

# Division of High Polymer Physics

September 19, 1997 Newsletter

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## APS Constitutional Amendment

APS Constitutional Amendment Two has passed overwhelmingly! This amendment concerned the membership requirements for retaining Division status. With this change, the DHPP's recently constant membership effort (to maintain 3% of the APS membership in order to remain a division) can now receive a more sensible share of division's attention and efforts. The Executive Committee thanks all those who voted and thereby helped to bring about this change.

BUT? Your membership remains invaluable to the DHPP. Please continue to help the division and your colleagues by urging them to join the DHPP.

## Executive Committee Elections

The following candidates have been nominated for positions on the DHPP Executive Committee:

Vice Chair:

- Peter F. Green, University of Texas
- Nicholas A. Peppas, Purdue University
- Kenneth S. Schweizer, University of Illinois

Member-at-Large:

- Nitash P. Balsara, Polytechnic University
- Sanat K. Kumar, Pennsylvania State University

Brief statements solicited from the candidates appear on pages 4 and 5 of this newsletter. All members of the DHPP are asked to mark their ballot (enclosed with this newsletter) and return it to the Secretary-Treasurer of the Division at the address above (and on back of the self-mailer ballot). *To be counted, ballots must be received no later than October 31, 1997.*

## Up-Coming Deadlines

- Executive Committee Ballot: Oct 31, 1997
- Padden Award Nominations: Nov. 3, 1997
- Abstracts for March Meeting: Dec. 3, 1997

- Nominations for Fellowship: Jan. 15, 1998
- Short Course Registration: Feb. 15, 1998
- Papers for the Special Issue: April 1, 1998

### **1998 High Polymer Physics Prize and 1998 Dillon Medal**

Murugappan Muthukumar (University of Massachusetts) will receive the 1998 High Polymer Physics Prize, sponsored by the Ford Motor Company. The citation will be:

*For outstanding theoretical contributions to the fundamental understanding of the statistics of isolated chains, chain dynamics, critical phenomena, and polymer self-assembly.*

Spiros H. Anastasiadis (Foundation for Research and Technology - Hellas, Institute of Electronic Structure and Laser, and University of Crete, Department of Physics) will receive the 1998 Dillon Metal, sponsored by Elsevier Science Ltd. (publisher of *Polymer*) . The citation will be:

*For pioneering studies of the structure and dynamics of polymer solutions, melts, interfaces and thin films.*

The winners will be honored by special symposia at the March Meeting of the DHPP.

### **Program**

The next March Meeting will be held in Los Angeles, CA the week of March 16-20, 1998.

The DHPP Program Chair is M. Muthukumar (U. Mass., e-mail: mdhpp@kali.pse.umass.edu). Symposia are being planned with the following themes: nanostructures, electronic properties, adhesion, processing, and complex fluids. A website bulletin board is available for DHPP members to post and share information (<http://rati.pse.umass.edu/mdhpp/>). Abstracts should be submitted via e-mail according to the guidelines available from the APS or DHPP Home Pages, or from the DHPP Secretary-Treasurer. The DHPP deadline is the same as for the APS general program - December 3, 1997. (Nominations and abstracts for the Padden Award and Symposium are due November 3, 1997.)

*Special Note: Los Angeles does not have adequate hotel space in the immediate vicinity of the meeting site. To avoid riding the shuttle bus, make your hotel reservations early!*

### **NEW Event - DHPP Reception**

On Sunday evening, March 15, in Los Angeles, there will be an informal reception to give DHPP Members a chance to meet and chat. Munchies and a no-host bar will be available. Time and place will be announced in a future newsletter. Please plan to stop by.

### **Special Issue: Journal of Polymer Science, Polymer Physics Edition**

A special issue of Journal of Polymer Science, Polymer Physics Edition will publish papers presented at the March Meeting of the Division. There are no page charges for the journal, and authors receive a copy of the issue as well as 50 reprints free of charge. All manuscripts will be peer reviewed. Those accepted for publication within a limited time after the March meeting will appear together in the December issue of the Journal. **Manuscripts submitted for the 1998 special issue are due by April 1, 1998** and should be sent to:

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### **Call for Nominations: Frank J. Padden Jr. Award**

The Frank J. Padden, Jr. Award, consisting of a certificate and appropriate recognition, recognizes a graduate student for "Excellence in Polymer Physics Research." To be considered for this award the student must be a member of the DHPP, must be working toward the Ph.D. degree, must not have completed the requirements for the Ph.D. before December 3, 1997, and must submit the following:

- 1) an acceptable abstract for the DHPP March Meeting (Note: Please submit by email and provide a paper copy for the award committee),
- 2) a 1 page C.V. (do NOT send papers or other attachments),
- 3) a letter from their thesis adviser addressing the quality of the graduate research and academic excellence.

