High Polymer Physics

November 9, 1998 Newsletter

Executive Committee Elections

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

Vice Chair:

Peter Green, University of Texas
Scott Milner, Exxon Research and Engineering Co.

Member-at-Large:

Julia Kornfield, California Institute of Technology
Ken Shull, Northwestern University

Brief statements solicited from the candidates appear on pages 5 and 6 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 on the back of the self-mailer ballot. *To be counted, ballots must be received no later than December 18, 1998.*

Up-Coming Deadlines

Executive Committee Ballot Dec. 18, 1998
Nominations for Fellowship Jan. 15, 1999
Short Course Registration Feb. 15, 1999
Papers for the Special Issue April 1, 1999

1999 High Polymer Physics Prize and 1999 Dillon Medal

Charles C. Han (NIST) will receive the 1999 High Polymer Physics Prize, sponsored by the Ford Motor Company. The citation will be:

> *For outstanding contributions in the application of light and neutron scattering to the physics of polymer phase separation*

Anne M. Mayes (MIT) will receive the 1999 Dillon Metal, sponsored by Elsevier Science Ltd. (publisher of *Polymer*). The citation will be:

of theoretical and experimental insight into polymer

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

Program

The next March Meeting will be held in Atlanta, GA the week of March 20-26, 1999. The DHPP Program Chair is Wes Burghardt (Northwestern, e-mail: w-burghardt@nwu.edu). Anyone interested in serving as a session chair is encouraged to contact him.

The APS is planning numerous special activites to commemorate the APS Centennial, which will have an impact on the scheduling of DHPP activities. Special Centennial events scheduled Monday and Tuesday will lead to reduced opportunities for technical programming on these days. Details of the DHPP program schedule will not be known until the March sorters meeting later this month, but it is likely that more oral presentation sessions will be scheduled later in the week than has typically been the case. Preliminary plans for some aspects of the program are given below.

To tie into the Centennial, DHPP is planning special programming, to include:

* APS Centennial Symposium: "Milestones in Polymer Physics" with speakers de Gennes, Graessley, Kramer, and Lotz, scheduled for Monday morning.

* Special DHPP Invited Session: "Challenges and Opportunities in Polymer Physics", with speakers Bates, Jelinski, Milner, Muthukumar, Tirrell, and Wiltzius, planned for Tuesday morning.

* A collection of "Historical Notes on Polymer Physics" is being assembled with contributions from leading figures in the development of our field. It will be published in the Journal of Polymer Science, Part B: Polymer Physics, and reprints will be available at the meeting.

In addition to these activities, there will be invited sessions on:

"Polymers in Biological Materials and Interfaces,"
"Defects in Polymers and Soft Materials," and
"Polymers in Display Applications" (jointly sponsored by FIAP).

Each of these invited sessions will be followed up by a contributed session on the same topic. DHPP is also joint sponsor of an invited session on "Computational Physics of Soft Materials" in the Conference on Computational Physics, to be held jointly with the APS Centennial Meeting in Atlanta.

nned for Wednesday, including the Ford Prize
mposium and the Dillon Medal Symposium. The
DHPP business meeting will be held at the conclusion of the day on Wednesday. Poster sessions are tentatively planned for Tuesday afternoon and evening.

Fellowship Nominations

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, 1999**. 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.

Short Course: *Macromolecular Physics in Biology and Bioengineering*

The DHPP Short Course will be offered March 20-21, 1999 in Atlanta, GA.

Who Should Attend:

Physicists, chemists, engineers, faculty, postdocs and graduate students, from both academic and industrial institutions, particularly working in or with a view toward entering research in biomaterials, biophysics, biophysical chemistry, biotechnology and biomedical engineering.

