



ASTROPHYSICS

newsletter

Future Meetings:

2005 April Meeting
April 16-19, 2005
Tampa, FL

2006 April Meeting
April 22-25, 2006
Dallas, Texas

Division of Nuclear
Physics
October 27-30, 2004

Division of Plasma
Physics
November 15-19, 2004

Division of Fluid
Dynamics
November 21-23, 2004

Election of DAP Executive Committee

The division elected a new Vice-Chair and two at large Members of the Executive Committee in this year's election. We had a modern record turnout of 26% of our membership voting in the online election. Our new members are:

| | |
|------------------|-------------|
| Vice-Chair | Jim Ryan |
| Members-at-Large | John Beacom |
| | Steve Boggs |

Message from the Chair

As incoming DAP chair, and as an attendee of the "April meeting" this May, there are some observations and concerns that I would like to share with you.

When I was a physics graduate student, the APS was virtually the only scientific society that interested me, and APS meetings were the only ones that I wanted to attend. Over the intervening decades, other organizations and other venues have become increasingly attractive. The HEAD division of the AAS (for which I have also served as chair) is an organization that represents much of the same science that is represented in DAP; in fact, its meetings have become better-attended by DAP members than is the April APS meeting (the only APS meeting explicitly supported by DAP). Similarly, there are more and more topical workshops in attractive locations that have become more effective venues for discipline-specific interaction than are formal society meetings.

So, in thinking about the future of DAP, two questions spring immediately to mind:

Is there a useful (perhaps even unique) purpose that DAP can still provide?

Is there a useful (perhaps even unique) purpose that the April meeting can provide?

I personally believe that the answer to both questions is "yes." Even if you agree, you may have different purpose(s) in mind than I do. The DAP Executive Committee devoted some time to beginning the discussion of these questions at our last meeting, and we would appreciate any input that you might be willing to provide in order to help us proceed to some consensus before the next April meeting. We have not prepared a questionnaire – any input in any format will be distributed to the DAP Executive Committee membership. Although it is never too late to submit such input, I would encourage you to send

me whatever ideas you might have as soon as you can, since the Executive Committee is likely to begin addressing these issues in earnest during the summer. To start your engines, let me give you a very quick summary of how I would defend my "yes" answers to the two questions that I posed above.

With respect the "purpose" of DAP, I believe that it should represent the "astro" part of astrophysics in the physics community, in much the same way that HEAD should represent "physics" in the astronomy community. One part of this representation is participation in the development of public studies and positions undertaken by the APS. Another is the sharing/advertising of research objectives with the greater membership APS, particularly at the intersection with other disciplines. In addition to these, I believe that the most immediate purpose of DAP is connecting to physics students who might not otherwise get involved in astrophysics research as either undergraduates or graduate students.

I also believe that the April meeting can be an effective venue for these objectives. This year, the attendance at some of our invited sessions was embarrassingly small, and the average age of the attendees seemed dangerously close to retirement. Nevertheless, those invited sessions met the usual standard of excellence; they serve as a marvelous set of "tutorials" for non-experts and students. Student registration fees for APS meetings are very small (only \$50). There MUST be ways that we can promote student attendance at the April meeting (even if it's largely those from the host city); perhaps we can aim one or two of our multiple invited sessions specifically to undergraduates.

Please share your ideas about these issues with the Executive Committee. Your E-mail to me at steve.holt@olin.edu will be shared with the rest of the committee, and we will report back to you when we think that we are getting close to making some decisions.
Steve Holt

New APS Fellows

Congratulations to the following new APS Fellows, recommended by the Division of Astrophysics:

Castor, John Irvin

Lawrence Livermore National Laboratory
Citation: For ground-breaking work on radiatively-driven stellar winds, and contributions to the theory of opacities, equations-of-state, and radiation hydrodynamics, including national security applications in high energy-density physics.

DeYoung, David Spencer

National Optical Astronomy Observatory

Citation: For numerous and important contributions to the theory of extragalactic radio sources, in particular to the understanding of the evolution of astrophysical jets and their interactions with their environment.

