



ASTROPHYSICS

newsletter

2003 APS April Meeting in Philadelphia

The 2003 April Meeting of the American Physical Society will meet April 5–8 in Philadelphia, Pennsylvania at the Loews Philadelphia Hotel. The scientific program will, as usual, consist of three plenary sessions, approximately 45 invited sessions, and more than 100 contributed oral and posters sessions. Astrophysics will be represented in a large fraction of each category. The program of invited sessions sponsored by DAP is provided below, and the invited Plenary talks and speakers are listed.

Division Member Wins Nobel Prize

We wish to send hearty congratulations to DAP member Raymond Davis Jr. (University of Pennsylvania), to Masatoshi Koshiha (International Center for Elementary Particle Physics, Univ. of Tokyo), and to Riccardo Giacconi (Associated Universities, Inc., Washington, D.C.) for being awarded the 2002 Nobel Prize in physics. Davis and Koshiha, who shared one half of the Prize, were cited for "Pioneering contributions to astrophysics, in particular for the detection of cosmic neutrinos," and Giacconi was cited for "Pioneering contributions to astrophysics, which have led to the discovery of cosmic X-ray sources."

Fellowship Nominations Sought

Members of the Division of Astrophysics are invited and encouraged to submit nominations on behalf of DAP members for Fellowship in the APS. The number of new Fellows elected per year is limited to one-half a percent of the current membership, and is apportioned according to Division membership numbers. Every year, our division has the opportunity to nominate 6 or 7 APS members for Fellowship. On surveying the current list of DAP members, the Executive Committee noted that there are considerable numbers of deserving individuals who have not yet been nominated, so please consider who of your colleagues might be in this situation and organize a nomination on their behalf.

If you would like to recommend a member for Fellowship, please do so by filling out the nomination form that can be found, along with related information, at www.aps.org/fellowship/

Please submit complete nominations by May 1 to:

Executive Officer
American Physical Society
One Physics Ellipse
College Park, MD 20740-3844
ATTN: Fellowship Program

Unsuccessful nominations submitted for the first time last year will be reconsidered this year by the Fellowship Committee (additional supporting letters would still be welcome). After one year, nominations must be resubmitted

DAP Travel Grants for Students attending the APS April Meeting

Susan Lamb, Chair, and Charles Dermer, Past-Chair, DAP

We ask you to encourage and support students to attend the upcoming APS April Meeting. There have been modest numbers of both graduate and undergraduate students participating in recent meetings and these students say that they find the meetings rewarding. The large numbers of 30-minute invited talks provide an excellent introduction to many areas of physics and astrophysics, and they are suited to experienced researchers and those new to the field. Further, this meeting provides a great opportunity for students to present 10-minute oral presentations.

The Division of Astrophysics decided several years ago to encourage student participation in DAP sessions at the April APS Meeting by awarding approximately ten to fifteen travel grants to student presenters. Any student who is a DAP member by the time of the meeting, and is first author and presenter of a poster or an oral contribution in a DAP-sponsored session is eligible to be considered for a travel grant award.

Travel Grants Application Process

To apply for a travel grant, a student should send a short letter of application to the DAP Chair Elect (and Program Chair of the April meeting) Chryssa Kouveliotou at Chryssa.Kouveliotou@msfc.nasa.gov, including a copy of the abstract that the student is submitting to the meeting. The letter should contain the following:

- Name and home institution of the applicant,
- Name and affiliation of the student's thesis supervisor or research sponsor, and
- An indication of the applicant's career stage, e.g., second year graduate student, or about to submit thesis dissertation, or senior undergraduate. (We wish to gather this last information for our records.)

APRIL MEETING IMPORTANT DATES:

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| Dec | last chance to become an APS member before abstracts are due |
| Jan 10 | abstract deadline (5 pm EST) |
| Feb 7 | early registration deadline |
| Feb 28 | -request satellite meetings
-order a/v equipment
-late abstracts |
| Mar 3 | housing (Marriott) |
| Mar 7 | late registration |
| Apr 5-8 | meeting |

Up to \$500 is available per grant for out-of-state students and \$200 for in-state students. Travel grants will be awarded on a first-come, first-served basis, for student abstracts judged to be relevant to astrophysics and assigned to a DAP session. The deadline for the travel grant application will be February 7, 2002, which is the same as the deadline for early registration for the Philadelphia meeting, but we encourage applications in early January, prior to the abstract deadline of January 10. (We note that the APS will not process applications for membership in the week preceding the abstract deadline. A non-member student first author submitting an abstract at that time will require an APS member sponsor, and can then join APS and DAP later in January or February.)