Topics:

- Macromolecular physics of biorecognition
- Developments in biomaterials and materials for medical devices
- Surface modification of materials for enhanced biofunctionality
- Polymers in controlled-release drug delivery
- Molecular design and assembly for gene therapy
- Physical/instrumental methods for the study of biopolymers and recognition

C*ourse Description*:

The science of biopolymers and biomaterials is advancing rapidly, building on rapid development both in fundamental biology and in new

of structure and interactions. Physical methods for
cules (DNA, proteins, cytoskeleton and cytoplasmic
structures, microtubules, filaments, motors, ligand-receptor interactions)
are becoming increasing important in post-genomic biology. Improved
understanding of bio-interactions and bio-funtionality is leading to new
developments in polymeric materials for biomedicine and biotechnology.
This course will provide an overview of the most recent developments in
methods for studying structure and interactions in biological
macromolecular assemblies. It will also cover how these methods are
being put to use in a variety of important applications (biomaterials, drug
delivery, gene therapy, and others).

*Registration Fee*s:

$400 ($200 for students). To register for the short course, use the registration form in APS Meeting News or print the form from the meetings web site - www.aps.org/meet/CENT99.

Organizer

Matthew Tirrell, Professor and Head
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Confirmed Speakers (as of press date)

- Stuart Cooper, Illinois Institute of Technology Chicago
- Evan Evans, University of British Columbia and Boston University
- Linda Griffith, Massachusetts Institute of Technology
- Douglas Lauffenburger, Massachusetts Institute of Technology
- Cyrus Safinya, University of California, Santa Barbara
- Mark Saltzman, Cornell University

Michael Sheetz, Duke University

DHPP Reception

On Sunday evening, March 21, in Atlanta, 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.

# 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 1999 special issue are due by April 1, 1999** and should be sent to:

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Polymer Science and Engineering
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Phone: (413) 577-1216
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Email: spgido@squeaky.pse.umass.edu

New Fellows

The following DHPP members were elected Fellows of the American Physical Society in 1997. They were recognized at the last Business Meeting of the Division.

Michael M. Coleman, Pennsylvania State University
For spectroscopic characterization of miscible polymer blends.

Mark D. Ediger, University of Wisconsin
For his insightful experimental and computational investigations of local polymer dynamics in solutions and melts.

Nicholas A. Peppas, Purdue University
For exemplary research on the effects of structure and molecular relaxations of polymers on the diffusion and transport of penetrants and solutes and the development of theories of diffusion through polymers.

Dieter Richter, Institute for Solid State Research
For his incisive neutron spin echo investigations enabling improved understanding of the fundamental influence of molecular weight and temperature on chain dynamics in the melt and glassy states.

Jerold M. Schultz, University of Delaware
For contributions to scholarship and education in understanding processing-structure-property relationships in polymer systems, particularly in the area of crystallization and structure development.

erve University
knowledge of molecular mechanisms for flow instabilities, extrudate distortions and wall slip in capillary extrusion of polymer melts.

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 Vice Chair

Peter F. Green

Peter F. Green is currently Associate Professor of Chemical Engineering, and the Quantum Chemical Faculty Fellow in Engineering at the University of Texas at Austin. He received B.A. and M.A. degrees in Physics from Hunter College in 1981. In 1985 he graduated from Cornell University with his Ph.D. in Materials Science. He was subsequently employed at Sandia National Laboratories where, in 1991, he was promoted to the position of Department manager. His duties included managing the glass research program at Sandia. In 1996 he joined the faculty at the University of Texas. His current

research interests include polymer diffusion and rheology, polymer thin films, and structure and dynamics in inorganic glasses. He has been a member of the division since 1983. In 1995 he was elected Fellow of the Society. He is also a Fellow of the American Ceramic Society.

Peter has much to offer the society based on his experience as research manager at a National Laboratory and because of the experience he brings from participation in other societies, including the Materials Research Society (MRS), American Chemical Society (ACS) and American Ceramic Society (ACerS). He currently serves on the executive committee of the Polymer Materials Division of the ACS, and just completed his term as chair of the nominating committee of the Glass division of ACerS. Last Fall he served as meeting chair for the Fall 1997 MRS meeting in Boston. He currently serves on the Program Committees for the MRS and for this division.

Statement: The membership of our division is diverse, including researchers with a variety of backgrounds, including Physics, Chemistry, Chemical Engineering and Materials Science, representing government laboratories, academia and industry. Over the years, this division has benefited by strong leadership and stewardship. I believe that its future depends on its ability to serve the needs of its diverse membership. An important role which the division serves is to provide relevant programs of the highest

. We also need to play a more active role in education to improve the general public awareness of the impact of polymer science. My experience as a former manager, together with insights which I have gained from participation in other societies would be an asset to this division as we plan for the future.

