

**Precision Measurement and Fundamental Constants Group Newsletter  
A Topical Group of the American Physical Society**

<http://www.aps.org/units/pmfc/>

**No. 33, June 2009**

**Contents:**

**Conferences and Meetings of Interest**

**2009 Election Results**

**2009 APS Fellows**

**GPMFC Program for 2009**

**Upcoming Program**

**Student Travel Support**

**Minutes of the Business Meeting and Reception**

**2009-2010 Executive Committee Membership**

“According to my views, aiming at quantitative investigations – that is at establishing relations between measurements of phenomena – should take first place in the experimental practice of physics. ‘By measurement to knowledge!’ [Door meten tot weten!] I should like to write as a motto above the entrance to every physics laboratory.  
Heike Kamerlingh Onnes

“By concentrating on precision, one arrives at technique, but by concentrating on technique one does not arrive at precision.”  
Bruno Walter

**Conferences, Meetings, Funding Sources of Interest**

Conference on Precision Electromagnetic Measurements (CPEM)

13-18 June 2010

Daejeon Convention Center (DCC), Korea

<http://cpem2010.kriss.re.kr/>

Hosted by the Korea Research Institute of Standards and Science. The official language of the conference will English.

NIST Precision Measurement Grants

Deadline should be approximately the first week of February, 2010

<http://physics.nist.gov/ResOpp/grants/grants.html>

Available DARPA grants can be found at:

<http://www.darpa.mil/mto/solicitations/index.html>

Several grants to be awarded for R&D which would be of interest to GPMFC researchers, including sensitive electric field detection, sensors, optomechanical cooling, and photonics. N.B. the solicitation for “Casimir Effect Enhancement” research to be applied to nanodevices.

### **2009 Election Results**

In this year’s election for new members of the Executive Committee of our Group, Jun Ye (University of Colorado/JILA/NIST) was elected Vice-Chair, and Kristan Corwin (Kansas State University) and Michael Chapman (Georgia Tech) were elected as Members-At-Large. About 41% of the Group’s membership voted in this year’s election for officers to serve on the Executive Committee, which was an improvement over previous years. Your secretary views this as a positive sign of interest by the membership. We are grateful to all of the candidates for their willingness to serve the Group.

### **2009 Pipkin Award**

The Francis M. Pipkin award for 2009 was given to Zheng-Tian Lu (Argonne National Lab/University of Chicago) “[f]or development of techniques to laser cool and trap rare and radioactive atomic species; and for applications of these techniques ranging from trace isotope analysis to tests of fundamental symmetries.”

### **2009 APS Fellows**

Our Group is entitled to propose candidates for Fellowship in the APS. The Fellowship Committee was chaired by Blayne Heckel. This year, our Fellows were Klaus Blaum (Max Planck Institute) “[f]or contribution to high-precision experiments with cooled and stored ions, especially high-precision mass spectrometry on highly-charged ions and short-lived radio-nuclides, and laser spectroscopy and magnetic moment measurements for fundamental studies”, Joachim Ullrich (Max Planck Institute) “for his contributions to the development and application of the Reaction Microscope and for spectroscopic studies of highly charged ions,” and Richard Steiner (NIST) “for his contributions to the development of the NIST Watt Balance, and landmark measurements of the Planck constant, the electron charge, and the Avogadro constant.” Please consider nominating a worthy and accomplished colleague for this honor – contact Blayne Heckel or see the APS website for nomination details.

### **GPMFC Program for 2009**

The GPMFC sponsored a session of invited lectures at the April APS meeting in Denver: “Precision Measurements Impacting Cosmology, ” covering the Hubble constant, lunar laser ranging, and cosmic polarimetry. Several sections of contributed talks were

sponsored by GPMFC, including sessions on experimental tests of gravitation, ultracold neutron studies, and several sessions devoted to searches for dark matter.

The Group sponsored a focus session at the 40<sup>th</sup> annual DAMOP meeting at Charlottesville Virginia: “Laser Frequency Combs and Applications,” which attempted to present a snapshot of the field.

One of the main goals of the Group is to present interesting and engaging programs that reflect both the diversity of interests of our membership and the common themes of precision measurement. Our program committee seeks topics for next year’s meetings, and your suggestions are welcome, particularly in interdisciplinary areas.

### **Upcoming Program**

The annual meeting (including the business meeting) of the Group for 2010 will be at the DAMOP meeting in Houston, Texas, which will be held May 25-29. We encourage members with ideas for future program topics to contact the Program Committee members. The new Program Committee includes John Gillaspay and Zheng-Tian Lu.

