org/ for complete meeting details.

Director, Educational Activities

The AAS is delighted to announce the appointment of Dr. **Susana E. Deustua** as the Director of Educational Activities.

Dr. Susana E. Deustua.

Dr. Deustua attended Swarthmore College graduating with a BA in Physics with Honors, followed by a PhD in Astronomy from the University of Michigan. Her scientific interests are in observational cosmology. While at the Lawrence Berkeley National Laboratory (LBNL) she has been involved with the Supernova Cosmology Project, led by Saul Perlmutter, and with the SNAP (SuperNova/Acceleration Probe) Collaboration. She is a member of the SNAP science team, involved with calibration and stray light analysis, and lead scientist for education and public outreach.

Her education experience is quite broad, ranging from teaching astronomy undergraduate and graduate courses to developing science courses for middle school and high school science teachers in astronomy and physics. She has reviewed middle school curriculum materials for the State of California's Department of Education. She is currently on the advisory boards of *Odyssey*, a science magazine for middle school students, and of CROP (Cosmic Ray Observatory Project), a research program for high school students and teachers. She states, "one of my main interests is to solidly place astronomy education activities within the framework of sound science education research with the fundamental goal to demystify science (it is not a sacred priesthood) by making it accessible to everyone. I look forward to working with the AEB and the AAS to implement the strategic plan for education."

Although the details of Dr. Deustua's transition from LBNL to the AAS are still being developed, she will begin her involvement in the planning of the AAS's education activities immediately and will begin working toward the implementation of these in January, 2002. She will relocate to the AAS Executive Office sometime in the first half of 2002.

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PUBLISHING

The ApJ Centennial Volume: A Wonderful Cloudy Night Companion – or Anytime!

Kevin B. Marvel, Associate Executive Officer for Policy Programs

In celebration of the AAS Centennial year, a special volume of *The Astrophysical Journal* was published containing 53 historic facsimile scientific papers which appeared in one or another of our journals such as *The Astronomical Journal* or *The Astrophysical Journal*, *The ApJ Letters* or *Supplement* (*Note*: These journals were not always published by the AAS as they are now). Many of the reprinted articles are from early in the 20th century, although a fair number are more recent. The subjects presented range from basic radiation transfer (Schuster, 1905, ApJ **21**,1) to stellar evolution (Hoyle & Schwarzschild, 1955, ApJS **2**,1) to clusters of galaxies (Abell, ApJS, 1958, **3**, 211) to cosmology (Peebles, ApJ, 1966, **146**, 542).

What makes the volume particularly valuable are the special summaries and commentaries of each of the selected papers written by contemporary illustrious scientists — these are the true gems of the volume. Although writing styles vary and the focus of the summaries changes with the author, each one provides some insight into the presented article.

As an example of the commentaries offered on landmark papers, Martin Harwit addresses the well-known letter to the editor of the *ApJ* by Neugebauer, Martz and Leighton on extremely cool stars detected in their all-sky survey in the infrared at 2 microns. This short letter played an important role—perhaps crucial—in the development of infrared astronomy. Harwit points out the struggle astronomers had with detecting infrared radiation from Herschel forward, indicates the importance of military cast-off detectors in the early years of infrared instrumentation development and points out the true excitement of the early NML results. The authors found ten very red, very bright objects, only the brightest of which could be detected optically. A whole new observation regime had been revealed.

In another example, Neta Bahcall discusses a paper by George O. Abell (ApJS 1958, **3**, 211) in which he describes the first-ever catalog of clusters of galaxies and some statistical findings derived from the catalog. As Bahcall relates, Abell, while a graduate student under the direction of Don Osterbrock, developed a PhD dissertation around a complete survey of all of the richest clusters over the entire high-latitude sky. Using the recently completed Palomar Observatory Sky Survey plates, Abell defined a meaningful definition for a cluster and proceeded to search the plates — by eye — for galaxy clusters. Buried in the original text is the unassuming sentence, "The red plate for each sky survey field was inspected and searched for clusters of galaxies with a 3.5X magnifying lens." The hours of effort indicated by that sentence are mind-numbing. The fact that the catalog is still the fundamental reference for work on clusters shows the importance of this tedious and painstaking work. Bahcall, in closing her summary, noted that Abell would have been thrilled to see the remarkable progress made recently and after reading the original article, I must agree.

The value of this volume lies not with the reproduction of historic articles, all of which can be downloaded from the Astrophysics Data System, but with the combination of an original article, in its original format, and the comments of a scientist who has tried to highlight the article's historic importance. Recently, I watched a NOVA program on PBS on the discovery that we live in an expanding Universe. While being interviewed on the history of X-ray astronomy, Harvey Tananbaum said "When you are young and working [as a scientist] you never appreciate that the most important work you will ever do could be what you are doing now." In this light, *The ApJ Centennial Volume* reminds us that each paper we publish has historic value. The AAS journals represent an accumulation of human knowledge, an invaluable archive of what we know about our Universe and how we uncovered its secrets.

The paperback edition (published as *ApJ* Volume 525, number 1C) is still available, but there are very few copies of the hard-cover edition left. Hard-cover editions are $50.00 and the soft-cover edition is $40.00.

The order form and the Table of Contents are found at http://www.journals.uchicago.edu/ApJ/centennial.pdf.

This is a worthwhile and historic book that you will enjoy on those cloudy nights or slow Friday afternoons.

REMINDER - Policy on Unpaid Journal Subscriptions

Member Subscriptions Only

To avoid any lapse in journal subscriptions, dues and subscriptions should be paid in full by **1 December 2001**.

After 1 January, no unpaid subscriptions will be mailed. In the event a subscription is reinstated after lapsing, there will be a surcharge for shipping the back issues — $25 for the *ApJ* and $15 for the *AJ* or *ApJ Supplement*, in addition to any membership reinstatement fee. If no back issues are required, no surcharge will be imposed.

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The $110.00 annual membership dues for the American Astronomical Society include $3.00 that is applied toward a subscription to the *AAS Newsletter*. Periodical postage paid at Washington, DC.

POSTMASTER: Send address changes to AAS, 2000 Florida Avenue, NW, Suite 400, Washington, DC 20009-1231.

Items of general interest to be considered for publication in the *Newsletter* should be sent to lscholz@aas.org. Appropriate pictures are welcomed. For information about *deadlines* and submitting articles, see http://www.aas.org/publications/newsletter.html.

Letters to the Editor on current issues of importance to astronomers are welcomed. Letters must be signed and should not exceed 250 words. Letters must be received by Jeff Linsky, Associate Editor, Letters, no later than one week prior to the *Newsletter* deadline (see Website). You may contact Jeff Linsky by email jlinsky@jila.colorado.edu, Tel: 303-492-7838, or FAX: 303-492-5235. The Associate Editor may edit letters, but will consult with authors before doing so. Letters will be published at the discretion of the Editors.

Items submitted for the *AAS Newsletter* are not automatically included in the AAS Electronic Announcements or vice versa. Submit electronic announcement items to ela@aas.org.

AAS Publications Coordinator:	Judy Johnson
Editor:	Robert W. Milkey
Associate Editor:	Lynn Scholz
Associate Editor, Letters:	Jeffrey Linsky, U. Colorado

FINAL SLATE, 2002 AAS ELECTIONS

The following have been nominated for office; most of the terms begin June 2002.

Vice-President	Pierre Demarque John B. Hutchings
Treasurer	Leonard V. Kuhi
Councilors	Daniel R. Altschuler Bruce W. Carney Isabel Hawkins Christopher Sneden Jean H. Swank John H. Thomas
Publications Board Chair	Raymond G. Carlberg Sumner G. Starrfield
USNC-IAU	Nicholas E. White
Nominating Committee	Richard H. Durisen Margaret M. Hanson Horace A. Smith

These candidates will be on a ballot (with return envelope) that will be mailed within the December *Newsletter*. Ballots must be returned to the Office of the Secretary by Wednesday, **31 January 2002**.

New Report From AIP: Documenting Collaborative Research

The American Institute of Physics (AIP) has recently released a report on the manifold problems of documenting multi-institutional collaborations in physics and allied fields. Scientists in these collaborations are well aware that their mode of research is unlike that of others working alone or in small groups. All too often, however, they fail to realize how records needed to document this research are prone to destruction. It may seem to them that their recollections and those of their colleagues are sufficient, but this is unfortunate from the standpoint of present needs and disastrous for future needs as recollections die with the scientists, and later generations will never know how some of the important scientific work of our times was done.

Documentation problems range from the traditions of archivists to preserve the contributions of distinguished individuals (or records of a project conducted by one institution) to the fact that, almost without exception, research institutions and federal science agencies fail to provide adequate support to programs to save records of significant research.

The AIP History Center report titled, *Documenting Multi-Institutional Collaborations*, is accompanied by another report, *Highlights and Project Recommendations*, which provides excerpts from the full report and a set of recommendations. Both reports are available at http://www.aip.org/history/pubslst.htm#collabs or upon request from the AIP History Center, One Physics Ellipse, College Park, MD 20740-3843, chp@aip.org.

SECRETARY'S CORNER

Arlo U. Landolt, AAS Secretary

Committee Vacancies To Fill . . .

Vacancies for several AAS committees will be filled by Council at its meeting in January 2002. Current committee members are listed on the AAS homepage, http://www.aas.org. Committees which have vacancies, together with the number of vacancies on each (in parenthesis immediately following), are:

- Russell Lectureship Committee (2)
- Heineman Prize Committee (2)
- Warner and Pierce Prize Committee (3)
- Annie J. Cannon Prize Committee (1)
- Van Biesbroeck Prize Committee (3)
- AAS Education Prize Committee (2)

AAS Members may themselves volunteer, or suggest other Members for one of the vacancies. To be most useful to the Committee on Appointments, such input also should include the date of PhD, as well as a few sentences conveying to the Committee the background and area of expertise of the named individual. The idea is to have both quality and breadth across the AAS committee structure.

Input should be received in the Office of the Secretary no later than **14 December 2001**. Submit suggestions to Arlo U. Landolt, AAS Secretary, Department of Physics & Astronomy, Louisiana State University, Baton Rouge, LA 70803-4001 Tel: 225-578-1160, Fax: 225-578-7001, aassec@rouge.physics.lsu.edu.

Washington, DC Sessions Need Chairs

AAS members are invited to volunteer to chair one of the oral paper sessions at the AAS meeting in Washington, DC in January 2002. A session chair should be at least a few years beyond the PhD, and have had experience, i.e., being the lead author, in presenting at least two or three oral papers at AAS meetings. Watch for the Final Program on the Web, and after it has been posted, review its contents, and then list in order of preference two, three or four oral sessions that you would be willing to chair, in or near your field of expertise. Email your preferences to Arlo U. Landolt, AAS Secretary, at aassec@rouge.phys.lsu.edu, and he will respond once final chair assignments are known.

Associate Members: Consider Upgrading

Only Full AAS Members have the right to hold office or to chair committees of the Society. Many Associate Members who are eligible to upgrade to Full Membership (at no increase in dues) and whose expertise could benefit the Society, cannot serve. Associate Members, please consider upgrading and becoming more involved with Society activities. (See a description of the different membership classes in the *Bylaws*, Article I. 1, or on the membership application form.) Both of these sources are in the *Membership Directory*. For questions, please contact the Membership Department, drenner@aas.org.

EDUCATION NEWS

Education Sessions DC Winter Meeting

As many of you will know, there have been substantial changes in the organization of the education activities of the AAS. While the new structure for these activities is being put in place, we are continuing a diverse program of sessions linked to education at AAS meetings. In addition to the talk by **Maxine Singer** on the post-doctoral experience planned for the Washington AAS meeting, there are four other sessions before or during the Washington meeting which will treat issues of interest to the many of us involved in astronomy education. Brief descriptions follow.

"Astro 101" - A Continuing Dialogue
Sunday, 6 January 2002, 2:30-5:30pm

George Greenstein, Amherst College, Chair

The task of instituting meaningful reform in long-standing courses reaching great numbers of students has been likened to "Parallel-Parking an Aircraft Carrier." We will begin with an account of how just such a radical revision in a large service course was successfully implemented. Afterwards, we will break up into discussion groups to explore the practical difficulties we have all encountered in our efforts to reform our own Astro 101 courses.

