

## 2000 Annual Meeting in Long Beach – April 29-May 2

The Annual Meeting of the Topical Group will be held in conjunction with the APS General meeting at the Long Beach Convention Center and the Hyatt Long Beach Hotel, Long Beach, California. The Topical Group Program Committee, chaired by Peter Mohr, has organized two invited sessions:

Fundamental Precision Measurements (Joint with Division of Nuclear Physics) 29 April 2000, 2:30 pm.

Modern Measurements of  $G$  the Newtonian Constant of Gravitation (Joint with Topical Group on Gravitation) 1 May 2000, 11:00 am.

More information on the meeting can be found at <http://www.aps.org/meet/APR00/>.

### Annual Meeting Deadlines:

**Abstracts: 14 January**

**Early registration: 18 February**

**Late registration: 31 March**

**Postdeadline abstracts: 10 March**

**Housing: 31 March**

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## Travel Support for Young Scientists

The Topical Group will provide partial travel support to several graduate students, post-docs, and recently graduated physicists to present contributed papers in the area of precision measurement and fundamental constants at the APS Meeting 29 April - 2 May, in Long Beach. Criteria for an award include the relevance of the paper to the Topical Group and travel reimbursement needs. Participants may initiate their request for consideration by sending an additional copy of their submitted abstract to the Secretary-Treasurer of the Topical Group. Please note that your abstract must be submitted to the APS, and should be labeled for a session on precision measurement and fundamental constants. If you are applying to another APS unit, such as DAMOP, you should disclose this fact in your application. The deadline for abstract submission to the APS and for the partial travel support request is **14 January 2000**.

## New APS Fellows

The following new APS Fellows were elected through the PMFC Topical Group in 1999.

**Michael I. Eides**, Pennsylvania State University

*For outstanding contributions in the development of the theory of high-order corrections in QED bound states. For improvement of the accuracy of theoretical predictions for muonium hyperfine splitting and hydrogen Lamb shift by one to two orders of magnitude.*

**Ernest G. Kessler**, National Institute of Standards & Technology, Gaithersburg

*For his numerous contributions to highest-accuracy measurements of constants of physics including x-ray wavelengths.*

*contd on pg 4*

# Minutes of the Annual Business Meeting of the Precision Measurement and Fundamental Constants Topical Group (PMFCTG)

## Tuesday, 23 March 1999 • Atlanta, Georgia

Steve Lundeen, Chair of the Topical Group, called the meeting to order at 3 PM.

**Election Results:** Lundeen welcomed the newly-elected Executive Committee members Richard Deslattes (Vice-Chair) and Siu-Au Lee (Member-at-Large), whose terms began with the close of the Annual Meeting. Anton Zeilinger, the other newly-elected Member-at-Large, was not present. At the close of the Annual Meeting, Peter Mohr became Chair-Elect, Peter Bender became Chair, and Steve Lundeen became Past Chair. Daniel Heinzen, Linda Young, and Ed Williams retired from the Executive Committee. Continuing members of the Executive Committee are Wayne Itano, Secretary-Treasurer, and Edward Fry, Harold Metcalf, Ralph Conti, and Steve Lamoreaux, Members-at-Large.

**Financial Report:** The latest financial statement shows a balance in the Topical Group's account of \$12,312.30. This is to be reduced by \$600 spent on travel grants, about \$400 on items related to the Topical Group's display at the Centennial Meeting, and the Executive Committee Meeting lunch. The balance one year before was \$7836.47. The increase to \$12,312.30 is mainly due to \$3919.30 originating from a 1995 grant from the National Institute of Standards and Technology (NIST) that finally showed up on the books. The other income to the Topical Group was \$2945, of which \$2250 was from membership dues @ \$5 per member, \$129 was from the April 1998 Meeting, and \$566 was from allocated investment income. The only major expense not already noted was \$1848 for the printing and mailing of two newsletters.

**Membership:** The official membership total is 450, down slightly from the previous year.

**Program Committee:** Peter Bender was the Program Chair for the 1999 Centennial Meeting. The Topical Group co-sponsored four invited sessions. Geoffrey Greene organized the Centennial Session on Atomic Clocks in Science and Technology, which was cosponsored by DAMOP. Peter Mohr will be the Program Chair for the April 2000 meeting, which will be with the APS General Meeting. The Topical Group will sponsor two invited sessions as usual.