### **Student Travel Support**

We remind members that we have funds available to support students to travel to meetings to present research findings at our Group’s program. This has been a popular program, particularly in years where our main meeting coincides with DAMOP. While we cannot cover all travel expenses, we can certainly defray most of the costs for students. Current members are reminded to share this program with their students and postdocs. We have historically offered an amount in the range \$200-600 per student. Applying for travel support is as simple as contacting the Secretary/Treasurer of the Group **at the time you send in abstracts to the meeting**, and requesting that your abstract be scheduled with the sessions sponsored by the Group. Please see the group website for details:

<http://www.aps.org/units/pmfc/meetings/travel.cfm>

### **Minutes of the Business Meeting and Reception**

The annual business meeting of the Group was held at the April meeting in Denver on May 4, 2009. Attendance was low, but a few interested souls showed up to offer suggestions for the Group. We traditionally have better attendance when the business meeting coincides with the DAMOP meeting, at which we troll for new members by sponsoring a pizza meet and greet after our business is concluded.

### **Financial Report:**

As of April 22, 2009, the balance in the Topical Group account was \$40,870.26, up from \$38,899.66 on April 30, 2008 and \$34,900.79 on April 30, 2007. For the fiscal year to date, the total revenues were \$2740.32, of which \$2,080 were from membership dues, and \$660 from investment income (down from \$2,447.82 in 2008). Our financial

position is sound, and we can continue to offer travel support for students and program sorters.

#### Membership Report:

The membership of the Topical Group as of 2009 was 416, representing 0.88% of the full APS membership. Membership in 2008 was 419, representing 0.91% of the APS membership. From 2004 to 2009, membership has been relatively stable from 0.87% to 0.94% of APS membership, and slowly increasing in absolute numbers.

We expect to try a membership drive later this summer to encourage signups from APS members with physics research interests aligned with the group. We'd like to reach out to somewhat unfamiliar groups, particularly physicists performing low-background counting experiments, which have high-precision experimental goals and require work with sensitive, well-calibrated instruments.

Other business included discussing sponsoring a prize for best student poster presented on an area in PMFC. General consensus was that a modest prize could help recruit new students to our Group and that the Group has the financial resources available to do so. The discussion was remanded to the Executive Committee.

There continues to be some discussion among the Group about the best way to ensure that we remain a broad-based, interdisciplinary Group not exclusively focused on atomic-molecular-optical physics, but drawing from a wide range of disciplines and interests. There is some frustration about participating in the annual April APS meeting, but we feel optimistic that strong programs of invited speakers, covering precise measurements using a wide variety of techniques, can be appealing at that large gathering. In general, the Executive Committee was satisfied with the program we sponsored at the April meeting and hope to do so again.

## 2009-2010 Executive Committee (Year Term Expires in Parentheses)

Chair: John Gillaspay (2010)  
NIST  
[john.gillaspay@nist.gov](mailto:john.gillaspay@nist.gov)

Member-at-Large: Susan Gardner (2010)  
University of Kentucky  
[gardner@pa.uky.edu](mailto:gardner@pa.uky.edu)

Chair-Elect: Blayne Heckel (2010)  
University of Washington  
[heckel@phys.washington.edu](mailto:heckel@phys.washington.edu)

Member-at-Large: David Kawall (2011)  
University of Massachusetts/  
Brookhaven National Lab  
[kawall@physics.umass.edu](mailto:kawall@physics.umass.edu)

Vice-Chair: Jun Ye (2010)  
NIST - Univ of Colorado/JILA  
[junye@jilau1.colorado.edu](mailto:junye@jilau1.colorado.edu)

Member-at-Large: Zheng-Tian Lu  
(2011)  
Argonne National Lab  
[lu@anl.gov](mailto:lu@anl.gov)

Past Chair: David DeMille (2010)  
Yale University  
[david.demille@yale.edu](mailto:david.demille@yale.edu)

Member-at-Large: Michael Chapman  
(2012)  
Georgia Institute of Technology  
[mchapman@gatech.edu](mailto:mchapman@gatech.edu)

Secretary/Treasurer: Paul Vetter (2010)  
Lawrence Berkeley National Lab  
[pavetter@lbl.gov](mailto:pavetter@lbl.gov)

Member-at-Large: Kristan Corwin  
(2012)  
Kansas State University  
[Corwin@phys.ksu.edu](mailto:Corwin@phys.ksu.edu)

Member-at-Large: Mikhail Romalis  
(2010)  
Princeton University  
[romalis@princeton.edu](mailto:romalis@princeton.edu)

See also the Group's governance page on the web for contact information:  
<http://www.aps.org/units/pmfc/governance/officers/index.cfm>