Students should also be aware that travel support might be available from other sources (e.g., the Topical Group on Gravitation and General Relativity, and the Division of Nuclear Physics.)

The Evolving Executive Committee: 2002 DAP Election Results

It is with pleasure that we welcome Steve Holt to the DAP four-year Chair sequence, starting as Vice-Chair this past April. Steve has had a long association with the Division. The two new DAP Executive Committee members are Elena Aprile and Joshua Frieman, and their terms run from April 2002 until April 2004. After a special election last winter, Rocky Kolb is now serving as our Division Councilor for a three-year term. (See his report on the November 10 Council Meeting below.)

We thank outgoing members-at-large Mel Ulmer and Joel Primack for their contributions to the work of the Executive Committee, and Steve Holt for representing DAP on APS Council for the past three years. We give particular thanks to outgoing Past-Chair Virginia Trimble for her recent endeavors on behalf of DAP while she was working through the four-year Chair cycle, and for her previous and continuing efforts on our behalf. We are extremely grateful to Virginia for her long service.

Nominating Committee for Next Election

The next election approaches. We will choose a Vice-Chair, a Secretary-Treasurer, and two Members-at-large to take office in April 2003. If you are interested in this service to astrophysics, or know of someone with such inclinations, please let the nominating committee know. They are

Wick Haxton (Chair) 206-685-2397

haxton@phys.washington.edu

Chuck Dermer 202-767-2965

dermer@gamma.nrl.navy.mil

and a third person to be appointed by the APS Council.

In addition to nominations from this committee, nominations for any of the positions are accepted from the general membership if submitted in the form of a petition signed by 2% of the DAP membership. (This is would be fulfilled by about 33 signatures.). Candidates selected by the Nominating Committee, as well as any nominated by the membership-at-large will be asked to provide to the Secretary/Treasurer

- (1) a written statement that he or she will serve if elected,
- (2) A paragraph or two listing their qualifications, and
- (3) A position statement regarding their goals for the Division of Astrophysics.

These latter two will be published in the February Newsletter, along with the ballot.

2003 April Meeting Program

For this coming April the DAP has continued its tradition of collaboration with other APS Divisions in constructing a program of invited sessions that spans many interests of our members, and builds on present, and possible future collaboration with other physicists. The APS Divisions participating in the April Meeting are Astrophysics (DAP), Nuclear Physics (DNP), Particles and Fields (DPF), Chemical Physics (DCP), Physics of Beams (DPB), Computational Physics (DCOMP), Plasma Physics (DPP), and Atomic, Molecular and Optical Physics (DAMOP). A number of APS Topical Groups also participate, including Plasma Astrophysics (GPAP) and Gravitation (GGR), as well as the Forum on Graduate Student Affairs (FGSA) and the Forum on Physics and Society (FPS). The DAP program of eight invited sessions and one focus session (consisting of both invited and contributed presentations) covers a variety of topics (see program below). However, many interesting areas of study could not be covered in these sessions. We strongly encourage you to contribute papers to the conference in any area of astrophysics. These will be sorted into sessions of similar, or related topics and will help to broaden and enhance this meeting significantly.

Please check the APS April Meeting website for further details as they develop: <http://www.aps.org/meet/APR03/>

Invited Astrophysics Sessions

1. *Nucleosynthesis in Astrophysical Objects*, cosponsored by DAP and DNP, Organizers: Gail McLaughlin (DNP) and Mark Leising (DAP)
2. *Acceleration Mechanisms in the Universe*, cosponsored by DAP and DPB, Organizers: Pisin Chen (DPB) and Frank Jones (DAP)
3. *Astrophysics and Cosmology*, cosponsored by DAP and DPF, Organizer: Rene Ong (DPF)
4. *Formation and Evolution of Magnetic Fields*, cosponsored by DAP and TGPAP, Organizers: Edison Liang (TGPAP) and Chryssa Kouveliotou (DAP)
5. *Gravitational Wave Phenomenology*, cosponsored by DAP and GGR, Organizers: Lee Lindblom (GGR) and Lars Bildsten (DAP)
6. *Processed Gas in Galaxies and Clusters* Organizer: Susan Lamb (DAP)
7. *Future Missions in X- and Gamma-ray Astronomy*, Organizer: Charles Meegan (DAP)
8. *Stars: from the Cradle to the Grave*, Organizers: Chuck Dermer (DAP) and Chris Fryer (DAP)