Our speaker will be **Gary Gladding**, of the physics department at the University of Illinois at Urbana-Champaign. Over the past few years, his department has restructured its introductory sequence, which reaches nearly 5000 students each year. This fundamental curriculum revision had five objectives:

- To "institutionalize" meaningful course content and effective pedagogical methods, so that good teaching is not dependent on a single inspired instructor.
- To incorporate new instructional techniques, based on education research, that emphasize conceptual understanding.
- To utilize state-of-the-art instructional media, including multimedia lecture presentations, World Wide Web-based interactive course materials, and laboratory computer data acquisition and analysis.
- To develop students' teamwork skills and to promote students' opportunities for collaborative learning.
- To develop a model for basic science teaching that will be "portable" to other departments.

For information about this session, contact gsgreenstein@amherst.edu.

Goals and Strategies for "Astronomy 101;" Report from Two National Meetings of Department Leaders
Tuesday, 8 January 2002, 10:00-11:30am

Caty Pilachowski, President-Elect of the AAS, Chair

In May and June of this year, two meetings of astronomy department chairs and other leaders from research universities were held to discuss goals for "Astronomy 101" courses. These introductory, survey courses reach more than 200,000 undergraduates each year. Are they as effective as they could be? What should our goals for "Astro 101" be? Given the resources available, how can departments best meet these goals?

Several participants from each of the two NSF-funded, AAS-sponsored meetings on "Astro 101" will report on the discussions and on the goals and strategies formulated during the course of the meetings. Our aim is to encourage further discussion and further refinement of the goals and strategies, as well as to publicize the results of the two meetings. For questions about this session, bpartrid@haverford.edu.

The Undergraduate Astronomy Major: What and Why?
Thursday, 10 January 2002

Bruce Partridge, Education Officer of the AAS, Chair

This session marks the beginning of an analysis by the AAS of the undergraduate major in our field as called for in a recent report of the Astronomy and Astrophysics Survey Committee. Panelists will discuss the undergraduate astronomy major as a preparation for graduate school: Is there or should there be a "core curriculum"?; the role of undergraduate research in the major; recent innovations in courses in the astronomy major; a possible broadened astronomy major designed for students not heading to graduate school; and the more provocative question, is an undergraduate major in astronomy needed at all, or should potential astronomers just major in physics? For questions about the panel, email bpartrid@haverford.edu

The Astronomy Diagnostic Test: Development, Results, and Applications
Tuesday, 8 January, 2:00-3:30pm

Grace Deming, University of Maryland, Chair

In 1998 a group of astronomers began work on developing a research-based diagnostic test for undergraduate non-science majors taking an introductory astronomy course. Several iterations based on student interviews and feedback from astronomy professors produced the *Astronomy Diagnostic Test,* Version 2.0 (ADT 2.0) in 1999. In order to assess the reliability of the ADT 2.0 and to establish a large database of student results, the NSF provided funding for the ADT National Project. More than 5300 pre-test and 3800 post-test results have been collected and analyzed. Papers will be presented detailing the recognition by astronomers of the need for a research-based assessment test specifically designed for undergraduate astronomy courses, describing the ADT's development, examining the results and trends from the ADT National Project, and describing how the ADT can be used to evaluate the effectiveness of instruction.

Astro 101: Past & Future Meetings

Gina Brissenden, Education Consultant to the AAS

Astro 101: A Continuing Dialogue has been a part of the past six AAS meetings. During this time, AAS members have had the opportunity to discuss educational issues and topics of concern to faculty, graduate students, and astronomy education researchers. Traditionally, the session has been divided into three panels, each focusing on one topic. At the recent Summer 2001 meeting in Pasadena, these panels were:

- *Graduate Issues in Teaching Introductory Astronomy: What Graduate Students Want and Need from Their Teaching Experiences*;
- *Advanced Topics in Introductory Astronomy: Moving Beyond Lunar Phases & Seasons*; and
- *Topical Courses in Introductory Astronomy: When We Don't Cover the Universe in One Semester*.

Panel I: Graduate Issues in Teaching Introductory Astronomy: What Graduate Students Want & Need from Their Teaching Experiences, was chaired by **Keivan G. Stassun** (Univ. of Wisc.). He stressed the importance of treating teaching as a

scholarly endeavor, and said that our scientific research provides a good model for this. Stassun pointed to a position paper at http://science.clayton.edu/scst/TFSCHO5.PDF from the Society for College Science Teaching as an example of what constitutes "scholarly" teaching. **Jacob Noel-Storr** (Columbia Univ.) and **Andrea Lommen** (UC Berkeley), both graduate students, presented professional development programs in teaching that they had created in their departments. Noel-Storr reported that an important part of the Columbia program was not having first-year graduate students teaching, but observing teaching. Lommen provided the reading list, with annotations, she uses in her course to improve practice and pedagogy in teaching (http://astron.berkeley.edu/~andrea/astro300/bibliography.html).

Panel II: Advanced Topics in Introductory Astronomy: Moving Beyond Lunar Phases & Seasons was chaired by **Grace Deming** (Univ. of Maryland). A main discussion point of this panel was increasing student motivation. Deming pointed out that students find great satisfaction in "grasping" a concept fully, and that what we may call not advanced, or remedial, concepts can provide students this opportunity. **Jay M. Pasachoff** (Williams College) argued that these topics are not as interesting to students as are contemporary topics, and so we should focus more on these topics. There was a cautionary note from one member of the audience that "advanced topics" and "contemporary topics" were not the same thing; he stated that contemporary topics are often those topics we read about in the news, and that these initial findings are often not correct. **Ed Prather** (Univ. of Arizona) stressed the importance of examining any concept we teach whether we call it advanced, contemporary, or remedial from the perspective of our students' cognitive abilities, asking ourselves what our students can know about that concept.

Panel III: Topical Courses in Introductory Astronomy: When We Don't Cover the Universe in One Semester was chaired by **Robert T. Rood** (Univ. of Virginia), with additional panel member **Greg Schultz** (UC Berkeley). Both said that spending an extended period of time on one topic allows students to become more mentally engaged in that topic, improving student interest. The program at the Univ. of Virginia has become so popular that nearly all students at the university take one of the topical courses. In addition to this, they have worked with the School of Education to have these courses cross-listed as graduate courses for its education students. Schultz stated that the topical format allowed him to create a more student-centered course, with greatly reduced lecture time.

Each Continuing Dialogue session ends with suggestions for upcoming sessions. At this session there was a strong movement for different types of sessions. That is, participants said they have enjoyed the panel-style sessions thus far for providing a broad overview of important topics and issues related to teaching introductory astronomy and research in astronomy education; however, they now wanted to delve more deeply into the issues with extended, hands-on, and instructional sessions. Suggestions included having a session devoted to a single topic, such as student-centered activities, with experts in this area modeling the activities that would allow participants to actually "do it." Another suggestion was to have round-table discussions, modeled after such sessions at meetings of the American Education Research Association. (AERA). This would include several parallel sessions, with members "dropping in" on topics of interest, where there would be a lead moderator/facilitator.

The upcoming *Continuing Dialogue* scheduled during the Washington DC AAS winter meeting organized by **George Greenstein** (Amherst College) will feature speaker **Gary Gladding**, of the physics department at the University of Illinois at Urbana-Champaign. He will be talking about the task of instituting meaningful reform in long-standing courses reaching great numbers of students, which will begin with an account of how just such a radical revision was successfully implemented in the introductory physics sequence at his institution. Afterwards, participants will break up into discussion groups to explore the practical difficulties we have all encountered in our efforts to reform our own Astro 101 courses. *Astro 101: A Continuing Dialogue* will be Sunday, 6 January 2002, 2:30-5:30pm.

NASA Education Outreach Is Country-wide

Jeffrey Rosendhal, Director, NASA OSS Education and Outreach

NASA has taken a big step toward improving the way it brings space science to communities around the country. A critical element of the Office of Space Science (OSS) education and public outreach (E/PO) strategy is the establishment of a support network for space science education to foster a variety of activities across America. Key elements of the support network include:

- a set of *regional Broker/Facilitators* whose role is to work with the space science community to identify opportunities for education and public outreach and help arrange collaborations between scientists and educators; and
- four major *Education Forums* that are major centers for space science education and public outreach in each of the four OSS Science Themes.

The OSS has selected seven teams led by scientist/educators to act as Broker/Facilitators to help space scientists

– become involved in educational activities;

– build partnerships between the space science and education communities;

– serve as the regional points-of-contact for space scientists and educators seeking information on and involvement in NASA's Space Science education and outreach program; and

– encourage the involvement of groups that might not ordinarily participate in NASA programs.

The lead individuals and institutions are:

Kathleen Johnson, Lunar and Planetary Inst., Houston, TX;
Julie H. Lutz, University of Washington, Seattle, WA;
Cherilynn A. Morrow, Space Science Institute, Boulder, CO;
Nitin Naik, Wheeling Jesuit University, Wheeling, WV;
Carolyn C. Narasimhan, Depaul University, Chicago, IL;
Cassandra Runyon, College of Charleston, Charleston, SC;
Cary I. Sneider, Museum of Science, Boston, MA.

For further information about this OSS E/PO program see, http://spacescience.nasa.gov/education/index.htm. This site sets out the overall OSS approach to E/PO, and contains links to the series of E/PO newsletters highlighting recent program accomplishments and to the first Annual Report that presents a comprehensive picture of the program now underway.

COMMITTEE NEWS

Status of Minorities in Astronomy

Charles E. Woodward, Chair, chelsea@astro.umn.edu

Shifting Into Gear

Keivan Stassun, U. Wisconsin, Madison, keivan@astro.wisc.edu

The Committee on the Status of Minorities in Astronomy (CSMA) is stepping up its efforts to become a more active player within the AAS, and we invite all AAS members to become involved. The mission of the CSMA is to enhance the participation of under-represented minorities in astronomy and astrophysics at all levels of experience. Short-term objectives of the CSMA include:

- enhancing the visibility of the CSMA, its mission, and its activities, within and without the AAS;
- engaging the Society in constructive dialogue on issues related to minority representation in astronomy;
- establishing and reinforcing partnerships with other AAS committees and professional organizations with relevant missions; and
- involving interested AAS members in shaping the long-term agenda of the CSMA.

To these ends, the CSMA is producing a new newsletter and a Website and will hold a Special Session at the upcoming AAS Meeting in Washington, DC.

Introducing SPECTRUM, The Newsletter of the CSMA

The CSMA is producing a new AAS-sponsored newsletter called *SPECTRUM*. Modeled on *STATUS*, the successful newsletter of the Committee on the Status of Women in Astronomy (CSWA), *SPECTRUM* will serve as a vehicle for disseminating information and for encouraging discussion on issues of diversity. *SPECTRUM* will feature articles, editorials, and letters, and will be sent semi-annually to subscribers and distributed at AAS Meetings.

To subscribe to *SPECTRUM*, visit the CSMA website and follow the *SPECTRUM* link. For information about contributing articles and commentary, contact *SPECTRUM* editor Keivan Stassun at keivan@astro.wisc.edu. The first issue of *SPECTRUM* will be mailed to subscribers in November and distributed at the CSMA Special Session at the January AAS Meeting.

CSMA Website; A resource for all AAS members

The CSMA has created a website at http://www.astro.wisc.edu/csma/ which we hope will serve as a valuable resource for all AAS members. The site includes a listing of online resources of interest to minorities, including links to minority-related professional organizations, reports, and funding opportunities. For departments, research groups, and others wishing to identify minority astronomers for, e.g., increasing the diversity of job applicant pools and invited speakers, the site includes a directory of minority AAS members and a minority speakers list. Both are voluntary listings, open only to AAS members. We encourage minority AAS members to sign up. In addition, the site provides information about CSMA upcoming activities, about the CSMA itself, about opportunities for getting involved, and online access to *SPECTRUM*, the CSMA newsletter.