Abstracts should be submitted by email to the APS by **November 3, 1997**. In the template space for Special Instructions, please insert "Padden Award Symposium". The abstract will be forwarded to the program chair for inclusion in the March meeting. A hard copy of the abstract, the C.V. and the adviser's letter

should be sent directly to Anna Balazs at the address on the letterhead of this newsletter. They must be received by November 3, 1997.

The Education Committee will select 5 finalists based on quality of the research, abstract, C.V., and the adviser's letter. On March 16, 1998 the Padden Award session will be held. Each of the 5 finalists will give a 12 minute (including time for questions) oral presentation. The session will be attended by the Education Committee, who will serve as judges, and by any other interested members of the DHPP or APS. The winner will be selected based on quality of the research, the presentation, and response to questions. The winner will be announced at the annual Business Meeting of the Division.

### **Short Course**

A DHPP Short Course, Challenges in Polymer Research for Microelectronics Technologies, will be offered March 14-15, 1998 in Los Angeles, CA. Fee: \$400 regular (\$200 students).

*Who Should Attend:* Polymer scientists and engineers from academia, the materials supply industry, and other sectors interested in learning current uses and problems that confront scientists and researchers who are responsible for the development and manufacture of future generation electronic products.

*Topics:* Issues in modeling and measurement of polymer physics and behavior for materials used in enabling microelectronic technologies and manufacturing processes which, when combined, create future products. Key electronic technologies include: semiconductor devices, packaging, interconnection, substrates and assembly, passive components, optoelectronics & data storage, displays, and energy storage systems.

*Description:* Polymeric materials are ubiquitous to nearly all electronic products. From the manufacture and packaging of semiconductor devices to the development of advanced energy or data storage media, polymer materials, and the processes used to apply these materials, are among some of the most critical in the manufacture of new products. This short course will provide polymer scientists and engineers with an in-depth view of the uses of polymers in various electronics products. The short course will specifically address industry's most pressing technical needs and illustrate the types of research needed to enhance the role of polymers in future products. Through this short course, participants will develop an understanding of the technical drivers and underlying scientific challenges associated with the utilization of polymers in current and future electronic products.

Instructors:

*Industry Roadmapping and Electronic Materials R&D*, Dr. Michael Schen, NIST  
*Semiconductor Devices*, Dr. Jane Shaw, IBM Yorktown Heights  
*Packaging, Interconnection, and Assembly*, Dr. Mark Poliks, IBM Endicott  
*Optoelectronics & Data Storage*, Prof. Peter Rentzepis, Univ. of California,  
Irvine  
*Displays*, Dr. Norman Bardsley, U.S. Display Consortium  
*Energy Storage Systems*, TBD

For more information, please contact the Organizers:

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## **Fellowship**

Members of the Division are invited to submit nominations for Fellowship in the  
APS. A nomination form and a list of DHPP members who are APS Fellows are  
available on the DHPP Home Page or from the Secretary-Treasurer. Full dossiers  
should be mailed to:

Executive Officer  
American Physical Society  
One Physics Ellipse  
College Park, MD 20749-3844

The deadline is **January 15, 1998**. The DHPP Fellowship Committee will review  
nominees and forward its recommendations to the APS Council. The number of  
new Fellows is limited to one-half percent of the current membership.

## **Candidate Statements**

The Executive Committee asked each candidate to provide a brief statement providing  
biographical information and/or indicating any specific items they would like to bring to the  
attention of the members of the division. Their statements are presented below. The candidates are  
listed alphabetically.

*For Member-at-Large*

Nitash P. Balsara

Since its inception, polymer science has been at the cross-roads of chemistry, physics, and  
engineering. In my view, the main purpose of the DHPP is to provide a platform for people to  
exchange ideas and learn from each other. While the March meeting provides an excellent

platform, we must continue to seek new ground as the field of polymer science progresses. We should broaden our horizons by creating interdisciplinary sessions that would attract a wider spectrum of chemists, engineers, and perhaps, biologists. We will undoubtedly benefit from increased participation of industrial scientists. My association with the DHPP and the APS has been both educational and stimulating. Whether I am elected or not, I will consider it a privilege to work on the organizational aspects of the division, to ensure its vibrancy for current members and future generations of polymer scientists.

I am currently an associate professor in the Department of Chemical Engineering at Polytechnic University in Brooklyn, New York. My research is concerned with microstructure formation and phase transitions in multicomponent polymer materials.