Focus session

Accelerating Universe and Dark Energy, cosponsored by DAP and GGR Organizers: Leonard Parker (GGR) and Adam Riess

Plenary Sessions

Organized by the APS meeting program chair

Saturday, April 5

Mysteries of Extra Dimensions

Lisa Randall, Harvard University

The Growth of Understanding in Astrophysics

Martin Harwit, Professor Emeritus, Cornell University

Outlook for Underground Science

Thomas Bowles, LANL

Sunday, April 6

Chandra Observations of Supernova Remnants and Young Neutron Stars

Patrick Slane, Harvard-Smithsonian Center for Astrophysics

Solar Neutrinos

Stuart Freedman, UC-Berkeley

Through the Looking Glass: What's the Matter with Anti-matter?

David Kirkby, UC-Irvine

Monday, April 7

Quantum Chaos: From Atomic Nuclei to the Reimann Zeta Function

O. Bohigas, IPN D'Orsay, France

Pursuing the Secrets of Matter, Space and Time at the Energy Frontier

Paul Grannis, SUNY-Stony Brook

The Current Status of Gamma-ray Bursts

Ralph Wijers, Astronomical Institute "Anton Pannekoek", Amsterdam

Nobel Prize Session

Saturday, April 5

Dr. Riccardo Giacconi

Associated Universities, Inc., Washington, DC

Professor Masatoshi Koshiha

International Center for Elementary Particle Physics, Tokyo

Public Lecture

Sunday, April 6 8:00--9:30pm

Stearns Auditorium, Franklin Institute

Ben Franklin's Scientific Amusements

Dudley Herschbach, Harvard University

Report on the 2002 APS April Meeting in Albuquerque, New Mexico

Susan Lamb, Chair, DAP

The APS cosponsored the April 2002 meeting with the AAS High Energy Astrophysics Division (HEAD), and the Division of Astrophysics collaborated closely with HEAD in the construction of their joint program and its contents. Additionally, DAP and HEAD collaborated with other APS Divisions to build a program that would appeal to other physicists, as well as serve the needs of the regular attendees of the HEAD meetings. This joint meeting appears to have been a success for the DAP participants, many of whom expressed appreciation for the combined program. Although more difficult to judge, we hope that it also proved of interest to many physicists in providing a more varied spectrum of astrophysics and astronomy talks than can usually be accommodated at the April APS Meetings.

The large number of session devoted to Astronomy and Astrophysics at this meeting meant that DAP/HEAD dominated the meeting in terms of total number of sessions. These ranged from those covering the earliest times (New Cosmology – cosponsored with GGR; and Galaxy Clusters: Structure Formation and the Physics of the Intracluster Medium) to the largest energies (High Energy and Ultra High Energy Cosmic Rays: From the Knee to the GZK Cutoff – cosponsored with DPF; and Pulsars and Supernova Remnants at High Energies). There were sessions on astronomically relevant physical processes (Astrophysical MHD Turbulence – cosponsored with GPAP; and Neutrino Oscillations – cosponsored with DPF), and two sessions relating recent developments in studies of compact objects (Thermonuclear Burning on Neutron Stars: Superbursts and Oscillations During Type I Bursts; and Recent Developments in the Detection and Study of Galactic Black Holes). Extragalactic astronomy was further represented in two DAP/HEAD sessions (Extended X-ray Jets and Radio Galaxies; and Gamma-Ray Burst Sources: Progenitors-Afterglows-Hosts). Lastly, we cosponsored a joint session with the new Forum on Graduate Student Affairs (Astrophysics for the 21st Century).