CSMA Special Session at DC Winter AAS Meeting: Learn more about the CSMA and help shape its future

The CSMA will host a Special Session at the January 2002 AAS Meeting in Washington, DC. on Tuesday, 8 January, 10:00 - 11:30 AM. All AAS members in attendance are welcome to attend. The session will include:

- an introduction to the CSMA's charge, goals, and members
- a presentation of statistical measures of minority representation in the astronomy profession
- a presentation of current CSMA activities and initiatives
- an "open-mic" time to solicit feedback, questions, concerns, and ideas for CSMA future action

That evening, the CSMA will host an informal "social mixer" (sponsored by *Astronomy Magazine*) for AAS members interested in diversity issues to get to know one another, and to encourage increased dialogue and cross-fertilization of ideas. Details will be announced at the CSMA Special Session.

For more information about the CSMA, please visit our website or send email to csma-info@astro.wisc.edu.

Employment

Andrea Schweitzer, Chair, schweitz@frii.com

Some Time Later . . .

Anne Turner, turnera@earthlink.com

I've received many questions about what it is like to leave science for the "real world." Here's what I've learned, an FAQ, if you will. These answers are based on my experiences and my interpretation of experiences of others I know. In particular, this FAQ has an engineering slant, since that is my adopted field. As always, the opinions are my own and your mileage will vary.

How do I get a job with no marketable skills or experience? If you have (or are getting) a PhD in a physical science, you have some of the most important skills of all. Let me list a few. You are a problem solving machine. You can think quantitatively. You can make and apply qualitative judgments. You can model situations. You can stick with a project for years and see it through. You are creative. You have decent communications skills. You have management skills. You can learn new things and apply them with little assistance from others. If you have any doubts about this list, think of what you do on a project. You pick an interesting and/or important problem, figure out what you need to do to solve it, write proposals for observing time, collect the relevant data, reduce the data and get rid of any "bad" data, analyze the good data, form some conclusions, get your collaborators to agree, write the paper, and present the results at colloquia and such. Among other things. Theorists, of course, have their own set of hurdles. Think about all the skills that takes. Those skills are valuable. Companies will pay you handsomely for those skills, since they are not common. You just have to figure out how to present those skills to potential employers, since nobody outside the community knows what "I'm an astronomer," actually entails. In general, you shouldn't worry if you don't have specific skills like C++, though you should be willing to learn if needed. If all a company wanted was a good C++ programmer, they wouldn't be hiring a PhD, since people with BSs are so much cheaper. They want somebody smart, somebody who can think.

To PhD or not to PhD? One question I often get from graduate students is "Is it better to finish my PhD or leave with a

Master's?" Personally I think the most important reasons to stay or leave grad school lie with the evolution of your own goals as you progress through the system. The academic or industrial job situation should normally be a second order effect, at best. In industry there is no shame in having left school early, should you decide to go that route, but there are also substantial benefits to finishing. There is, of course, no one right answer to this question. While some companies may be reluctant to hire people with more than a Master's for a variety of reasons, there are many other companies that value the skills and independence that come with a PhD. It is important to seek out this second type of company. They will pay significantly more for the credential. This is a real issue when you realize that the extra money can buy you serious, important things, like extra years of retirement, college education for your children, or housing in a high-cost-of-living area. Although I have read credible accounts to the contrary, I have never seen anyone with a PhD have to 'apologize' for their degree to get a job. Whether this situation continues to hold as the economy cools remains to be seen.

What kind of jobs are available to me? Astronomer is the obvious one. Presumably it's what you came for. But there are many other interesting, challenging careers that fall under the general category of knowledge worker. Engineering is an important one if you want to stay in tech. Management consultants work in business. Many kinds of analysts work in many industries. There are so many possible paths that it would take pages to list them all. Job titles can be confusing and often unenlightening, so pay more attention to the job description than title. Ask around; you know lots of people who are not astronomers. Again, there are many, many, many career options available. Make use of the library and/or the internet to do your homework—there are lots of good resources out there. Take some time exploring and generating some options for what you want to do, the more specific the better, since it is extremely important to narrow and focus your search with the myriad of possibilities that are open to you.

What kind of salary will I make? You know what a post-doc makes, right? If you have a PhD, double it. Maybe add or subtract a bit depending on what part of the country you want to live in or the industry you select. Don't settle for much less. Does that seem like a lot? For a bit of perspective, keep in mind that recent engineering graduates with BS degrees can easily command mid-$40s to low -$50s these days. You will also be eligible for things like bonuses, raises, and promotions—without having to do a job search every couple of years. And be sure to ask for the signing bonus.

What about other benefits? Benefits in industry can be great. Paid time off, insurance (medical, dental, eyeglasses, disability, life, etc.), retirement plans, stocks or stock options, and relocation allowances. Large companies might also have perks like employee group discounts and credit unions. Also some companies have benefits like flex time, comp time, alternative workweeks. There are also many other miscellaneous benefits available.

What are the hours like? The 40 hour week is alive and well, at least in engineering. If you are a salaried worker, sometimes you will be asked for more. As you progress to positions of more responsibility, extra hours will often become somewhat more common. If this is a regular occurrence, instead of a short term situation when a deadline approaches, for example, you might want to look into a different company. What this means is you get evenings and weekends off. And I do mean off. Imagine a weekend with absolutely no guilt that you are not at work.

What is the atmosphere like? Is Dilbert alive and well? The answer, unfortunately, is yes. As in any human endeavor there are politics to deal with and people you hate to work with. Executives in large companies do incomprehensible things for no apparent reason. The good part is, it rarely affects day to day work, beyond minor annoyance, and it gives you a funny story to tell at parties.

Choosing your own Work? While you can usually no longer define your own job in industry, if you are a valuable employee, you are likely to be able to choose from a variety of interesting projects to work on. Companies are very interested in retaining valuable employees and in general will work with you to change tasks or develop new skills when necessary.

How do I find these jobs? In general, you should try to make contact with the actual people you will work for, since Human Resources may not know how you will fit in to the organization. The best way: know someone already working there. Think about all the people you know. Your college roommate who went into engineering. Your grad school office mate who got out after her first post-doc. Your uncle's cousin's cat walker's brother. Ask *everybody*. Tell them you are looking for a job. Give them resumes. See if they will help. (Some of us actually get bonuses for recommending good people to our companies.) Job fairs are another good resource, since often the very people who make hiring decisions will go to recruit. If you are at a university, see if you can make use of the engineering school or department's recruiting services, since those will often be a better match to your skills and interests than the general recruiting office's. The internet can occasionally come in handy if you have an idea of what keywords to search on, e.g. image processing, simulation, systems engineering. My favorites are brassring.com, monster.com, ieee.org, and swe.org (Society of Women Engineers). The AAS has formed a network of 'Industrial Astronomers' which may also be useful.

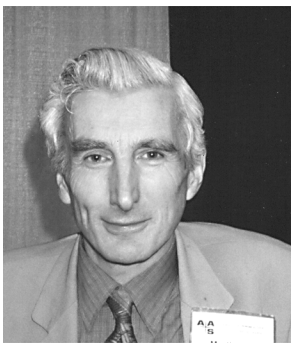
It is very important to develop a good, descriptive business-type resume (not a CV) to provide when you apply for jobs, and of course tailor it to the specific position when possible. The best advice I can give for making a resume for industry is to invert your AAS job talk; if it's in your talk it is probably field-specific and shouldn't be on your resume, while all of the skills you picked up writing the proposal, raising the funding, reducing the data, creating the simulation, or managing the research team should be on the resume but probably not in the talk. One other tip is to try to become conversant in the jargon of the relevant industry or field, so you can better describe your skills to potential employers, and understand the information they are giving you.

- *How do I make the transition?* Once upon a time, the statement "I am an astronomer" defined my very being. Everything else was secondary. This seemed to me to be the minimum acceptable level of devotion in astronomy. In the "real world," a place where people have families, mortgages, hobbies, and free time, this would be considered a form of mental illness. While my decision to leave was very difficult, I have never regretted it. Here is my list of lessons I've (re)learned since leaving the field.

- Your job is something you *do*; not who you *are*. Remember what is important.

Continued on page 9

HONORED ELSEWHERE



Astronomer Royal of the United Kingdom, Sir Martin Rees, is the 2001 Gruber Foundation Cosmology Prize winner.
Photo by Richard Dreiser, ©2001 American Astronomical Society

Rees Wins Gruber Cosmology Award

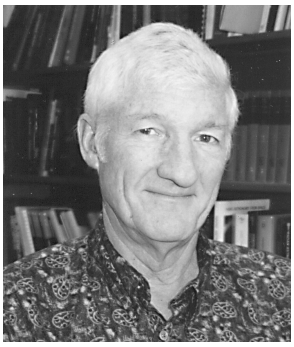
Astronomer Royal of the United Kingdom and Royal Society Research Professor at Cambridge University, **Sir Martin Rees**, has been selected to receive the 2001 Cosmology Prize of the Peter Gruber Foundation. The international selection panel described Rees as "renowned for his extraordinary intuition in unraveling the complexities of the universe. He has been a leader in the quest to understand the physical processes near black holes and is responsible for major advances in our understanding of the cosmic background radiation, quasars, gamma-ray bursts, and galaxy formation. He has contributed to almost every area of cosmology and astrophysics and has been an inspiring leader, eloquent spokesperson, and patient guide for astronomers all over the world. Through his public speaking and writing he has made the Universe a more familiar place for everyone**.**"

Rees will be presented the $150,000 Cosmology Prize on 2 November in Berne, Switzerland, chosen because it is where Albert Einstein wrote his special theory of relativity while working in the Swiss Patent office.

The US philanthropic Peter Gruber Foundation, established in 1993, recognizes with awards contributions to cosmology, genetics, justice and other areas. For full information about the Foundation, see http://www.petergruberfoundation.org.

Welch Is 2001 Jansky Lecturer

The National Radio Astronomy Observatory (NRAO) has awarded the 2001 Jansky Lectureship to **William J. Welch**, Professor of Astronomy and Electrical Engineering at the University of California, Berkeley where he also holds the Watson and Marilyn Alberts Chair in the Search for Extraterrestrial Intelligence. The Jansky Lectureship is awarded each year by the Trustees of Associated Universities, Inc. (AUI) to recognize outstanding contributions to the advancement of astronomy. Welch is cited for having made "important contributions to the study of interstellar molecules, including the initial discovery of water vapor and ammonia, which revolutionized the field of interstellar spectroscopy."



UC Berkeley Professor of Astronomy and Electrical Engineering William J. Welch is the 2001 NRAO/AUI Jansky Lecturer.

The Jansky Lectures are presented each year at the four NRAO sites. Welch will speak on "Astronomical Arrays for the Future: Astronomy, SETI, and More" on 24 October in Charlottesville, VA; 26 October in Green Bank, WV; 5 November in Tucson, AZ; and 9 November in Socorro, NM. For complete information see http://www.nrao.edu/jansky.

Another Astronomer on the Hill!

This year's APS Congressional Fellowship went to Astronomer Jennifer Wiseman, most recently a Hubble Fellow at Johns Hopkins University.

Jennifer Wiseman, most recently a Hubble Fellow at Johns Hopkins University, has been selected as the American Physical Society Congressional Science Fellow for 2001-2002. Wiseman is the second astronomer recently selected by the AIP/APS for this program; Sherri Stephan was a 2000-2001 APS Congressional Science Fellow.

Wiseman received her BS in physics from MIT in 1987 and her PhD from Harvard in 1995. Her dissertation research, prepared under the direction of Paul T. P. Ho, was entitled "Large scale structure, kinematics and heating of the Orion Ridge." She was a Jansky Fellow at the National Radio Astronomy Observatory before going to Johns Hopkins where she studies regions of star formation, specifically the conditions in interstellar gas clouds.

Wiseman has always been interested in the broader application of science knowledge, especially in integrating that knowledge to the benefit of society. Although she has not yet selected an office or committee to work with during her year on the Hill, she is looking forward to the experience.