Sanat K. Kumar

I received my ScD degree from MIT in 1987. After a one year post-doc at IBM, San Jose, I have been at Penn State University where I am currently a Professor in the Dept. of Materials Science and Engineering. I have served the APS in the Education committee, and recently in the program committee, and have organized symposia at national meetings of the MRS, ACS and AIChE. Three different issues which I believe should remain the focus of the DHPP:

1. Membership: We have been in a crunch to maintain a vibrant division membership, and have profited immensely from regular membership drives. These efforts must be augmented, specifically the efforts to enroll students and members from other divisions.
2. Program Focus: We have been criticized for being a division with a few narrow interests. Broadening the focus of our national meetings, an effort which is being stressed by Muthukumar, this year's program committee chair, should be an issue that we should continue to emphasize.
3. Industrial participation: Our industrial colleagues have experienced frustration at the general lack of relevance of our programming to their interests. This issue should be addressed, by broadening our programming, especially through focused symposia.

*For Vice Chair*

Peter F. Green

Peter F. Green is an Associate Professor of Chemical Engineering at the University of Texas, Austin. Prior to joining the faculty in 1996, he spent 11 years at Sandia National Laboratories, the last five of which he served as a research manager in the Materials Sciences Center. He received his Ph.D. in Materials Science from Cornell University in 1985 and BA (honors) and MA degrees in Physics together in 1981 from Hunter College. His research interests span the fields of polymer thin films and inorganic glasses. Prof. Green is an APS fellow and has been a member of DHPP since 1983. He would bring to the position of Vice Chair not only his experience as a research manager and scientist, but the insight he has derived from active involvement in the organization of other societies such as the Glass and Optical Materials Division of the American Ceramics Society, American Chemical Society and the Materials Research Society. He believes that the future of the division will depend on its ability to continue to effectively build bridges and team appropriately with other scientific organizations with similar interests and aims and with industry.

Nicholas A. Peppas

Prof. Nicholas A. Peppas was educated in chemical engineering and received his Sc.D. from MIT in 1973. He has been at Purdue University since 1976, where he is presently the Showalter

Distinguished Professor. He has devoted his scientific career to the study of polymer gels and networks, molecular diffusion and adhesion, PEG-tethered structures, and kinetics of fast polymerization reactions. Several of his research studies have found applications in drug delivery and biomedical materials. Peppas has authored or edited 21 books, 540 referred publications and 12 patents. His research has been recognized with numerous awards from AIChE, ACS, ASEE, CRS, etc. He is a Fellow of AIChE (Chair of the Materials Division in 1989-91), AIMBE, Society for Biomaterials, and AAPS, and has been active in several other scientific organizations including ACS, MRS, CRS (President in 1987-88), AAAS, ASEE, ASAIO, ISAO, NYAS, NAMS and BMES. Peppas has been active in the American Physical Society since 1977 and has contributed papers to the meetings of DHPP since 1981. He believes that his past experience with successfully running several organizations of size larger than DHPP has prepared him to address and face the challenges of our Division. If elected, he believes he can become a catalyst for a focused membership drive that will bring to the Division a number of young investigators that work presently on polymer physics problems but are not active in the Division. He will promote the expansion of divisional activities to important new areas at the interface between polymer physics and biophysics and will actively support the integration of new biomolecular studies in our programmatic activities.

Kenneth S. Schweizer

I received a B.S. in physics from Drexel University, a PhD in physics from the University of Illinois @ Urbana-Champaign(UIUC), and then did two years of postdoctoral research in the Chemical Physics Department at AT&T Bell Labs. I joined Sandia National Laboratory in 1983 as a research scientist in the Organic & Electronic Materials Department working in the area of polymer theory. In 1991 I moved to UIUC as a Professor of Materials Science & Engineering and Chemistry, and am presently chair of the Polymers Division. I am member of the Society of Rheology, APS(DHPP since 1984), ACS and MRS, and have organized polymer symposia at the national meetings of the latter three societies. I am a Fellow of the American Physical Society, recipient of the Dillon Medal, shared a DOE Basic Energy Sciences award in Materials Chemistry, and presently serve on the editorial boards of Macromolecules and the Journal of Chemical Physics. STATEMENT. If elected, one of my primary goals would be to continue to broaden the technical scope of DHPP with the aim of increasing membership and participation in our division by the academic, industrial and government lab communities. I would strongly encourage the growth of interdisciplinary topics such as biopolymers/biomaterials, electronic polymers, complex fluids, and polymer rheology. Avenues to achieving this include more co-sponsored symposia with several other APS divisions, and increasing the number of DHPP focused sessions and symposia based on both invited and contributed talks.