We re-introduced Focus Sessions into our session mix. These consist of one or two invited talks followed by a series of contributed talks on the same or related topics. (This was sufficiently successful that it is being repeated at the April 2003 Meeting in Philadelphia.) Last April Meeting, the two sessions of this type were entitled 'Strong Magnetic Fields and Magnetars' and 'High Energy Solar Physics.' We also included three evening workshops, following the HEAD tradition. These were entitled 'Precessing Neutron Stars and Implications for Gravitational Wave Emission,' 'GLAST Physics,' and 'TeV Observations of AGN.'

As is usual at the April Meeting, each of the first three days of the meeting started with a Plenary Session of three 30-minute talks, invited by the program committee of the APS. Of the nine such talks presented, six were on astrophysical topics, or of direct relevance to astrophysics. These were 'High-Energy-Density Physics, with Applications to Astrophysics' by Bruce A. Remington (LLNL), 'The Cosmological Constant and Fundamental Physics' by Raman Sundrum (Johns Hopkins), 'Medium-size black holes' by M. Coleman Miller (Maryland), 'High-resolution X-ray studies of globular Clusters' by

Adrienne Cool (San Francisco State), 'Solving the solar neutrino problem' by John F. Wilkerson (University of Washington), and 'The Sloan Digital Sky Survey' by Josh Frieman (Fermilab).

The combined meeting required that both the APS and HEAD modify some aspects of their traditional meeting structures in order to accommodate their somewhat different meeting cultures. APS allowed DAP to accommodate extended morning coffee breaks and a longer lunch break than is usual at April APS meetings, by shortening the DAP/HEAD sessions to just four 30-minute talks. This had the good result of ensuring a more attentive audience throughout the session, but the sessions suffered from 'last-minute' audiences who often came from the first talk of one of the other APS Division's sessions. HEAD made the concession of agreeing to concurrent sessions, usually an invited session and a contributed session, which is contrary to their normal practice.

DAP and HEAD made a strong attempt to introduce significant poster sessions at this meeting. With the support of an anonymous donor, GLAST, and the Chandra X-Ray Observatory, who provided funds for refreshments at the morning break, we designed a program that provided plenty of time for poster viewing in a venue where refreshments were available. As those of you who attend both American Astronomical Society and APS meetings are aware, the poster sessions at the former are a tremendous success, with the poster rooms providing a focus for the meeting and a central gathering place. Not so at APS meetings, where the poster sessions are small, poorly attended, and usually placed in a small obscure room. Bridging this large difference proved difficult. We organized the posters into two sessions. The first, held on Saturday and Sunday, contained contributions from both DAP/HEAD and other APS Divisions. There were a large number of 'no-shows' from both contingents, which diminished the impact of the whole. The second session on Monday and Tuesday was more representative of the usual HEAD contributions, and this session was had more attendees and was more successful. Apart from this, the very large and cheerless hall that was used to house these sessions, together with the unfortunate numbering of the posters that was necessitated by the APS software used to handle this aspect of the organization, partially undermined the attempts to start a tradition of poster paper sessions within the APS, and left many HEAD members asking for different arrangements in the future.

Many DAP and HEAD members joined together for the annual DAP wine and cheese party which was followed immediately by the Business Meeting, and held in a small basement meeting room. The close quarters and the nourishment helped to produce a talkative, interactive atmosphere in which the pros and cons of the meeting format could be discussed and analyzed. The sentiment of the DAP members present appeared to support a similar joint meeting with HEAD in about four years time. As DAP organizer of the joint sessions, I gave great thanks to Alice Harding, the HEAD meeting organizer, who was by then past Chair of HEAD, for her very hard work and great organizational skills. Once again, I thank her here for being such a great person to work with on this joint venture.

Report of the Councilor Rocky Kolb, APS Council

The Council of the American Physical Society met in Orlando, Florida on November 10, 2002. In this note I would like to highlight some of the actions taken by the Council and provide some relevant information to the membership of the Division of Astrophysics.

The meeting began with mention of the 2002 Nobel Prizes in Physics to Davis, Koshiba, and Giacconi, and with special note of the astrophysics nature of the prizes. The growing role of astrophysics in the Society was also acknowledged by Council approval of seven members of the Division of Astrophysics as new Fellows of the APS.