Her term on the Hill began in September and she promises to share her experiences in a later *Newsletter* article. (For details about the 2002-2003 Congressional Science Fellows Program, see ANNOUNCEMENTS, page 13.)

The Directory ! . . . Alert Your Mailroom

The 2002 AAS *Membership Directory* is shipping Third Class mail in November. If your institution mail room has a policy of discarding Third Class Mail, please ask them to make an exception for the *Directory*. We cannot replace *Directories* discarded by Members' institutions.

If you have not received your *Directory* by January, contact Dennis Renner at drenner@aas.org.

Member Deaths Noted

Since the August *Newsletter*, the Society is saddened to learn of the deaths of the following members:

Arthur E. Covington
Merton E. Davies
Fred Hoyle
John G. Phillips
Rein Silberberg
Joyce M. Watson

Sir Fred Hoyle, 1915-2001

Sir Fred Hoyle
Photo courtesy of the AIP Niels Bohr Library, E.E. Salpeter Collection.

In keeping with the Council's wish to recognize with a brief notice in the AAS *Newsletter* deceased Members who have served in leadership positions in the Society or who received major Society awards, the death of Sir Fred Hoyle on 20 August in Bournemouth, England is noted.

Internationally renowned astrophysicist, educator and popularizer of science, Fred Hoyle was the 1971 AAS Henry Norris Russell Lecturer and received the AAS Annenberg Foundation Prize for Astronomy Education in 1996.

Hoyle's research interests were broad and had a significant impact in several areas including on the evolution of stars with Lyttleton in the 1940's and a decade later with Martin Schwarzschild; on nucleogenesis in stars with Fowler, Burbidge and Burbidge at Caltech in the 1950's; and on cosmological theory with various collaborators. He was featured in a popular series of BBC lectures and then wrote the first of a number of popular books on astronomy entitled, *The Nature of the Universe*, in 1950.

EMPLOYMENT NEWS
Continued from page 7

- You will not be replacing your devotion to science with devotion to a new job—it doesn't work that way out here. There are many jobs and many possibilities.
- People in the real world think it is completely normal that when you finish a degree, you should go get a job. It is unusual for anyone to ask why you left the field, especially with a recent or upcoming graduation. To them you are doing a thing so obvious it requires no explanation.
- You have valuable skills. You deserve to be compensated. It is extremely difficult for companies to find good employees. You are *rare*.
- Learn something about personal finance and investing, because you will actually need it.
- Develop diverse interests. You used to have some. Now you can pursue them again.
- There are always options. Find out what they are and be ready to exercise them.

What are the disadvantages? No more astronomy. No More Astronomy. NO MORE ASTRONOMY!

This is something that you were passionate enough about to invest years of your life in. Don't kid yourself — you almost certainly won't be doing it on weekends for fun at anything other than an amateur level. Make sure it is a transition you are ready to make, because it is a one-way trip. Also remember that when you enter a new field, you will have to pay your dues all over again. You will have to unlearn some old habits, learn many new things, make new contacts, and give up some old attitudes and ways of thinking. These things are not easy.

DIVISION NEWS

High Energy Astrophysics Division

Alice Harding, Chair

New HEAD Secretary-Treasurer Appointed

Paul Hertz resigned from his position as HEAD Secretary-Treasurer on 8 August 2001 to avoid a conflict of interest in his new position as lead scientist for the Structure and Evolution of the Universe (SEU) theme in the Astronomy and Physics Division of the Office of Space Science at NASA Headquarters. He is taking over the position for Alan Bunner, who retired on 31 August. We thank Paul for doing an excellent job as HEAD Secretary-Treasurer and wish him the best in his new position.

In accordance with the HEAD bylaws, effective 8 August 2001, the HEAD Executive Committee has appointed **Matthew Baring** of Rice University (baring@rice.edu) to serve as Secretary/Treasurer until the next HEAD elections. Matthew is eligible to run for a full term in the next HEAD elections.

HEAD Sessions at January 2002 AAS Meeting

HEAD is planning two invited sessions at the AAS Meeting in January 2002 in Washington, DC.

The first session will focus on "Measuring Neutron Star Radii via Thermal Emission: Constraining the Nuclear Equation of State," highlighting recent new observations of thermal emission from neutron stars, coupled with models for neutron star atmospheres and cooling.

Talks will be given by **James Lattimer** (SUNY-SB), **George Pavlov** (Penn State), **Frederick Walter** (SUNY-SB), **R. E. Rutledge** (Caltech) and **C. Heinke** (Harvard).

The second session on "Gravitational Wave and High Energy Astrophysics" will explore how high energy and gravitational wave astrophysics converge on exploring matter and energy in the most extreme conditions in the universe. The talks in this session by **Vicky Kalogera** (Northwestern), **Cole Miller** (Univ. MD), **John Baker** (GSFC) and **Scott Hughes** (UCSB) will explore some current research frontiers in gravitational wave astrophysics, highlighting the connections with high energy astrophysics.

Rossi Prize Lectures

The Rossi Prize winners for 2001, **Andy Fabian** (Cambridge Univ.) and **Yasuo Tanaka** (ISAS, Kanagawa, Japan), will also deliver invited lectures at the January 2002 AAS meeting describing their work on broad iron K-lines in active galactic nuclei, demonstrating the effects of the strong gravitational field characteristic of black holes.

HEAD 2002 Division Meeting with APS

The HEAD 2002 Division Meeting will be held jointly with the April Meeting of the American Physical Society (APS) Division of Astrophysics in Albuquerque, NM on 20–23 April 2002. This meeting will bring together high energy astrophysicists from HEAD and the astrophysics, nuclear, particle, plasma and atomic physics divisions of the APS. The abstract deadline is **11 January 2002** and early registration deadline **15 February 2002**. Further information can be found at http://www.aps.org/

CALENDAR

Listed below are meetings that have come to our attention (new or revised listings noted with an asterisk). 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 lscholz@aas.org. Meetings that fall within 30 days of publication are not listed.

A comprehensive list of world-wide astronomy meetings is maintained by Liz Bryson, Librarian C-F-H Telescope in collaboration with the Canadian Astronomy Data Centre, Victoria, BC. The list may be accessed and meeting information entered at http://cadcwww.hia.nrc.ca/meetings.

AAS and AAS Division Meetings

*Division for Planetary Sciences
27 November–1 December 2001 — New Orleans, LA
Contact: S. Alan Stern (astern@boulder.swri.edu)
http://www.boulder.swri.edu/dps01/

199th Meeting of the AAS
6–10 January 2002 — Washington, DC
Contact: AAS Executive Office (aas@aas.org)

High Energy Astrophysics Division
(with Division of Astrophysics of APS)
20–23 April 2002 — Albuquerque, NM
Contact: Alice Harding (harding@twinkie.gsfc.nasa.gov)

*Division on Dynamical Astronomy
21–24 April 2002 — Portland, OR
Contact: Alan Harris (awharris@lithos.jpl.nasa.gov)

200th Meeting of the AAS
2–6 June 2002 — Albuquerque, NM
Contact: Harjit Ahluwalia (hsa@unm.edu)

*Solar Physics Division (with AAS)
2–6 June 2002 — Albuquerque, NM
Contact: John Leibacher (leib@noao.edu)

Other Events

IEEE 2001 Nuclear Science Symp. & Medical Imaging Conf.
4–10 November 2001 — San Diego, CA
Contact: Anthony Lavietes (lavietes1@llnl.gov)
http://www.nss-mic.org

Gamma Ray Burst and Afterglow Astronomy
5–9 November 2001 — Woods Hole, MA
Contact: George Ricker (grr@space.mit.edu)

Disks of Galaxies: Kinematics, Dynamics and Perturbations
5–9 November 2001 — Puebla, Mexico
Contact: Rosario Sanchez (secregh@inaoep.mx)
http://www.inaoep.mx/~disks01/ghconf.html

Tech. for the Detect. of Planets and Life Beyond the Solar System
7–8 November 2001 — Edinburgh, UK
Contact: Bill Dent (dent@roe.ac.uk)
http://www.roe.ac.uk/atc/research/workshop.html

*American Astronautical Society Conference & Annual Meeting: "Exploring the Solar System and Neighboring Planetary Systems"
12–14 November 2001 — Pasadena, CA
http://www.astronautical.org

IAU Symp. No. 209: "Planetary Nebulae: Their Evolution and Role in the Universe"
19–23 November 2001 — Canberra, Australia
Contact: Maartje Sevenster(pn_symp@mso.anu.edu.au)
http://www.mso.anu.edu.au/~pn_symp/

Workshop: X-ray Spectroscopy of Active Galactic Nuclei with Chandra and XMM-Newton
3–6 December 2001 — Garching, Germany
Contact: Thomas Boller (bol@xray.mpe.mpg.de)
http://wave.xray.mpe.mpg.de/conferences/agnspec-workshop

Galaxies: The Third Dimension
3–7 December 2001 — Cozumel, Mexico
Contact: Margarita Rosado (3dgal@astroscu.unam.mx)
http://www.astroscu.unam.mx/3Dgal

"Galaxies: Mind Over Matter," A Celeb. Symp. for Vera Rubin
10–11 January 2002 — Washington, DC
Contact: Sharon Bassin (sbassin@pst.ciw.edu)
http://www.carnegieinstitution.org/rubinsymposium.html

*Solar Magnetism and Related Astrophysics
16–18 January 2002 — Santa Barbara, CA
Contact: Dorene Iverson (dorene@itp.ucsb.edu)
http://www.itp.ucsb.edu/activities/conferences

IAU Coll. 186: "Cometary Science after Hale-Bopp"
21–25 January 2002 — Tenerife, Canary Islands, Spain
Contact: Rita Schulz (Rita.Schulz@esa.int)

*Black Holes: Theory Confronts Reality, Three Years Later
25–28 February 2002 — Santa Barbara, CA
Contact: Dorene Iverson (dorene@itp.ucsb.edu)
http://www.itp.ucsb.edu/activities/conferences

33rd Lunar and Planetary Science Conference
4–8 March 2002 — Houston, TX
Contact: Cheryl Perry (perry@lpi.usra.edu)

*IAU Coll. 187: "Exotic Stars as Challenges to Evolution"
4–8 March 2002 — Miami Beach, FL
Contact: W. Van Hamme (vanhamme@fiu.edu)
http://www.fiu.edu/~vanhamme/iau187

International Conference on Light Pollution
5–7 March 2002 — La Serena, Chile
Contact: light@ctio.noao.edu
http://www.iau.org/IAU/News

International Conference on Women in Physics
7–9 March 2002 — Paris, France
Contact: Judy Franz (beamon@aps.org)
http://www.if.ufrgs.br/~barbosa/conference.html

*Galactic Star Formation Across the Stellar Mass Spectrum
10–15 March 2002 — La Serena, Chile
Contact: James De Buizer (workshop2002@ctio.noao.edu)
http://www.ctio.noao.edu/workshop2002/

SOHO-11: From Solar Min to Max: Half a Solar Cycle with SOHO
11–15 March 2002 — Davos, Switzerland
Contact: admin@pmodwrc.ch
http://www.pmodwrc.ch/conferences/conferences.html

*21st Sac Peak Workshop: "Current Theoretical Models and Future High Resolution Solar Observations: Preparing for ATST"
11–15 March 2002 — Sunspot, NM
Contact: Alexei Pevtsov (ws21@sunspot.noao.edu)
http://www.sunspot.noao.edu/INFO/MISC/WORKSHOPS/index.html

*1st Potsdam Thinkshop: "Sunspots and Starspots."
6–10 May 2002 — Potsdam, Germany
Contact: Klauss Strassmeier (kstrassmeier@aip.de)
http://www.aip.de/thinkshop/

2nd Astrobiology Science Conference
7–11 April 2002 — Moffett Field, CA
Contact: abscicon@mail.arc.nasa.gov
http://astrobiology.arc.nasa.gov/conferences/2001/ABSciConf/index.html

