



# ASTROPHYSICS

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# newsletter

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The Division of  
Astrophysics

American  
Physical Society

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## DAP Executive Committee Members Past and Future

*Chuck Dermer, DAP Chair*

We are pleased to congratulate those members whose service is complete, and to welcome new members to the Division of Astrophysics Executive Committee. Trevor Weekes finished his four-year term having overseen the 1999 Centennial meeting as DAP Program Chair, and the April 2001 meeting as program co-chair (with Chris Quigg). Neil Gehrels has completed three years as the DAP secretary-treasurer, with the DAP coffers in good shape. Mike Cherry and Meg Urry have completed their terms as DAP Executive Committee members. Chryssa Kouveliotou begins the four-year cycle as DAP vice chair, Mark Leising starts his term as the new secretary-treasurer, and Jacqueline Hewitt and Brenda Dingus begin their service as Executive Committee members. Thanks to the past members for a job well done, and welcome to the new members!

## Fellowship Nominations Sought

Members of the Division of Astrophysics are invited to submit nominations for Fellowship in the APS. The number of new Fellows is limited to one-half percent of the current membership. Every year, our division nominates 6 or 7 APS members for Fellowship. If you would like to recommend a member for Fellowship, you may do so by filling out the nomination form that may be found, along with related information, at <http://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 (though additional supporting letters would be still welcome). Beyond one year, nominations must be resubmitted.

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# DAP Student Travel Grants and Awards

*Susan Lamb, Chair-Elect, and Chuck Dermer, Chair, DAP*

To ensure the continued vigor and future of astrophysics, we need to encourage graduate students to participate in American Physical Society meetings and to become members of the Division of Astrophysics. Members of the DAP should help make graduate students in astrophysics aware that student travel grants and awards are available to aid participation in the joint APS/HEAD AAS meeting in Albuquerque, New Mexico in April, 2002. Any student who is first author and presenter of a poster or oral contribution is eligible to receive a travel grant award and to compete for a prize.

## 1) Travel Grants

To apply for a travel grant, the student should send a short letter of application to the DAP Chair Elect (and Program Chair of the April meeting) Susan Lamb at [slamb@astro.uiuc.edu](mailto:slamb@astro.uiuc.edu), 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,
- an indication of the applicant's career stage, e.g., second year graduate student, or about to submit thesis dissertation. (We wish to gather this last information for our records.)

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. Up to ten \$500 travel grants, and as many as five \$200 travel grants will be awarded. The deadline for the travel grant application will be January 11, 2002, which is the same as the abstract deadline for the Albuquerque meeting. (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 in later January.) 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.)

## 2) Student Awards

In addition to the travel grants, up to three student prizes of \$500 each will be awarded. Both undergraduate and graduate students are eligible to compete for these prizes. The prizes will be given for either poster or oral presentations, with no specification as to how the awards will be divided between these two types of contribution. The contestants will be judged by a panel drawn from the DAP officers and executive committee. The panel will be chaired by Virginia Trimble, past-chair of the DAP, and will decide how to run the judging of the competition, and when and how the prizes will be awarded.

To be eligible to compete for the student awards, the student must be a member of DAP at the time of the presentation. Students get free membership to APS for their first year. Joining DAP costs only \$6, so the cost of joining DAP for a year is low.

In order to make it possible for all interested students to compete in the awards, we must identify the contestants at the time of the abstract sorting. Students who intend to compete for an award should type in the "**Special Instructions**" field in the web form or the e-mail abstract submission form (whichever is used) the **EXACT** words: "**First author is a student member of DAP**" – APS will select these abstracts for entry in the competition.

There may not be space in the program for all requested contributed oral presentations, therefore a student submitting an abstract for an oral presentation should be prepared to present a poster, if requested, which will receive full consideration for the prizes.

# Nominating Committee for Next Election

*Chuck Dermer, Chair, DAP*

The next election cycle is upon us. We will be choosing a new Chair-Elect, and two Members-at-large to take office in April 2002. If you have an appetite for unpaid committee work, or know of someone with such inclinations, please let the nominating committee know. The nominating committee consists this year of

Thomas Gaisser, Chair  
([gaisser@bartol.udel.edu](mailto:gaisser@bartol.udel.edu), 302-831-8111)  
Robert Rosner  
([r-rosner@uchicago.edu](mailto:r-rosner@uchicago.edu), 773-702-0560)  
Frank C. Jones  
([Frank.C.Jones@gssc.nasa.gov](mailto:Frank.C.Jones@gssc.nasa.gov), 301-286-5506)

In accordance with Division bylaws, the first two were appointed by the current DAP chair, and the third by the APS Council through Judy Franz.