Congratulations to our new fellows!

Since oversight of the finances of the APS is one of the most important duties of the Council, much of the meeting was devoted to reports on the financial health of the Society. While the Society has been affected by the recent performance of the economy, the Society continues to be well run financially. The report of the Treasurer and the Audit Committee had all the excitement and drama of a typical faculty meeting, so I will not report the details.

Some information that might be of interest to members of the Division of Astrophysics:

The Council received a "Washington Update" from the APS Director of Public Affairs Michael Lubell. Most are aware of the erosion of funding for research in the physical sciences over the last decade. There seems to be little optimism that the trend will be reversed without the broad engagement and participation of scientists.

The APS is aware of a growing problem related to visa denials for foreign graduate students, researchers, and faculty. The problem will likely worsen with the reorganization of government functions related to homeland security. The APS is gathering information related to visa denials for communication to the President's Office of Science and Technology Policy. If your organization has not yet responded to the APS survey, please do so. If you have not been contacted by the APS, please send the relevant information to the APS in care of Irving Lerch, Director of International Affairs.

Coinciding with the 100th anniversary of Albert Einstein's "Miraculous Year," 2005 has been declared "World Year of Physics 2005." There is an International Steering Committee to coordinate WYP2005. If you are planning a conference, meeting, or public event, or if you would like ideas for events related to the Relativity Centennial, please visit the easy to remember website <http://213.169.191.188/index.html>.

The actions of the Council were largely involved with the issue of ethics and accountability in physics research. As most of you know, two recent instances of alleged misconduct, at Lawrence Berkeley National Laboratory and Bell Laboratories, has received widespread publicity and awakened the physics community's awareness of the possibility of research misconduct. The Council took several actions in this area:

- The Council retired the APS Statement 87.1 "Statement on Integrity in Physics." The statement began "The physics

community has traditionally enjoyed a well-deserved reputation for maintenance of high ethical standards and integrity in its professional activities. Indeed, the American Physical Society is one of the few professional societies which has not felt the need for a formal code of ethics.” The Council felt that the statement was arrogant and would be a lightning rod for criticism.

- That Council adopted a “Statement on Policies for Handling Allegations of Research Misconduct,” <http://www.aps.org/statements/02.3.html>. The cornerstone of this statement is the Federal Policy on Research Misconduct, <http://www.aps.org/statements/federalpolicy.html>.
- That Council adopted a “Statement on Improving Education for Professional Ethics, Standards and Practices,” <http://www.aps.org/statements/02.4.html>.
- The Council revised APS Statement 91.8 “Guidelines on Professional Conduct,” <http://www.aps.org/statements/02.2.html>.
- The Council adopted “Supplementary Guidelines on Responsibilities of Coauthors and Collaborators,” <http://www.aps.org/statements/02.2.html>.
- The Council adopted “Supplementary Guidelines on Research Results,” <http://www.aps.org/statements/02.2.html>.

I would like to encourage everyone to become familiar with the Federal Policy on Research Misconduct as well as the APS statements. The APS feels that science ethics and integrity should be part of the education of all young scientists. Your students should also read the statements. Does your Department/University/Laboratory have a policy for handling allegations of research misconduct? If not, you may want to consider adopting one.

Another action by the Council involved the initiation of a study on "The Detection of Anti-Personnel Land Mines for Humanitarian De-Mining: Evaluation of Technologies." External support for the study will be sought vigorously. I would be happy to provide information on this issue to anyone interested.

Finally, the Council adopted the APS Statement Against the Call to Boycott Israeli Scientists,” <http://www.aps.org/statements/02.5.html>. Again, I would be happy to provide information on this issue to anyone interested.

If there are issues of concern that members of the Astrophysics Division feel should be brought to the attention of the APS Council, please contact me at rocky@rigoletto.fnal.gov.

The November 2002 meeting was the first in a very long time without the presence of Virginia Trimble as a Councilor. Virginia has served, and continues to serve, the APS in a number of areas. I would like to acknowledge her tireless work on behalf of the Society and our Division.

Future Newsletters

If you have items of general interest to DAP members, consider submitting them to the Secretary-Treasurer for upcoming newsletters (February and November 2003.) We will be happy to publish meeting announcements or letters.