Galaxy Evolution: Theory and Observations
8–12 April 2002 — Cozumel, Mexico
Contact: Vladimir Avila-Reese (galaxies@astroscu.unam.mx)
http://www.astroscu.unam.mx/galaxies

*IAU Symp. 211: "Brown Dwarfs"
20–24 May 2002 — Big Island, HI
Contact: Eduardo Martin (ege@ifa.hawaii.edu)
http://www.ifa.hawaii.edu/iau211

*Matter and Energy in Clusters of Galaxies
23–24 April 2002 — Chung-Li, Taiwan
Contact: Stuart Bowyer (bowyer@ssl.berkeley.edu)
http://astro.ncu.edu.tw/clusters

*5th A. Friedmann Int'l. Seminar on Gravitation and Cosmology
24–30 April 2002 — Joao Pessoa, Brazil
Contact: J. B. da Fonseca (jfonseca@fisica.ufpb.br)
http://www.fisica.ufpb.br/~jfonseca/friedmann

*Origins 2002: The Heavy Element Trail
26–29 May 2002 — Jackson, WY
Contact: Eric Smith (Eric.P.Smith.1@gsfc.nasa.gov)
http://ngst.gsfc.nasa.gov/News/Origins2.html

***AAS SECOND CENTURY LECTURE**
"Extrasolar Planets: First Reconnaissance" by Paul Butler
8 June 2002 — Topeka, KS
Contact: Brenda Culbertson (zzbculbe@washburn.edu)

Festschrift for R.F. Garrison on his 66th Birthday, "Probing the Personalities of Stars and Galaxies"
10–11 June 2002 — Tucson, AZ
Contact: Richard O. Gray (grayro@appstate.edu)
http://stellar.phys.appstate.edu/garrison

IAU Symp. 210, "Modeling of Stellar Atmospheres"
17–21 June 2002 — Uppsala, Sweden
Contact: Nikolai Piskunov (piskunov@astro.uu.se)
http://www.astro.uu.se/iau210

IAU Symp. 212, "A Massive Star Odyssey, from Main Sequence to Supernova"
24–28 June 2002 — Lanzarote, Canary Islands, Spain
Contact: Karel van der Hucht (K.A.van.der.Hucht@SRON.nl

*2002 Michelson Interferometry Summer School
24–28 June 2002 — Cambridge, MA
Contact: Peter Lawson (lawson@huey.jpl.nasa.gov)
http://sim.jpl.nasa.gov/michelson/iss.html

IAU: 8th Asia-Pacific Regional Meeting
2–5 July 2002 — Tokyo, Japan
Contact: Satoru Ikeuchi (ikeuchi@a.phys.nagoya-u.ac.jp)

*LISA IV: Library and Information Services in Astronomy
2–5 July 2002 — Prague, Czech Republic
Contact: Marek Wolf (lisa4@carolina.cz)
http://lisa4.cuni.cz

IAU Symp. 213: "Bioastronomy 2002: Life among the stars"
8–12 July 2002 — Great Barrier Reef, Australia
Contact: Ray P. Norris (Ray.Norris@atnf.csiro.au)

2002 Pacific Rim Conference on Stellar Astrophysics
11–17 July 2002 — Xi'an, China
Contact: Zhigang Li (lizg@ms.sxso.ac.cn)
http://bohr.physics.hku.hk/~xian2002

*Active Galactic Nuclei: From Central Engine to Host Galaxy
23–27 July 2002 — Paris, France
Contact: Suzy Collin (suzy.collin@obspm.fr)
http://www.obspm.fr/savoirs/seminaire/coll02/AGN02

IAU Symp. 214: "High Energy Processes, Phenomena in Astrophysics
5–10 August 2002 — Suzhou, China
Contact: Virginia Trimble (vtrimble@astro.umd.edu)

*IAU-UNESCO 26th Int'l School for Young Astronomers
12–30 August 2002 — San Juan, Argentina
Contact: Nidia Morrell (nidia@fcaglp.edu.ar)
http://lilen.fcaglp.unlp.edu.ar/isya

*11th UN/ESA Workshop on Basic Space Science
9–13 September 2002 —Cordoba, Argentina
Contact: Hans Haubold (haubold@kph.tuwien.ac.at)
http://www.seas.columbia.edu/~ah297/un-esa

*CNO in the Universe
10–14 September 2002 — Saint-Luc (Valais), Switzerland
Contact: Daniel Schaerer (schaerer@ast.obs-mip.fr)
http://obswww.unige.ch/cno

IAU Coll. 189: Astrophysical Tides: The Effects in the Solar and Exoplanetary Systems
16–20 September 2002 — Nanjing, China
Contact: Iwan Williams (i.p.williams@qmv.ac.uk)

34th COSPAR Scientific Assembly/World Space Congress
10–19 October 2002 — Houston, TX
Contact: cospar@copernicus.org
http://www.copernicus.org/COSPAR/COSPAR.html

IAU Symp. 215: "Stellar Rotation"
8–12 November 2002 — Cancun, Mexico
Contact: André Maeder (andre.maeder@obs.unige.ch)

IAU Coll. 190: "Magnetic Cataclysmic Variables, MCV3"
8–13 December 2002 — Cape Town, South Africa
Contact: Sonja Vrielmann (sonja@pinguin.ast.uct.ac.za)

XXVth International Astronomical Union General Assembly
13–26 July 2003 — Sydney, Australia
Contact: IAU Secretariat (iau@iap.fr)

2002 Dues Invoices Mail in October

The 2002 AAS Membership renewal invoices will be mailed in early October. To avoid interruption of service, pay your fees with the first invoice mailing. If you wish changes on your invoice, refer to the 2002 Membership Renewal Brochure which accompanied the invoice.

NEWS FROM NASA

Office of Space Science Re-Organization

Marc Allen, OSS, Director, Strategic and International Planning

Effective 1 July 2001, NASA Headquarters has reorganized the Office of Space Science (OSS). The new organization is intended to strengthen program and budget management but retain some of the positive features of the old structure. In short, the previous matrix-like organization has been replaced by a more classical line organization that resembles the division structure of the early 1990s:

- Programs in the former Astronomical Search for Origins and Structure and Evolution of the Universe themes have been collected into a new *Astronomy and Physics Division* (Code SZ), headed by **Anne Kinney** as Director with Associate Director **Rick Howard** (Associate Directors serve as division head deputies). Scientific ballooning will be in Code SZ.
- Former Sun-Earth Connection theme programs are in the *Sun-Earth Connection Division* (Code SS) under Director **George Withbroe** and Associate Director **Marcus Watkins**. Code SS will manage the sounding rocket program.
- Solar System Exploration programs, with the exception of the Mars Exploration Program, are in the *Solar System Exploration Division* (Code SE) with **Colleen Hartman** as Director and Associate Director **Jay Bergstralh**. Most astrobiology science will now reside in Code SE.
- The Mars Exploration Program is managed by Mars Program Director **Orlando Figueroa** (Code SM).

The new line organization will simplify practical management operations by gathering related program scientists and program executives together into organizational units with unified division management. For the purpose of long range science planning and goals setting, however, OSS plans to maintain the separate intellectual identities of the *Origins* and *Structure and Evolution of the Universe* themes within the new *Astronomy and Physics Division*.

The former matrix organization had some very positive features that the new arrangement tries to preserve. The previous location of all research management functions into a single division had the positive result of standardizing research solicitation, evaluation, and selection processes. The integrated Research Opportunities in Space Science (ROSS) NRA will be retained in the new organization. Reporting directly to Associate Administrator **Ed Weiler** and Deputy Associate Administrator **Earle Huckins** are two new senior staff positions: Executive Director for Science, **Guenter Riegler**, and Executive Director for Programs, **Ken Ledbetter**.

Harley Thronson is the new Technology Director, a staff position with responsibility for integration and long range planning for OSS's technology portfolio. The former "Assistant Associate Administrators" for Strategic and International Planning, **Marc Allen**, and Education and Public Outreach, **Jeff Rosendhal**, are now "Directors" for those areas, with no change in responsibilities. Likewise, there are no changes in the organization or responsibilities of the Policy and Business Management Division (Director, **Carrie Sorrels**), Resources Management Division (**Roy Maizel**), or the JPL NASA Management Office (**Bob Parker**).

NEWS FROM NSF

Eileen Friel, NSF Division of Astronomical Sciences, efriel@nsf.gov

New Faces at AST

The Division welcomes two new program directors on two-year visiting positions to Washington this fall:

Kathy DeGioia-Eastwood, of Northern Arizona University (NAU), became the Program Director for *Education and Special Programs* in late August. Kathy has been a professor at NAU for 13 years, and is known for her activities as director of their Research Experiences for Undergraduates site and the National Undergraduate Research Observatory (NURO). She has also recently been involved in preparing innovative new curricula for the general science education classes at NAU, and in sponsoring and coordinating workshops for K-12 teachers. Kathy's scientific expertise is in star formation and the evolution of massive stars. She will be primarily responsible for the NSF grants programs CAREER, REU, fellowship programs, and educational activities, where her experience in education and activities in the community will be especially valued.

Philip Ianna, of the University of Virginia and the International Dark Sky Association, joined NSF as Program Director for *Stellar Astronomy and Astrophysics* in September. Phil recently retired from UVa, after 33 years as a professor there, where his research centered on astrometry and issues of galactic structure. He has also been very active in assuring access to dark skies for astronomers both locally and nationally through service on the Board of the International Dark Sky Association. Phil's broad experience in stellar astronomy and his extensive service activities will make an important contribution to the Division.

Need for Program Officers

We call to your attention the continued opportunities and need at NSF for visiting scientists to direct our research and instrumentation grants programs. Each year, we have from one to three positions available, as members rotate through one or two year temporary positions. We are currently seeking scientists to manage the *Extragalactic Astronomy and Cosmology Program*. We need the help of the AAS membership to bring outstanding scientists to NSF. Please consider these opportunities and encourage qualified individuals to apply. Contact Wayne Van Citters, gvancitt@nsf.gov, 703-292-4908, or Eileen Friel, efriel@nsf.gov, 703-292-4895 for more information.

NSF-NASA Coordination

The Division of Astronomical Sciences and our counterparts in the Office of Space Science at NASA have begun a series of regular meetings to discuss programs of joint interest and ways in which the two agencies can expand our cooperative efforts. We are currently jointly sponsoring the activity of the Science Definition Team for planning of the National Virtual Observatory effort.

Programs To Look For At NSF

Major Research Instrumentation Program (MRI)

This Foundation-wide program assists US institutions acquire and develop major research instrumentation that is, in general, too costly for support through other NSF programs. The maintenance and technical support associated with these instruments is also supported. Proposals may be for a single instrument, a large system of instruments, or multiple instruments that share a common research focus. Proposals for

computer systems, clusters of advanced workstations, networks, and other information infrastructure components necessary for research are encouraged. Awards for instrumentation range from $100,000 to $2 million. Lesser amounts are considered in proposals from non-PhD granting institutions, from mathematical sciences, or from the social, behavioral and economic science communities.

The total funding provided to NSF for this program in FY2001 was $75,000,000. These funds are apportioned to the directorates and then to the divisions on the basis of proposal pressure. While AST has had some considerable success in this program in the past, the response to the FY2001 solicitation was much lower (we were out-numbered by chemistry proposals 9-to-1 and by materials research proposals by 5-to-1). Please be looking for the FY2002 announcement. Proposals are normally due around February.

MPS: International Distinguished Research Postdoctoral Fellowship (DRF) and Internships in Public Science Education (IPSE)

Last year the NSF Directorate for Mathematical and Physical Sciences (MPS) began these two new programs of interest to the astronomical community. Both programs will continue in FY2002 and proposals are encouraged.

The *MPS DRF* program provides talented recent doctoral recipients in the mathematical and physical sciences opportunities to establish international collaborations in the early stages of their careers. MPS encourages applicants whose research would especially benefit from international collaboration. A unique feature of the program is that resources are available during the fellowship period for awardees to travel in order to establish and to further international contacts and collaborations and to maintain a viable presence in the Fellow's research community in the United States by returning to the US for short visits. The application deadline is **21 November 2001** and the program announcement (NSF 01-154) can be found at http://www.nsf.gov/cgi-bin/getpub?nsf01154.