Scott Milner

I have been a research scientist at Exxon Research and Engineering for ten years, following my graduate work in physics at Harvard and postdocs at Exxon and Bell Labs. During even that relatively short time, we have seen great realignments in the nature and scope of polymer research in academia and in industry. At the same time grant agencies are emphasizing technological impact in funding proposals, many companies have scaled back or eliminated research efforts, and industrial participation in many polymer research conferences is disappearing. This is ironic, because many academic polymer scientists have in recent years made sincere and vigorous efforts to rethink their definition of a good research problem, and their reasons for doing science, with broader technological relevance in mind. My experience as an organizer of the NSF-sponsored workshop on "Interdisciplinary Macromolecular Science and Engineering" impressed me with the burgeoning vitality of new ideas and approaches in our field.

But this prompts the question, who is listening to and benefiting from our work? For the incorporation of technological relevance into our scientific aesthetic to be more than superficial, we must do more to make strong connections across the academic-industrial gap. There are great obstacles here, issues of intellectual property ownership versus open publication first among them. But the rewards to the scientific community are also great. In my own work, I have found the sustained effort to extract good science problems from technologically relevant questions very rewarding, and have found truly interesting problems that would otherwise have been lost in a sea of theoretical games. I think this experience should be a part of what we try to impress upon graduate and even undergraduate students studying polymers. I would try to encourage DHPP to create new ways to overcome the academic-industrial barrier, in conference planning, in cooperation with funding agencies, and in the education of those who would follow us into this vigorous field of research.

For Member □at-Large

Julie Kornfield

To introduce myself, I'll begin with my background. I am currently an Associate Professor of Chemical Engineering at the California Institute of Technology. My introduction to polymer physics was through my doctoral research on the dynamics of polymer melts with Gerry Fuller in Chemical Engineering at Stanford University (Ph.D. 1988). Following a NATO Post-doctoral Fellowship at the Max-Planck-Institute for Polymer Research with Hans Spiess, I joined the faculty at Caltech in 1990.

uded serving on the Education Committee of APS-
course in 1997 on solid state NMR, organizing
symposia of the Society of Rheology, and co-organizing international meetings, e.g., the Polymer Solutions and Melts Symposium of the Pacific Conference on Rheology and Polymer Processing and the 5th US-Germany Polymer Symposium. I am known for contributions to understanding molecular and microscopic aspects of polymer flow behavior, which have been recognized by the DHPP by the Dillon Medal.

Ever since I was a graduate student I have enjoyed the DHPP program at the Spring APS meeting; I appreciate the many excellent talks and the vigorous discussion that takes place in the halls. As members of DHPP, we enjoy a collegial and vigorous community. I would like to continue to serve our Division and promote its health and well-being within the APS.

Ken Shull

My impressions of the Polymer Physics Division of the APS extend back to my participation as a graduate student in the late 1980's. Since that time I have also learned more about the inner workings of the division, primarily as a result of my term on the program committee which ended with the 1997 March meeting. Two things have continued to impress me throughout this time. First, our divisional meeting is one of the best places for graduate students working in the area of polymers to present their work and to learn more about the status of the field (at least as it is practiced in academic circles). Second, the division is quite sensibly run. While I do not think that the status quo should be maintained at all costs, I think it is extremely important to preserve these favorable aspects of the division, while remaining adaptable to the changing times. The primary issue which should continue to occupy our attention is the strength and success of the March meeting. We should certainly encourage increased industrial participation, but I don't see any easy solutions to this issue. Other challenges include the identification of new areas of research where our division can play a big role. The biomaterials field is one good example, although others exist as well. We should continue to be willing to experiment with new ideas, such as an increased number of focused symposia, in order to make sure we know what really works. While many challenges exist for our division, I am quite optimistic overall, and would be quite happy to serve on the executive board if chosen to do so.

Division of High Polymer Physics
American Physical Society
Executive Committee

1997-1998

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