**Unit Display:** The Topical Group's display for the Centennial Meeting was put together by Ed Williams and Peter Mohr. Expenses of \$2000 and printing services were donated by NIST. The display focused on measurements of the speed of light and length and included some historical artifacts such as meter bars. It included a preview of preliminary values of the 1998 CODATA Fundamental Physical Constants.

**Pipkin Award:** Steven Lamoreaux was congratulated on being the first recipient of the Pipkin Award, given by the

Topical Group. Linda Young is the chair of the award selection committee that will select the next recipient. The award fund contains over \$30,000, which is enough to continue giving the award of \$2000 plus travel expenses of the recipient in alternate years in perpetuity. The APS would like to have the size of Awards increased to \$5000 and the amount of Prizes increased to \$10,000. The size of the Pipkin Award fund would have to be doubled to meet this guideline. Nominations are limited to those holding a Ph.D. no more than 15 years. Nominations are active for three award selections.

**Fellowship Committee:** The APS Fellows elected through the Topical Group this year were Gregory Scott Adkins and Siu-Au Lee. The chair of last year's Fellowship Committee was Steve Lundeen. Peter Mohr, current chair, reported that he knew of at least 3 candidates. The other committee members are Eric Adelberger and Peter Bender.

**Education Committee:** Hal Metcalf, Chair, reported that there had been only three applicants for travel grants to the Centennial Meeting, all from the same research group. It was decided to award \$200 to each of them.

**New Activities:** The Executive Committee has authorized \$600 to pay for travel expenses and materials for a person to conduct a workshop at the annual American Association of Physics Teachers meeting on a topic related to precision measurements.

The Newsletter may be increased in size to include items such as book reviews, interviews, and descriptions of meetings.

NIST will be printing wallet cards with the newly adjusted values of the fundamental constants some time soon. The Topical Group will mail one of these cards to each member when they become available. It might be possible to include them with a Newsletter.

**Travel Grants:** Student travel grants to the 2000 Annual Meeting will be funded up to a maximum of \$1000 with no more than \$400 to any one person. This is the same amount that was authorized for 1999. The availability of these grants will be publicized in the Newsletter, and an e-mail reminder will be sent to the Topical Group membership.

**Open Discussion:** There were complaints regarding scheduling conflicts at the Meeting, including sessions of the Division of Atomic, Molecular, and Optical Physics and the Division of Astrophysics being held in parallel with those of the Topical Group. In general, this seems to be a difficult problem to solve.

## Pipkin Award Nominations

The purpose of the Francis M. Pipkin Award, established by the Topical Group on Precision Measurement and Fundamental Constants, is to honor exceptional research accomplishments by a young scientist in the interdisciplinary area of precision measurement and fundamental constants and to encourage the wide dissemination of the results of that research. The award is given biennially every odd-number year and consists of \$2,000 plus support of travel expenses to the APS Meeting at which the award is conferred. For detailed information on the nomination procedure, see <http://www.aps.org/praw/Pipkin/descrip.html>. The deadline for submission of nominations for the 2001 Award is **3 July 2000**.

Nominations should be sent to the Chair of the 2001 Award Selection Committee, Linda Young, 9700 South Cass Ave. Argonne National Laboratory, Argonne, IL 60439, Tel: 630-252-8878, FAX: 630-252-6210, E-mail: [young@anlphy.phy.anl.gov](mailto:young@anlphy.phy.anl.gov).

## Nominations for Fellowship

Topical Group members are invited to nominate candidates for Fellowship in the APS. Our topical group is delegated the opportunity to select approximately two new APS Fellows from nominations submitted to the APS and designated as our topical group candidates. A description of the mechanism for submitting a nomination to the APS and nomination forms are available at <http://www.aps.org/fellowship/index.html>. The deadline for submission of nominations for our unit is **1 April 2000**. PMFCTG nominations will be reviewed by the Fellowship Committee, which consists of Richard Deslattes (chair), Richard Davis (BIPM, Sevres, France, E-mail: [rdavis@bipm.fr](mailto:rdavis@bipm.fr)), and Gordon W Drake (Univ. of Windsor, E-mail: [A36@uwindsor.ca](mailto:A36@uwindsor.ca)). Please notify Richard Deslattes ([richard.deslattes@nist.gov](mailto:richard.deslattes@nist.gov)) of relevant nominations or intent to nominate someone.