MPS began the *IPSE Program* to promote the involvement of the research community in public educational activities, by promoting partnerships between the MPS research community and specialists in public outreach and science education. IPSE is intended to bring recent science research results from MPS disciplines to the public by providing support for undergraduate and graduate students and K-12 teachers to work in conjunction with MPS research scientists, and with professionals at science centers and museums, on projects in public outreach and informal science education. Although the new program announcement has not been issued yet, we expect the deadline date for FY2002 proposals to be in **February 2002**.

NSF Special Session at Winter DC Meeting

NSF staff will be holding a special session at the January 2002 AAS meeting in Washington, DC on "How the NSF Works." At the session, members of the Division of Astronomical Sciences will provide an overview of how NSF and the Astronomy Division work, including a discussion of funding opportunities, suggestions on how to write an effective proposal, and information on how the review process works. The session is designed especially for those new to NSF programs and funding, but will be helpful to anyone who would like to know more about making the most of NSF funding opportunities.

ANNOUNCEMENTS

State Department and Congressional Fellowships

The American Institute of Physics (AIP) is now accepting applications for two fellowship programs, the *AIP State Department Science Fellowship* and the *AIP/APS Congressional Science Fellowship*:

AIP State Department Science Fellowship: This fellowship provides an opportunity for scientists to make a unique and substantial contribution to the nation's foreign policy. Each year, AIP sponsors one fellow to work in a bureau or office of the U.S. State Department, becoming actively and directly involved in the foreign policy process by providing much-needed scientific and technical expertise. Application deadline is **1 November 2001**. For more information see http://www.aip.org/mgr/sdf.html.

AIP/APS Congressional Science Science Fellowship: The American Institute of Physics and the American Physical Society (APS) are accepting applications for their 2002–2003 Congressional Science Fellowship programs. Fellows serve one year on the staff of a Member of Congress or congressional committee, learning the legislative process while lending scientific expertise to public policy issues. Application deadline is **15 January 2002**. See http://www.aip.org/pubinfo or http://www.aps.org/public_affairs/fellow/index.shtml for details.

AAAS Science & Technology Policy Fellows

The American Association for the Advancement of Science (AAAS) invites scientists to apply for one-year science and technology policy fellowships in Washington, DC, beginning September 2002. Fellows serve in the Congress, the National Science Foundation, the Department of State, the Department of Defense, and other federal offices. These programs are designed to provide a unique public policy learning experience and to bring technical backgrounds and external perspectives to decision-making in the US government.

Applicants must have a PhD in physics or in any physical, biological, or social science or any relevant interdisciplinary field by the application deadline, **10 January 2002**. Engineers with a master's degree and at least three years of post-degree professional experience also may apply. Candidates must be US citizens; federal employees are not eligible. Stipends typically begin at $54,000. Under-represented minorities and persons with disabilities are encouraged to apply.

For application instructions and further information, contact Joe Kovacs, Marketing Manager, Fellowship Programs, AAAS, 1200 New York Avenue, NW, Washington, DC 20005; Tel.: 202-326-6481, science_policy@aaas.org, http://www.fellowships.aaas.org.

AAUW Eleanor Roosevelt Teacher Fellowships

Fellowships of up to $5,000 are available through the American Association of University Women's Eleanor Roosevelt Teacher Fellowship program. The Fellowships are designed to provide professional development opportunities for women public school teachers; improve girls' learning opportunities, especially in math, science, and technology; and promote equity and long-term change in classrooms, schools, and school systems. See http://www.aauw.org/3000/fdnfelgra/ertfbd.html for details.

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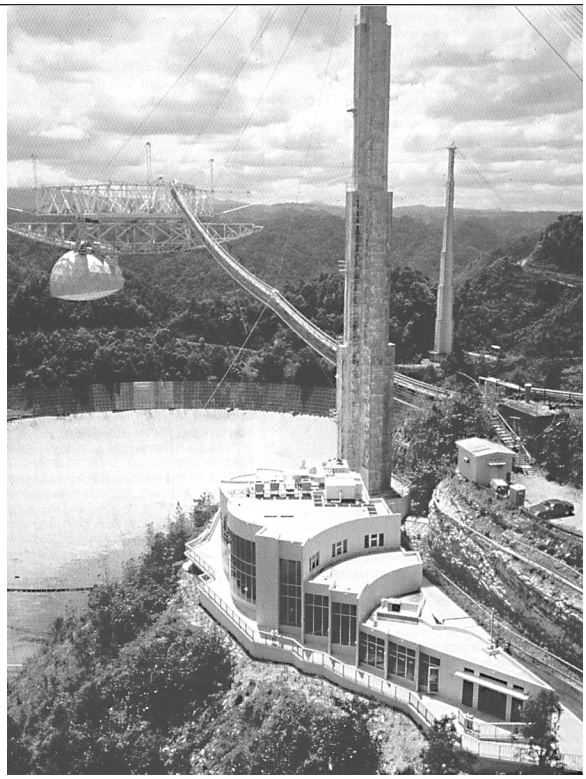
GENERAL NEWS

Capturing the Imagination through Astronomy: Education and Outreach at Arecibo Observatory

Daniel R. Altschuler and José L. Alonso

As the site of the world's largest single-dish radio telescope, the Arecibo Observatory in Puerto Rico is recognized internationally as one of the most important centers for research in radio astronomy, planetary radar and atmospheric sciences. But perhaps as importantly for the long-term health of our science, the Observatory is a widely-recognized symbol — in large part due to its starring role in the popular movie, *Contact* — for the accomplishments of science and the excitement of scientific discovery.

Located as it is in an exotic part of the world famous for tropical vacationing, thousands of off-island visitors annually make a pilgrimage of sorts to the wonderment of scientific achievement that is the Observatory. And, as importantly, the Observatory is a unique local venue where citizens of Puerto Rico, who are grossly under-represented in the professional sciences, can experience cutting-edge science in practice. With its active educational and outreach programs for teachers and students alike, the Observatory represents a significant extension of the limited local educational resources of the island.



Overlooking the Arecibo 305 meter reflector, the Angel Ramos Foundation Visitor Center is a good example of local private and federal public funding.

The public education and outreach programs at the Arecibo Observatory are made possible, or enhanced by its **Angel Ramos Foundation Visitor Center** (right). This facility was inaugurated in early 1997. It consists of approximately 10,000 square feet of building and outdoor program space. It houses exhibits, a 100-person multi-purpose theater, a science merchandise store, appropriate meeting rooms and workspace. Since its opening, over 500,000 visitors have enjoyed its exhibit program. This figure represents an annual average of over 120,000 visitors, with children (mostly in the form of school groups and summer camps) accounting for 30% of the visitor flow. About 500 school groups from across the island are scheduled every year, as well as many college and special groups.

Private and Public Partnership

Funding for the Visitor Center was obtained from local private and government sources after eight years of intensive fundraising. Prominent among the backers was the Angel Ramos Foundation, a philanthropic organization with a mission to improve the educational cultural and civic conditions of Puerto Rican society. A grant by the NSF funded the main exhibit program. Revenues from admission fees and sales from the store support the Visitor Center operation, with six full-time staff members, and five full time equivalent student guides selected from the local campus of the University of Puerto Rico.

Under the watchful eye of Arecibo's Gregorian primary and secondary reflectors and 1 meg-watt transmitter (upper right), visitors on the viewing balcony of the Visitors Center experience the relative size and distance of the planet Saturn from the sun, part of the scale model of the solar system starting in the parking lot with a 12-inch bronze sphere representing the Sun.

Exhibit Program

The exhibit program centered on the theme "More Than Meets the Eye," reflects the general idea that we can study our world with tools which extend our direct sensory experience. The program explores the unseen sky and, in particular, the objects that fall under the scrutiny of a radio telescope. Specifically, the program introduces visitors to the electromagnetic spectrum as a means of exploration, offers a framework of basic astronomy and atmospheric science, and provides understanding of the function and operation of the Arecibo radio telescope. Some of Arecibo's most exciting discoveries in the fields of radio astronomy, planetary sciences and space and atmospheric sciences are presented in the second floor of the exhibition. In addition, the facility offers a breathtaking view of the primary research instrument of the observatory — the 305 meter diameter radio telescope. A scale model of the solar system (left), funded by the Puerto Rico NASA Space Grant Consortium was completed early in 2001. Starting with a 12-inch bronze sphere that represents the Sun in the parking lot, the

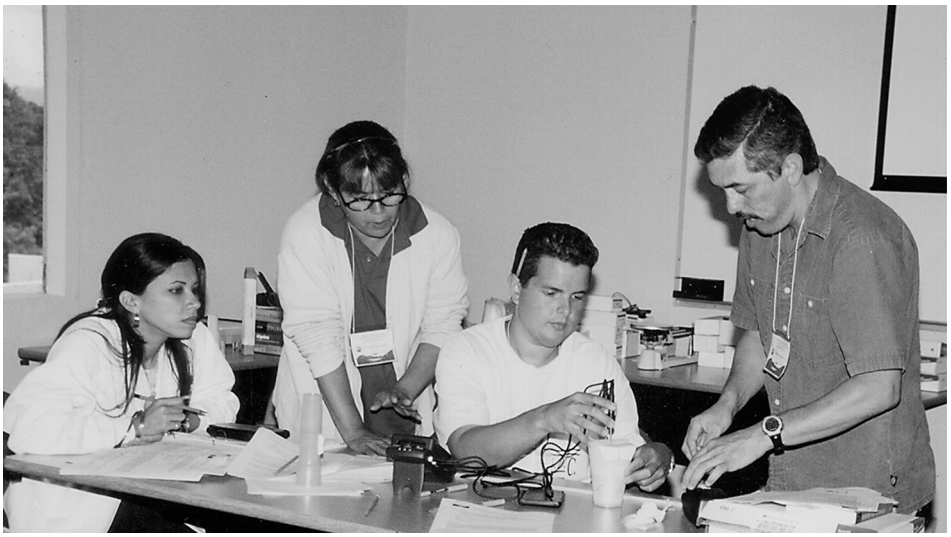
planets are distributed up the hill according to their scaled distance and size.

Theater Program

"A Day in the Life of the Arecibo Observatory," sponsored by the Angel Ramos Foundation, premiered on 1 April 2000. The 20 minute documentary presents a look behind the scenes at daily operations, from the guards and technicians, to the telescope operators and scientific staff. It illustrates the many people and circumstances that make science possible at the world's largest radio telescope. The film, now the standard program offered to all visitors in the auditorium, has been very well received.

Hands-On Teacher Workshops

Science teacher workshops have become an integral part of the outreach program. Workshops are usually scheduled during the summer. These workshops have hosted a total of 200 science teachers from the public and private schools of Puerto Rico. Another 200 teachers have participated in smaller one-day training sessions. The NSF sponsored RET program (Research Experience for Teachers) now in its third year, has provided a summer internship for five teachers.



Participants in a recent teacher workshop, performing a calorimeter experiment using temperature probes.

Teacher workshops are devoted to topics in astronomy and atmospheric science. Participants from throughout the island learn basic concepts using hands-on and inquiry-based activities. The five-day residential program includes special lectures by scientists, telescope observations of the night sky, and the use of new teaching technology.

Construction has just been completed of a new Learning Center which includes a teacher training facility incorporating multimedia resources in a modern classroom setting. It includes a 800 sq. ft. classroom, and related support areas. It will be used primarily for teacher and scientific workshops. The Learning Center will expand teacher training offerings, and make these workshops accessible to teachers from throughout Puerto Rico.

The Arecibo Observatory is part of the National Astronomy and Ionosphere Center (NAIC), a national research facility operated by Cornell University under a cooperative agreement with the National Science Foundation (NSF).