Dodelson, Scott

Fermi National Accelerator Laboratory

Citation: For his fundamental contributions in cosmology, including the theory and analysis of physics models of the early Universe.

Klein, Richard I

Lawrence Livermore National Laboratory

Citation: For pioneering contributions in computational astrophysics including star formation, radiatively driven stellar winds, instabilities in supernovae and magnetized neutron stars, and scaled laser experiments simulating strong shock phenomena in the ISM.

Meyer, Stephan S

University of Chicago

Citation: For his pioneering use of bolometers to study the anisotropy of the cosmic microwave background and his measurements of CMB anisotropy on scales from 0.1 to 90 degrees.

Wefel, John P

Louisiana State University

Citation: For measurements of cosmic ray isotopic and elemental composition and interaction cross sections, and efforts to foster astrophysics-related training, public outreach, and education programs.

New Coverage of Astrophysics in SPIRES-HEP

Heath O'Connell

Fermilab Information Services Manager

High Energy Physics (HEP) and Astrophysics are becoming increasingly intertwined as cosmology matures both theoretically and experimentally, and particle physicists look to the sky as the next big laboratory. Traditionally, particle physicists have gone to the SPIRES-HEP literature database, a joint partnership between the SLAC and DESY Libraries containing almost 600,000 records, to search for articles. However, as their interests took them further into the field of Astrophysics,

SPIRES-HEP was no longer likely to contain all the articles of interest to them. They would often have to augment a SPIRES-HEP search with one in NASA's Astrophysical Data System (ADS), run by the Harvard-Smithsonian Center for Astrophysics.

Fermilab has long stood on the border between HEP and Astrophysics; it was the first DOE Lab to have an Astrophysics group. It therefore made sense for the Fermilab Library to contribute to the SPIRES database by increasing its coverage of

Astrophysics, particularly papers that would be of direct interest to particle physicists. After consultation with the Theoretical Astrophysics Group at Fermilab, it was decided that the best way to do this would be to enter all the astro-ph eprints (over 40,000) into SPIRES-HEP. The Fermilab Library is responsible for adding all the additional information typical of a SPIRES record, which the DESY and SLAC Libraries do for the HEP related papers, to these eprints. This extra information includes where they were eventually published, the affiliations of the authors, a link (where possible) to the record for the paper in the ADS database, and the bibliographic references of the paper. This last piece of information, the reference list, allows one to find the citations of articles in HEP. It says a lot that 17 of the 50 top cited papers in HEP in 2003 were either astrophysics eprints, or published in prominent astrophysical journals. In addition to SPIRES-HEP, there is also the HEPNAMES database, which has over 40,000 entries for people working in physics, and the HEPJobs database, with over 60 current openings for research and teaching jobs in astrophysics.

The SPIRES databases are constantly being improved by feedback from their users around the world. People send information on missing papers, publication notes for eprints and preprints, typographic corrections, and a host of other things, and generally have their mail answered within a matter of days. We would like to encourage astrophysicists to write to us with any comments, corrections, additions or suggestions. We hope those of you with an interest in particle physics will find this a useful service.

Meeting Announcements:

THIRD MEETING ON CPT AND LORENTZ SYMMETRY (CPT '04)

August 4-7, 2004 Physics Department, Indiana University, Bloomington

The Third Meeting on CPT and Lorentz Symmetry will be held in Bloomington, Indiana, U.S.A. on August 4-7, 2004. The meeting will focus on experimental tests of these fundamental symmetries and on theoretical issues, including scenarios for possible violations. Subjects to be covered include:

- experimental searches for CPT and Lorentz violations involving
- resonant-cavity and interferometric behavior of photons
- neutrino oscillations
- oscillations and decays of K, B, D mesons
- clock-comparison measurements
- space-based tests
- astrophysical observations
- spin-polarized matter
- particle-antiparticle comparisons
- spectroscopy of hydrogen and antihydrogen
- muon behavior
- gravitational tests
- theoretical studies of CPT and Lorentz violation involving