The slate must be complete by December 15<sup>th</sup> in order for the election to take place by January 15<sup>th</sup>, so please contact any member of the committee to suggest appropriate candidates. Also, 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, representing about 33 signatures.

Candidates selected by the Nominating Committee will be asked to provide to the Secretary/Treasurer (1) a written statement that he or she will serve if elected, and (2) a paragraph or two listing their qualifications with a position statement regarding their goals for the Division of Astrophysics. These will be published in the Spring Newsletter.



# APS April 2002 Meeting in Albuquerque, New Mexico, April 20-23 Agenda for DAP/HEAD Sessions

*Susan Lamb, Chair-Elect, DAP*

The APS is cosponsoring the April 2002 meeting with the American Astronomical Society (AAS) High Energy Astrophysics Division (HEAD). Thus the APS Division of Astrophysics (DAP) has collaborated closely with HEAD in the construction of the twelve invited sessions, two focus sessions, and several evening workshops. The DAP and HEAD program committees jointly suggested topics and speakers for the plenary sessions, and have together modified some aspects of their traditional meeting structures to accommodate the two slightly different meeting cultures. Highlights for DAP members are extended morning coffee breaks; much expanded poster sessions with scheduled poster viewing times (overlapping the coffee breaks in the morning, and after the invited sessions in the afternoon); shorter invited sessions with four speakers, not five; and a full four day program which runs from Saturday 20 April through Tuesday 23 April, with an optional all-day visit to the Very Large Array on Wednesday 24 April.

Astronomy and Astrophysics will dominate the meeting in terms of number of sessions. This provides us with the opportunity to bring together the members of HEAD and DAP to share in the wealth of new exciting theoretical and observational results, and the challenge of presenting this information in a way that will entice other physicists to learn about these, and possibly to participate in future joint investigations.

The other APS Divisions that participate in the April APS meeting are the Divisions of Nuclear Physics, Particles and Fields, Chemical Physics, Physics of Beams, Computational Physics, Plasma Physics and Atomic, Molecular and Optical

Physics, as well as a number of APS forums and topical groups (including Plasma Astrophysics and Gravitation, and the newly formed Forum on Graduate Student Affairs). We anticipate larger attendance than for the typical APS April meeting (around 1000) with well over half of the attendees being Astrophysicists and Astronomers.

As is usual for APS meetings, the sessions will be science-based, rather than mission based. There will be parallel DAP/HEAD sessions, with one or more invited sessions (listed below) and one contributed session in each time slot. Not all participants who request a contributed oral presentation will be accommodated. However, the poster sessions are being greatly expanded, and ample time made available in the schedule for viewing them. A good poster presentation area is available. Requested oral contributions that cannot be accommodated will be reassigned to the poster sessions.

As is usual for the April meeting, there will be unparalleled plenary reviews on each of the first three mornings of the meeting, each consisting of three, 30-minute talks. (These are listed below.) There will also be two DAP/HEAD Focus sessions at this meeting. These are thematic, and will include both invited and contributed talks. An innovation borrowed from previous HEAD meetings is evening workshops. These are organized around specific topics and are more specialized and informal than the daytime sessions. So far, three of these have been organized. Unlike the daytime invited and contributed sessions, these evening workshops can be organized close to the time of the meeting. Thus we can accommodate a couple more of these in the program, and anticipate that late breaking new results may precipitate their organization.

**Please check the APS April Meeting website**  
<http://www.aps.org/meet/APR02/>  
for further details.

We list below some preliminary aspects of the program. As you know, none of the speakers for sessions are considered firm until they have accepted formal invitations to speak, which will be sent to them in November by the APS. More detailed information on these DAP/HEAD sessions is available at