Astrophysical Activities at The ITP, UC-Santa Barbara

Lars Bildsten, Permanent Member, ITP and Professor of Physics, UCSB

The Institute for Theoretical Physics (ITP) is a National Science Foundation funded institute located on the campus of the University of California, Santa Barbara. The ITP's purpose is to contribute to the progress of theoretical physics, especially in areas overlapping the traditional subfields, in ways that are not easily realized in existing institutions. The scientific work of the Institute is carried out by approximately 50 members, including the Director, Deputy Director, four Permanent Members, 10-15 Postdoctoral Members, and 40 visiting senior members. ITP permanent members and postdoctoral fellows are active in all areas of theoretical physics, including astrophysics and relativity.

Most visiting members are participants in major programs that last three to six months; there are at least five programs per year. We emphasize opportunities for the astronomical community to participate here through programs, conferences, and visiting positions for postdocs, graduate students and faculty. We have four or five postdocs in astrophysics and relativity (advertised in the AAS *Job Register*).

Intensive Studies

The major activity at the ITP are the three to six month programs of intensive study of a particular topic. These involve at least 20 visiting senior scientists (post-PhD) in residence at all times. We encourage minimum stays of one month.

Recently completed astrophysics programs were "Spin and Magnetism in Young Neutron Stars" (August – December 2000) and "Physics at High Pressures: Interiors of Giant Planets, Extrasolar Planets and Brown Dwarfs" (January 2001). The scanned talks from these programs (as well as some audio) are available at http://online.itp.ucsb.edu/online.

The astrophysics program this academic year is "Solar Magnetism and Related Astrophysics" (January–March 2002) for which a conference will be held 16–18 January 2002. A conference will also be held on "Black Holes: Theory Confronts Reality, Three Years Later", on 25–28 February 2002. Attendance at these conferences is limited; apply early at http://www.itp.ucsb.edu/activities/conferences.

For the 2002-2003 academic year, the following astrophysics-oriented programs have been approved and applications are now being taken for long-term participants:

- "The Cosmic Microwave Background, Dark Matter, and Dark Energy" (15 August – 15 December 2002, apply by **30 November 2001**);
- "Neutrinos: Data, Cosmos, and Planck Scale" (15 January – 15 May 2003, apply by **1 April 2002**) and
- "Gravitational Interaction of Compact Objects" (15 May–15 July 2003, apply **1 April 2002**).

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INSTIUTE FOR THEORETICAL PHYSICS
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Applications are taken at http://www.itp.ucsb.edu/activities/future, the ITP Website which also has information on the particular program focus and coordinator contacts.

Program Proposals Welcomed
Scientists interested in proposing programs for the 2003-2004 academic year should contact any of the astrophysicists of the ITP's Advisory Board (currently K. Freese and L. Hernquist), the director of the ITP (D. Gross) or the astrophysics permanent member (L. Bildsten) for information on proposal preparation. Decisions are made in February 2002, and proposals should be at the ITP by **31 December 2001**.
See http://www.itp.ucsb.edu/activities/suggest/ for complete information.

Graduate Student Programs
Graduate students can participate at the ITP either as an affiliate of a visiting senior member (typically a graduate student who accompanies their thesis advisor as a participant) or as a Graduate Fellow. The purpose of the graduate fellowship program is to offer a unique opportunity for a select group of physics graduate students to spend a period of five to six months at the ITP, participate in ITP research programs and broaden their understanding of physics in areas of current research. Participants are expected to stay for the entire period for which they have been accepted. Since we wish to make sure that the students admitted are fully able to benefit from the program, and that it will not harm the normal progress of their graduate education, we require that the student's advisor nominate the candidate student. Students cannot apply to the program directly. The Graduate Fellows will be fully supported during their stay at the ITP. For participation in the fall of 2002, see http://www.itp.ucsb.edu/activities/grad_fellows. Nominations must be received by **1 May 2002**.

Visiting Researchers: We also have established a program for visiting researchers in theoretical physics; the ITP Scholars. The purpose of this program is to support the research efforts of faculty at U.S. colleges and universities that are not major research institutions. Applicants from non-PhD-granting institutions and from institutions with greater emphasis on teaching (as measured, for example, by teaching load) are particularly encouraged to apply. Active theorists at national labs with large programmatic responsibilities are also encouraged to apply. Ongoing research activity is an important criterion. Each award funds a total of three round trips and up to six weeks of local expenses, to be used over a period of three years. Over 30 scholars have been selected to date. Go to http://www.itp.ucsb.edu/activities/scholars/ for further information.

CANADIAN NEWS

CASCA Elects New Officers

After the 2001 Annual Meeting of the Canadian Astronomical Society held in Hamilton, Ontario, the following new officers began their terms:

Second V-P: **James Hesser**, james.hesser@nrc.ca
Secretary: **Hugh Couchman,** couchman@physics.mcmaster.ca

INTERNATIONAL

Tenth UN/ESA Workshop on Basic Space Science, Held in Mauritius

Hans J. Haubold, United Nations Office for Outer Space Affairs, haubold@kph.tuwien.ac.at

The Tenth UN/ESA Workshop on Basic Space Science: Exploring the Universe—Sky Surveys, Space Exploration, and Space Technologies, was hosted by the University of Mauritius on behalf of the Government of Mauritius 25-29 June 2001. The Workshop was attended by 65 astronomers and space scientists from 28 countries.

The presentations made during the Workshop, of which there were more than 50, focused on

- Sky surveys;
- The Mauritius Radio Telescope (MRT);
- Solar satellite missions and their data bases: SOHO, Yohkoh, Ulysses, and TRACE;
- Solar physics and helioseismology;
- Solar eclipse science;
- Astronomy with and networks of small telescopes; and
- The Astrophysics Data System (ADS).

Ground-breaking Space Science: All UN/ESA Workshops on Basic Space Science made efforts to accommodate in their programs so-called groundbreaking results in space science. This time, two such results led to hot debates among participants:

(1) Angola, Zimbabwe, Mozambique, and Madagascar were on the total solar eclipse path across Africa which occurred on 21 June 2001. Many observations meant to understand better how the solar corona is heated to two million degrees celsius and to plug the gap in the coverage of the Sun's outer atmosphere available from spacecraft. Beyond photon astronomy, such a solar eclipse can make significant contributions to neutrino and gravitational astronomy as well, as was shown in presentations during the Workshop.

(2) On 18 June 2001, the Sudbury Neutrino Observatory (SNO) announced their first findings regarding the puzzle of the missing solar neutrinos, a 30-year old mystery concerning the physical mechanisms on how the Sun generates energy. Strong evidence for neutrino oscillations is now available. Both events were directly relevant to the Workshop's one-day solar sessions that comprehensively reviewed the current theoretical and observational status of the understanding of the internal structure and atmosphere of the Sun based on results from the four solar satellite missions SOHO, TRACE, Ulysses, and Yohkoh. Demonstration of availability, access, and analysis of the data from the solar missions and recommended software for their analysis was a highlight of the Workshop program. Expectations for the observations of solar gravity modes are running high.

The *Mauritius Radio Telescope* (MRT) was primarily designed to undertake a survey of the southern sky at 151.5 MHz with a sensitivity of 150 mJy. The MRT is a joint project of the Indian Institute of Astrophysics, the Raman Research Institute of India, and the University of Mauritius. The visit to MRT, located in the Bras d'Eau forest in the rocky north-eastern part of Mauritius, left a deep impression on all participants. Already three surveys of the southern sky have been finalized with about 300 GB of

The East arm of the Mauritius Radio Telescope (MRT), located in Bras d'Eau.

Excerpts from a U. Mauritius brochure: "The MRT is a synthesis radio telescope making images of the sky at a frequency of 151.5 MHz (or 2 meter) wavelength. It was designed to make a survey of the southern sky equivalent to the Cambridge 6C survey of the northern sky. It is a T-shaped array consisting of 1020 fixed helical antennas in the E-W arm (2 km) and arranged in 32 groups; and 64 helical antennas on 16 moveable trolleys in the N-S (880 m.). There is a single trolley on the North arm.

"The Telescope uses the technique of aperture synthesis to stimulate a 1 km by 1 km filled array. Observations are made with the trolleys in the South arm at their nearest position from the array center. The trolleys are then moved further south and the observations are repeated 62 times and until the South arm is reached. Unlike most radio telescopes, the MRT can see very extended sources. Also the non-coplanarity of the E-W arm have led to new imaging techniques used in cleaning the raw data."

The MRT is a joint project of the Indian Institute of Astrophysics (IIA), the Raman Research Institute (RRI), Bangalore, India, and the University of Mauritius.

raw data collected. MRT is mapping the Milky Way and continues to observe pulsars. The final construction of MRT was completed in 1992 and the telescope has been operational since then. More than ten presentations during the Workshop addressed all aspects of MRT.

Astrophysics Data System: A recurring topic of the Workshops continues to be NASA's Astrophysics Data System for free access to astronomical literature on-line (http://ads.harvard.edu). Space scientists from developing nations are utilizing more frequently the four databases with abstracts in astronomy, instrumentation, physics/geophysics, and the LANL preprints with a total of over 2.2 million references. Everybody agreed that ADS and the Strasbourg Astronomical Data Centre have considerably eased the day-to-day work of the international astronomical community.

Working Groups: Participants of the Workshop split into four working groups — space exploration; sky surveys; education, training, and services; and space technologies — to review observations and recommendations of past UN/ESA Workshops on Basic Space Science.

Two private companies took the Workshop as an opportunity to discuss the utilization of ground-based robotic telescopes and small satellites, respectively, for basic space science, particularly in developing nations.

Evening Working Group sessions addressed: basic space science facilities in developing nations; the current status regional astronomical newsletters: for Africa, *African Skies/Cieux Africains* (http://www.saao.ac.za/~wgssa); for Asia and the Pacific, *Teaching of Astronomy in Asia-Pacific Region*; for Latin American, *Astronomia Latino Americana* (http://www.astro.ugto.mx/~ala/), and for western Asia, the forthcoming newsletter of the Arab Union for Astronomy and Space Sciences;

- SOHO and Ulysses data utilization. In this regard the participants also took note of the forthcoming establishment of an African Institute of Space Science (AISS) as a continent-wide organization, which would act as a source of vision and strategy to promote the development of basic space science throughout Africa. AISS may benefit from the previous experience obtained in the respective regional Centres for Space Science and Technology Education, affiliated with the United Nations.
- The AAVSO's "Hands-On Astrophysics" (http://www.aavso.org/) material for operating small astronomical telescope facilities and the manuscript, "Astrophysics for University Physics Courses," available on the UN/ESA Workshop Website, were provided to Ethiopia, Honduras, Jordan, Morocco, Paraguay, the Philippines, Sri Lanka, Uganda, and Zambia.

This Workshop initiated a study and assessment of the achievements of the past UN/ESA Workshops in the period of time 1991–2001. *Proceedings* of the Workshop will be published in *Astrophysics and Space Science* (Kluwer Academic Publishers).

During the Workshop, the Space Agency of Argentina (CONAE) announced that it would host the Eleventh UN/ESA Workshop on Basic Space Science at the Institute for Higher Space Studies "J. Mario Gulich" at Cordoba, in cooperation with the University of La Plata, **9-13 September 2002**, Cordoba, Argentina.

See http://www.seas.columbia.edu/~ah297/un-esa/ for more information the Workshops.

Editor's Note: While preparing this article for publication, Hans made some personal observations that convey his wonderment at the development of astronomy in the ancient world with which these Workshops have brought him in contact. He remarked, "Well, besides all the basic space science, Mauritius is a pearl in the Indian Ocean. One of the wonderful things of the UN/ESA Workshops is that the workshops become part of the respective culture of the host country because the Governments are proud to arrange all of that. Unfortunately, I can not put these impressions into UN reports but in the past ten years, the workshops moved through Hindu temples, Buddhist ancient cities, Maya ruins, rain forests, African dances, Arabia's Petra, Egypt's pyramids, and much more. Everything related to a different epoch in the development of astronomy. In such an environment, astronomy is even more fascinating. Mauritius was no exception to that."