- physical effects at the level of the Standard Model and beyond
- origins and mechanisms for violations
- issues in field theory, particle physics, gravity, string theory

Information about the meeting and online registration is available at <http://www.indiana.edu/~cpt04/>

Correspondence can be directed to: cpt04@indiana.edu

Organizer: Alan Kostelecky, kostelec@indiana.edu

2005 Aspen Winter Conference "PLANET FORMATION AND DETECTION"

Aspen Center for Physics, Aspen, CO February 6 - 12, 2005
<http://www.astro.northwestern.edu/AspenW05/>
REGISTRATION DEADLINE: Nov 24, 2004

This conference will mark the 10th anniversary of the discovery of the first extrasolar planet around a solar-like star (51 Pegasi). Many significant advances have occurred in this field during the past decade, including the introduction of fundamentally new theoretical paradigms for the formation and evolution of planetary systems as well as countless discoveries of new extrasolar planetary systems that have challenged many accepted models for planet formation.

Three exciting new observational projects will have scientific results by the beginning of 2005: the Spitzer Space Telescope, the Keck Interferometer and the European Very Large Telescope Interferometer will have devoted a large number of hours to studying the evolution of circumstellar disks.

Several large surveys for transiting planets should also come to fruition by the end of 2004.

Organizers:

Marc Kuchner, Dept of Astrophysical Sciences, Princeton University: 609 258 6301, mkuchner@astro.princeton.edu

Doug Lin, Dept of Astronomy, UCSC 831 459 2732: lin@ucolick.org

Fred Rasio, Dept of Physics and Astronomy, Northwestern University 847 467 3419 rasio@northwestern.edu

Alycia Weinberger, Dept of Terrestrial Magnetism, Carnegie Institution of Washington. 202 478 8852, alycia@dtm.ciw.edu

Main Topics

- New observations of extrasolar planets from Doppler searches
- Observations of protostellar disks
- Results from transit searches
- Planet detection by gravitational microlensing
- Future detection techniques and projects
- Grain growth in protostellar disks
- Collisional evolution of planetesimal disks

- Formation of protoplanetary cores and terrestrial planets
- Giant planet formation and evolution
- Planet migration theories
- Role of resonances in planet migration
- Long-term stability of planetary systems
- Star-planet interactions
- Debris disks

Planet formation in binary stars and stellar clusters

NASA Scientific Ballooning Roadmap

NASA has appointed a Scientific Ballooning Roadmap Team, which is asked to identify requirements for both a minimal and an optimal scientific ballooning program, both in the near term and over the next ten to fifteen years. It is expected that the report of this team, due by the end of this year, will be considered as the Office of Space Science formulates its next Strategic Plan. The team's charter is broad, including solar, atmospheric, planetary, and astrophysics.

The team welcomes inputs from the community regarding opportunities for balloon-borne investigations and requirements on the balloon program for enabling those investigations. To submit your thoughts, please complete the form at <http://cosray.wustl.edu/balloon/>. This website also has links giving the charter and membership of this Roadmap Team and information about the NASA Balloon Program.

Join APS Sections and Topical Groups

We urge all of our division members to consider joining sections, forums and topical groups relevant to you. Membership is free for sections and forums, and very inexpensive (\$7) for topical groups. There are benefits beyond the obvious ones of the meetings, newsletters, and lobbying efforts of the units. Your membership benefits the units and, indirectly, astrophysics.

The geographical sections are funded entirely by APS in proportion to the number of members. It takes seconds to register for *free* online and help your section. The topical groups (e.g., Plasma Astrophysics, and Gravitation) are funded through their dues, but are awarded invited sessions at APS meetings and APS Fellowship Nominations in proportion to their membership. More members in groups of interest to you result in more talks and more Fellows in your area. Further, the existence of the topical groups depends on their maintaining a membership threshold. There are several good reasons to join, and no good reasons not to.

Future Newsletters

If you have items of general interest to DAP members, consider submitting them to the Secretary-Treasurer for upcoming newsletters (next is November 2004.) We will be happy to publish meeting announcements or letters.

APS/DAP on the WWW

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

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