<http://photon.phys.clemson.edu/dap/>

## PROGRAM

### Invited Sessions

1. New Cosmology – cosponsored by GGR and DAP  
Organizers: Richard Price (GGR) and Mel Ulmer (DAP)
2. High Energy and Ultra High Energy Cosmic Rays:  
From the Knee to the GZK Cutoff – cosponsored  
by DPF and DAP Organizers:  
Mike Cherry (DAP) and Glenn Farrar (DPF)
3. Astrophysical MHD Turbulence – cosponsored by  
GPAP and DAP  
Organizers: Susan Lamb (DAP) and Steve  
Spangler (GPAP)
4. Pulsars and Supernova Remnants at High Energies  
Organizers: Victoria Kaspi (HEAD) and Alice  
Harding (HEAD)
5. Thermonuclear Burning on Neutron Stars:  
Superbursts and Oscillations During Type I Bursts  
Organizer: Lars Bildsden (HEAD)
6. Neutrino Oscillations – cosponsored by DPF and  
DAP/HEAD  
Organizers: Alice Harding (HEAD), Jonathan  
Bagger and Gene Beier (DPF)
7. Galaxy Clusters: Structure Formation and the  
Physics of the Intracluster Medium  
Organizer: Susan Lamb (DAP)
8. Extended X-ray Jets and Radio Galaxies  
Organizers: Charles Dermer (DAP) and Megan  
Urry (DAP)
9. Gamma-Ray Burst Sources: Progenitors-  
Afterglows-Hosts  
Organizer: Chryssa Kouveliotou (DAP)
10. Recent Developments in the Detection and Study  
of Galactic Black Holes  
Organizer: Susan Lamb (DAP)
11. Astrophysics for the 21st Century – cosponsored  
by DAP and FGSA  
Organizer: Virginia Trimble (DAP) and Chad  
Topaz (FGSA)



## IMPORTANT DATES:

October - First April Meeting announcement by APS and call for abstracts

December – last chance to become an APS member before the abstracts are due (APS will not process these in the week before the abstract due date)

January 11 - abstract deadline

February 15 - program goes public on APS web site

February 15 - early registration deadline

March 8 - post-deadline abstracts

March 20 - housing deadline

April 20-23 - meeting

## Focus Sessions

1. Strong Magnetic Fields and Magnetars  
Organizer: Dong Lai (dong@astro.cornell.edu)
2. High Energy Solar Physics  
Organizer: Vahe Petrosian  
(vahe@astronomy.Stanford.EDU)

## Currently Scheduled HEAD Evening Workshops

1. Precessing Neutron Stars and Implications for Gravitational Wave Emission  
Organizer: Lars Bildsten  
(bildsten@mail.itp.ucsb.edu)
2. GLAST Physics  
Organizer: Neil Gehrels  
(gehrels@lheapop.gsfc.nasa.gov)
3. TeV Observations of AGN  
Organizer: Trevor Weekes  
(weekes@egret.sao.arizona.edu)

## PLENARY SESSIONS

*Organized by the APS meeting program chair*

**Experimental high-energy-density physics**  
(Bruce Remington, LLNL)

**Theories of the cosmological constant**  
(Raman Sundrum, Johns Hopkins)

**First results from RHIC**  
(Bill Zajc, Columbia)

**Medium-size black holes**  
(M. Coleman Miller, Maryland)

**High-resolution x-ray studies of globular clusters**  
(Adrienne Cool, San Francisco State)

**Universal scaling laws in biology**  
(Geoffrey West, Los Alamos)

**Solving the solar neutrino problem**  
(SNO speaker)

**The Sloan Digital Sky Survey**  
(Josh Frieman, Fermilab)

**CP Violation: the New Landscape**  
(Helen Quinn, SLAC)



# Notes from the 2001 April Meeting

Chuck Dermer, Chair, DAP

One of the great pleasures of science, short of actually discovering a new source or developing a testable model, is to attend a meeting and to witness the presentation of a new result that will significantly impact all future studies in the field. I think that everyone would agree that the presentation of the measurements of the second and third acoustic peaks in the cosmic microwave power spectrum reported by the *DASI*, *Boomerang* and *Maxima* experiments at the April, 2001, Washington, DC meeting was such an event. With these announcements, cosmology truly enters a precision era. We live in an  $W = 1$  universe, consistent with inflation, with 5% of the energy in the form of normal matter, 30% in the form of dark matter, and 65% in the form of dark energy. The spectrum of primordial fluctuations is scale invariant within measurement errors. Even if the source of the dark energy remains mysterious, these results lift a veil to reveal the true nature of the universe in which we live.

Many other results were announced: limits obtained from high-energy neutrino astronomy now begin to constrain source models; *Chandra* observations correlate X-ray emission of plerions to the

spin-down power; numerical simulations of galaxy interactions reveal initial conditions of these energetic collisions; quasiperiodic oscillations from black holes reveal their spin; planetary nurseries experience fratricide as the youngest and brightest stars vaporize their proplyd siblings; TeV emission detected from the supernova remnant Cassiopeia A may reveal cosmic-ray proton acceleration; quark-gluon plasmas are on the verge of being made in the laboratory; and other results too numerous to mention.

We can look forward to an equally exciting meeting at the joint APS/HEAD meeting at Albuquerque, New Mexico in April 2002. American Physical Society meetings provide a forum for astronomers and astrophysicists to learn the latest discoveries in physics, and for us to enlighten our physicist colleagues about the latest results in astronomy and astrophysics. In our dynamic era, we should not be afraid to explore the frontiers of physics and astronomy. I urge you to attend this meeting, and look forward to seeing you there.