## Current Topical Group Executive Committee

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## Committee Chairs

*Program Committee:* Peter Mohr

*Nominating Committee:*

Steven Lamoreaux

*Fellowship Committee:*

Richard Deslattes

Pipkin Award: Linda Young

# New Values of the Fundamental Physical Constants Recommended

Accurate values of fundamental constants, such as the elementary charge, the magnetic flux quantum, the molar gas constant, and the Avogadro, Boltzmann, Faraday, and Rydberg constants, are of great importance to the scientific and technological communities because they are used in many practical calculations. At about midnight on 23 July 1999, the new 1998 self-consistent set of some 300 values of the basic constants and conversion factors of physics and chemistry recommended by the Committee on Data for Science and Technology (CODATA) for international use first became available for worldwide use at the NIST Physics Laboratory Web site at <http://physics.nist.gov/constants>. The new set is the result of the 1998 CODATA least-squares adjustment of the values of the constants carried out by Peter J. Mohr and Barry N. Taylor of the NIST Physics Laboratory under the auspices of the CODATA Task Group on Fundamental Constants. Based on all of the data available through 31 Dec. 1998, the new set replaces its immediate predecessor recommended by CODATA in 1986. The new values, like the 1986 values that they replace, are available at the NIST website in an easily searchable form as well as in the form of tables.

A paper by Mohr and Taylor describing in detail the new CODATA least-squares adjustment will be published in the Nov/Dec 1999 issue of the *Journal of Physical and Chemical Reference Data* and in the April 2000 issue of the *Reviews of Modern Physics*. This paper summarizes and analyzes the extraordinary amount of experimental and theoretical data that have become available in the last 13 years—data that have led to reductions in the uncertainties of many of the recommended values of the constants by a factor of five to 10 or more and, in the case of the Rydberg constant, by over two orders of magnitude.

Because of the modern and highly beneficial trend of having new information immediately and widely available on the web, the CODATA Task Group on Fundamental Constants has decided that 13 years between adjustments is no longer acceptable. In the future, by taking advantage of the high degree of automation incorporated by Mohr and Taylor in the 1998 adjustment, CODATA will issue a new set of recommended values at least every four years and more frequently if a new result is reported that has a significant impact on the values of the constants.

## Upcoming Conferences

### CPEM 2000

The 2000 Conference on Precision Electromagnetic Measurements will be held in Sydney, Australia, 14-19 May 2000. The deadline for submission of summary papers is 10 December 1999. The early registration deadline is 28 February 2000. Conference information can be found at <http://www.tourhosts.com.au/cpem2000/>.

### ICAP-2000

The 17th International Conference on Atomic Physics, ICAP-2000, will be held in Florence (Firenze), Italy 5-9 June 2000. The early registration deadline is 1 February 2000. The abstract submission deadline is 1 April 2000. Conference information can be found at <http://icap2000.df.unipi.it/#top>. Information on Florence can be found at <http://www.mega.it/ezone.htm>.

### Hydrogen Atom II: Precise Physics of Simple Atomic Systems

This is a satellite conference to ICAP-2000 to be held at Castiglione della Pescaia, Tuscany, 1-3 June 2000. The website is <http://www.lens.unifi.it/~sat>. E-mail: [sat@lens.unifi.it](mailto:sat@lens.unifi.it).

## NIST Precision Measurement Grants

Applications are being solicited for two new Precision Measurement Grants, sponsored by the National Institute of Standards and Technology, to be awarded beginning 1 October 2000 (Fiscal Year 2001). Each grant is in the amount of \$50,000 per year, renewable for up to two additional years, for a total of \$150,000. NIST sponsors these grants to encourage research by U.S. university and college faculty members in the field of precision measurement and fundamental constants and to foster contacts between NIST scientists and such faculty members actively engaged in such work. Candidates' pre-proposal summaries and biographical information must reach NIST by 1 February 2000, to be considered for the FY 2001 awards. For more information, go to <http://physlab.nist.gov/ResOpp/grants/grants.html> or contact Barry N. Taylor, Chairman, NIST Precision Measurement Grants Committee, National Institute of Standards and Technology, Building 225, Room B161, Gaithersburg, MD 20899-8401, (301) 975-4220, E-mail: [barry.taylor@nist.gov](mailto:barry.taylor@nist.gov).

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**Fred L. Walls**, National Institute of Standards & Technology, Boulder (Joint nomination with Topical Group on Instrumentation and Measurement Science)

*For sensitive electronic detection techniques of stored ions and for the development and characterization of high-spectral-purity oscillators for atomic spectroscopy and atomic clocks.*