IAU: Call for Meeting Proposals

Proposals for IAU Symposia, Colloquia and co-sponsored meetings planned for 2003 must reach the President of the appropriate Division (or Commission for Commissions not attached to a Division) no later than **15 February 2002** in order to be considered at the 76th Executive Committee meeting. See http://www.iau.org/Activities/meetings. Note that this refers in particular to General Assembly Symposia and Joint Discussions at General Assembly XXV to be held in Sydney, Australia in July 2003.

ANNOUNCEMENTS
Continued from page 13

SIRTF Postdoctoral Fellowships

The Space Infrared Telescope Facility (SIRTF) Science Center, California Institute of Technology announces the inauguration of the SIRTF Postdoctoral Fellowship Program providing opportunities for postdoc research that will enhance the overall scientific return from the SIRTF mission. Fellowships can be obtained with proposals to conduct new observations with SIRTF, through exploitation of SIRTF archival databases, or through research that aids in the interpretation of SIRTF results, including theoretical investigations and laboratory astrophysics. Research must be conducted at a US-based Host Institution chosen by the Fellow. The program is open to applicants of any nationality who have earned (or will have earned) their doctoral degrees after 1 January 1999, in astronomy, physics, or related disciplines. The duration of the Fellowships is up to three years, including an initial appointment of one year starting, and extensions contingent on annual performance reviews and availability of NASA funding. Up to five new SIRTF Fellows may be appointed for the initial terms starting about September 2002. See http://sirtf.caltech.edu/SSC/Fellows for complete application information. Friday, **16 November 2001** is the application deadline.

Online: Topical Session Talks on Interacting Galaxies

Vassilis Charmandaris, vassilis@astro.cornell.edu

The talks presented in the Pasadena Topical Session entitled, "Interacting Galaxies: A Multi-wavelength Look at their Role in Galactic and Cosmic Evolution" are now available online at http://www.astro.cornell.edu/aas198/. AAS members are encouraged to visit this site and retrieve any material they feel useful. Editor's note: The AAS does not maintain this site and cannot assure its future accessibility.

Annie J. Cannon Award: Call for Nominees

The Annie Jump Cannon Award in Astronomy honors a woman postdoctoral scholar for significant research in astronomy. Nominees must be women in the early stages of a career in astronomy. Preference is given to nominees who have held a doctorate in astronomy or a related field for at least one year. There are no restrictions on the nominees nationality or the location of her research. The award is $5,000. All nominating materials must be received by the AAUW Educational Foundation by **11 February 2002**. Notification of the award will be mailed by 30 April 2002, award disbursement in July 2002. Questions about the award and nominations should be directed to the American Association of University Women Educational Foundation at 202-728-7631; by fax at 202-463-7169; by mail, 1111 Sixteenth Street, NW, Washington, DC 20036; or by email at foundation@aauw.org.

Donate Equipment To Spectroscopic Virtual Observatory

The Spectroscopic Virtual Observatory is a laboratory project to digitize stellar spectrograms (http://herbie.ucolick.org/public/svo) . It will operate PDS scanners, and we are seeking redundant equipment (of any model) that could be serviceable for this work. The instruments should be in good enough condition that we can upgrade them with state-of-the-art hardware and software. If you have any equipment which might be of use to this project, please contact Elizabeth Griffin, remg@astro.ox.ac.uk.

NSO Observing Proposals

The current deadline for submitting observing proposals to the National Solar Observatory is **15 November 2001** for the first quarter of 2002. Forms and information are available from the NSO Telescope Allocation Committee, PO Box 62, Sunspot, NM 88349 for Sacramento Peak facilities (sp@sunspot.noao.edu) or PO Box 26732, Tucson, AZ 85726 for Kitt Peak facilities (nso@noao.edu). A TeX or PostScript template and instruction sheet can be emailed at your request; obtained by anonymous ftp from ftp.sunspot.noao.edu (cd observing_templates) or ftp.noao.edu (cd nso/nsoforms); or downloaded from the WWW at http://www.nso.noao.edu/. A Windows-based observing-request form is also available at the WWW site. Users' Manuals are available at http://www.sunspot.noao.edu/telescopes.html for the SP facilities and http://www.nso.noao.edu/nsokp/nsokp.html for the KP facilities. Proposers to SP may inquire whether the Adaptive Optics system may be available for their use. Observing time at National Observatories is provided as support to the astronomical community by the National Science Foundation.

New At Arecibo; Call for Observing Proposals

New Parameters at the Facility: Following resetting of the 305-m telescope surface this summer, the sensitivities available have now risen to essentially the design values of the recent upgrade. This especially means significant improvements above 2 GHz, making proposals to use the C-band receiver for observing molecular lines within the frequency range 4-6 GHz of particular interest.

The Arecibo VLBA4 recorder for Very Long Baseline Interferometry (VLBI) has now obtained its first fringes via test observations with 3 VLBA antennas in April 2001. Additional "weak source" and "two-head recording" tests were recently made, and results from correlation are awaited. *Anybody wishing to include Arecibo in their VLBI observations should submit proposals directly to the VLBA, EVN or Global networks as usual, rather than to Arecibo.* In all proposals, special justification for the use of Arecibo should be included. Observations with ad-hoc arrays will also be considered, but in this case proposals should be submitted to Arecibo as described at the web address given below. In this case, it is the proposers' responsibility to ensure that telescope time be granted by the other observing facilities involved.

Call for Proposals: NAIC invites proposals for use of the 305-m diameter Arecibo radio telescope in respect of the following four-monthly deadlines:

Deadline	Observing Period
1 Feb	The following Jun - Jan
1 Jun	Oct - May
1 Oct	Feb - Sep

Details of the proposal submission procedure can be found at http://www.naic.edu/vscience/proposal/proposal.htm, with other user related information being at http://www.naic.edu/aomenu.htm. Receivers at 327, 430 & 610 MHz, L-, S- and C-band are available, as are pulsar, spectral-line and continuum backends. The NAIC Website also includes the latest information on receiver performance, plus backend and software availability.

Pollock Proposals Due

Dudley Observatory invites applications for the Pollock Award, a grant of up to $5,000 for a project on the history of astronomy. The deadline is **9 November, 2001**; for details, see http://www.dudleyobservatory.org.

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FROM THE COMRAA REPORT:

RECOMMENDATIONS

The foregoing findings led the committee to make the following recommendations:

1. The National Science Foundation's astronomy and astrophysics responsibilities should not be transferred to NASA.
2. In order to maximize the scientific returns, the federal government should develop a single integrated strategy for astronomy and astrophysics research that includes supporting facilities and missions on the ground and in space.
3. To help bring about an integration of ground- and space-based astronomy and astrophysics, the Office of Science and Technology Policy and the Office of Management and Budget should take the initiative to establish an interagency planning board for astronomy and astrophysics. Input to the planning board from the scientific and engineering community should be provided by a joint advisory committee of outside experts that is well connected to the advisory structures within each agency.
   a. The recommended interagency Astronomy and Astrophysics Planning Board, with a neutral and independent chair to be designated by the Office of Management and Budget in conjunction with the Office of Science and Technology Policy, should consist of representatives of NASA, NSF, the Department of Energy, and other appropriate federal agencies such as the Smithsonian Institution and the Department of Defense. The Planning Board should coordinate the relevant research activities of the member agencies and should prepare and annually update an integrated strategic plan for research in astronomy and astrophysics, addressing the priorities of the most current National Research Council decadal survey of the field in the context of tight discretionary budgets.
   b. The membership of the Planning Board's advisory committee should be drawn in part from the external advisory panels of the Planning Board's member agencies. The advisory committee should be chaired by an individual who is neither a member of the agency advisory panels nor an agency employee. The committee should participate in the development of the integrated strategic plan and in the periodic review of its implementation.
4. NASA and NSF should each put in place formal mechanisms for implementing recommendations of the interagency Astronomy and Astrophysics Planning Board and integrating those recommendations into their respective strategic plans for astronomy and astrophysics. Both agencies should make changes, as outlined below, in order to pursue effective roles in formulating and executing an integrated federal program for astronomy and astrophysics. These changes should be coordinated through the interagency Planning Board to clarify the responsibilities and strategies of the individual member agencies.
5. The NSF, with the active participation of the National Science Board, should:
   a. Develop and implement its own strategic plan, taking into account the recommendations of the interagency Planning Board. Its strategic plan should be formulated in an open and transparent fashion and should have concrete objectives and time lines. NSF should manage its program in astronomy and astrophysics to that plan, ensuring the participation of scientifically relevant divisions and offices within NSF. To help generate this plan, NSF should reestablish a federally chartered advisory committee for its Astronomical Sciences Division to ensure parity with the NASA advisory structure. The chair of this Astronomical Sciences Division advisory committee should be a member of the Mathematical and Physical Sciences Directorate advisory committee. Furthermore, the Mathematical and Physical Sciences Directorate advisory committee should make regular written and oral reports of its key findings and recommendations to the National Science Board.
   b. Address the outstanding issues that are affecting ground-based astronomy at present.
      – Lead the development of an integrated strategy for assembling the resources needed to build and operate the challenging suite of ground-based initiatives recommended by the most current decadal survey.
      – Work to create an integrated system for ground-based optical/infrared astronomy and astrophysics encompassing private, state, and federally funded observatories, as advocated by the decadal survey.
      – Improve and systematize the process for initiating, constructing, managing, and using ground-based facilities, so that it includes:
         – clear lines of authority for negotiations, particularly those involving international partners
         – an open bidding process for contracts,
         – comprehensive budgeting that provides for all aspects and phases of projects, and
         – provision of the resources required to exploit the scientific potential of the facilities, including associated instrumentation, theoretical work, data analysis, and travel.
   c. Undertake a more concerted and well-funded effort to inform the press and the general public of scientific discoveries, and cooperate with NASA in developing a coordinated public information program for astronomy and astrophysics.
6. In parallel, NASA should:
   a. Implement operational plans to provide continuity of support for the talent base in astronomy and astrophysics should critical space missions suffer failure or be terminated.
   b. Continue and enlarge its program of research support for proposals from individual principal investigators that are not necessarily tied to the goals of specific missions.
   c. Support critical ground-based facilities and scientifically enabling precursor and follow-up observations that are essential to the success of space missions. Decisions on such support should be considered in the context of the scientific goals articulated in the integrated research plan for astronomy and astrophysics.
   d. Cooperate with NSF in developing a coordinated public information program for astronomy and astrophysics.

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WASHINGTON NEWS

Kevin B. Marvel, Associate Executive Officer for Policy Programs

The COMRAA Report Out

The budget blueprint released by the Bush Administration this past February called for the creation of a "Blue Ribbon Panel" to review the implications of moving NSF astronomy activities to NASA. Many in the astronomy community were blind sided by this recommendation, but the recent release of the Decadal Survey and a report by the Committee on Astronomy and Astrophysics (CAA) on the Federal Funding of astronomy and astrophysics, combined with a reform-minded administration likely led to the call for the Blue Ribbon Panel.

The Panel was constituted as the Committee on the Organization and Management of Research in Astronomy and Astrophysics (COMRAA) under the auspices of the National Research Council's Space Studies Board and Board on Physics and Astronomy. The COMRAA met throughout the summer and presented its recommendations to the public on 3 September 2001.

The AAS is currently considering what action, if any, to take regarding the recommendations. By the time this issue arrives in your mailbox, any AAS action will have already arrived in the form of an AAS Informational Email or Action Alert.

On the previous page, we provide the full text of the COMRAA recommendations. For a more complete understanding of how the COMRAA arrived at these recommendations members should read the complete report (entitled "US Astronomy and Astrophysics: Managing an Integrated Program"), the core portion of which is only about 40 pages long. Valuable appendices are attached to the report, which increase its length, but also provide interesting statistical data and information along with committee member biographies. The full text of the report can be found at http://www.nas.edu/bpa/projects/brp/comraa-prepub_9-4-01.pdf.

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IMPORTANT DEADLINES: DC WINTER MEETING

Abstract Deadline:
Wednesday, 17 October 2001, 9pm EDT

Early Registration: 28 November 2001

Hotel Reservations: 5 December 2001

Prelim:
http://www.aas.org/meetings/aas199/prelim/prelim.html