## Report of the Councilor

Steve Holt, APS Council

The Council of the APS meets twice per year, and its Executive Committee meets more frequently. Most of the work done at these meetings is pro forma, in the sense that it is more characteristically associated with keeping things running smoothly than with making policy decisions that have enormous implications. The formal minutes from these meetings are now available to all APS members at the APS website, but it may not be easy to find things which might be particularly important to the DAP. There have been many budget issues for federal funding for science (more critically associated with DOE than NSF or NASA). The purpose of this note is to provide a quick personal summary of those issues that have arisen at Council during the last year or so that might be important or interesting to DAP members.

The issue of most direct concern to the DAP is the lingering threat to the April meeting. The April APS meeting has served as the annual venue of the DAP since the days when it was always in Washington and the Division was called the Division of Cosmic Physics. The problem is that the meeting invariably loses money without the active participation of the larger APS divisions. You can be sure that your councilor (that's me) and your DAP officers will keep trying to ensure the continuation of the April APS meeting.

During the past few years, DAP has had slightly more numerical representation on the Council and the Executive Committee than our membership would normally warrant, since both Virginia Trimble and I were, in addition to our membership on the Council, also elected by the Council to be on its Executive Committee. Virginia's tenure on both the Council and the Executive Committee have expired, but our voice on the Council will continue to have slightly more numerical importance than before since it has voted to reduce its membership by more than 1/3. I was the chair of a committee of the Council that was charged by the APS President, Judy Franz, to make recommendations for making the Council more effective. Our primary recommendation was to reduce the size of the Council. The mechanism for this reduction was to move

from proportional representation of the divisions to a "senatorial" model (one councilor per division, regardless of size). Since DAP is more like Wyoming than Texas in relative division membership, we kept our single councilor while the larger divisions are reducing their council membership by attrition. I would prefer not to characterize this as "more" relative membership for the DAP, since such a description would violate the rationale for the change. The larger divisions accepted the argument that councilors should recognize a larger responsibility to the APS than just the representation of the specific interests of their divisions. Another recommendation of the committee was to make the minutes of the Forum and the Executive Committee available to all members in a timely fashion; that was the origin of the web-based minutes mentioned above.

The third (and last) point that I wanted to bring to your attention is what has been (at least for me) the most interesting activity of the Council. It also happens to involve another DAP member, Fred Lamb. More than a year ago, the APS Panel on Public Policy became concerned about the NMD (Nuclear Missile Defense) system that was being planned for commitment-to-implementation in the final few months of the Clinton administration. As you know, virtually all the tests that Congress had required as a condition for implementation had failed, but there was some concern that implementation would proceed, anyway. Many of the members of the APS Council had concerns about the wisdom of such a decision for other than technical reasons. Those considerations aside, however, we felt that physicists could make a contribution to the technical evaluation of the (non-classified) data and their extrapolation to a system that might be suggested to be workable before being rigorously tested. Fred Lamb was asked to lead that activity, and the initial report of Fred's committee may have been one of the important inputs that President Clinton used in deciding that such implementation would not be among the last-minute decisions for which he is likely to be remembered.



President Bush's program is even more ambitious. The Clinton program was to have been associated with kills in the ballistic phase, but the Bush program is aiming at kills in the boost phase. The APS council voted to approve a Boost Phase Intercept study utilizing non-classified data under the co-direction of Fred Lamb and Dan Kleppner (MIT), with the funding for staff work to be obtained from independent foundations. In order to assure that the study could proceed in a timely fashion while the foundation support was being solicited, the Executive Committee of the APS chose to guarantee the funding with APS resources in the event that the solicitation would be unsuccessful. A nominally similar APS DEW (Directed Energy Weapons, better known as "Star Wars") report that utilized classified data took more than four years to be released,

even though there was full cooperation from the military (which, by the time that the study was initiated, had independently concluded that the proposed system was unworkable, if not impossible). It would appear that the currently proposed system is not impossible. If you are curious about why it is only non-classified data that is being utilized, there was concern that timeliness was essential and that the timescale for obtaining proper access to classified data might approach the Hubble age. The new BPI report is in the final stages of review, and is planned for release at about the end of this calendar year. Although the events subsequent to September 11 will certainly affect the scope and timescale for the implementation of any form of NMD, the APS report will provide an unbiased summary of the possibilities.

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## 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 2002.)

## Your Money

In most recent years the division income has exceeded its expenses. Although is it a good idea to establish a strong financial foundation, this need not continue forever. How would you like to see your money spent? What activities should we be undertaking? Send your ideas to the DAP executive committee.



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