

PMSE NEWS

Polymeric Materials: Science and Engineering Division of the American Chemical Society
SPRING 2008

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Message from our chair, Dean Webster



Dear PMSE Members,

It is an honor to serve as the Chair of the PMSE Division in 2008. I would like to thank the recent past chairs, Elliot Douglas, Ron DeMartino and Benny Freeman for their leadership in bringing the Division to where we are now. Founded in 1927, PMSE is one of the oldest divisions of ACS and we continue to build on its rich heritage as we move ahead into the future. In 2007, we marked 80 years as a division with a celebration at the Boston meeting. I hope you were able to join us at that event. The Division continues to build on this strong legacy and is moving ahead in

many exciting new directions.

One of the most exciting developments in the division has been the new strategic plan. This plan, spearheaded by 2007 chair Elliot Douglas, has provided the division with new mission, vision, and strategic goals for the coming years. The new Mission Statement of the division states that PMSE is the Division of ACS that provides a forum for the exchange of technical information and fosters interactions in materials science and engineering for the global chemistry community. In addition, the Vision Statement succinctly describes what we as a division want to be: Reaching out across technical, generational, and international boundaries to create the premier home of materials science and engineering for the global chemistry community.

The PMSE Division has always focused on the applications of polymers: the use of polymers as materials. This is even reflected in our name. Our new mission and vision statements reflect our desire that PMSE be the home of chemists who do materials science and engineering. Our three strategic goals to accomplish this involve refocusing our programming to reflect this broader emphasis on materials science, developing an online materials science community, and expanding our interactions with other societies and organizations around the world. Elliot Douglas will continue to lead the division in the implementation of the strategic plan.

Two longstanding features of the division are the Preprints and Programming at national meetings. The Preprints have been transitioned to online electronic format via ACS Publications, and we will eventually see the CD disappear.

Continued on p. 11



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Program for the 2008 Spring ACS National Meeting

New Orleans April 6-10, 2008

PMSE Sessions to be held at the Hilton New Orleans Riverside

Advances in Adhesion Science. Christopher White, NIST, Gaithersburg, MD, (301) 975-6016, christopher.white@nist.gov ; Professor A.J. Kinloch, Imperial College London, Dept. of Mech. Eng., Exhibition Rd., London, SW7 2AZ, UK, 020 7594 7082/7083, a.kinloch@imperial.ac.uk; Donald Hunston, NIST, Materials and Construction Res. Div., Gaithersburg, MD, 301-975-6837, donald.hunston@nist.gov.

Controlling cell functions through polymer synthesis and engineering. Jason Burdick, Dept. of Bioeng., U. Pennsylvania, Philadelphia, PA, 215-898-8537, burdick2@seas.upenn.edu ; Ali Khademhosseini, Harvard-MIT Division of Health Sciences and Technology, Harvard Medical School / Brigham and Women's Hospital, Cambridge, MA (617) 768-8395, alik@mit.edu OR alik@rics.bwh.harvard.edu ; Xinqiao Jia, Dept. of Matl. Sci. and Eng., University of Delaware, Newark, DE, xjia@udel.edu.

Fire and Polymers. Gordon L. Nelson, College of Science, FL Inst. of Tech., Melbourne, FL (321) 674-7260, nelson@fit.edu; Charles A. Wilkie, Dept. of Chem., Milwaukee, WI (414) 288-7239, charles.wilkie@marquette.edu.

Drug Delivery Systems. Scott Michael Grayson, Dept. of Chem., Tulane University, New Orleans, LA, (504) 862-8135, sgrayson@tulane.edu

Mechanical Instabilities in Polymer Films, Interfaces and Nanostructures. Christopher M. Stafford, Polymers Division, NIST, Gaithersburg, MD, (301) 975-4368, chris.stafford@nist.gov; Adam J. Nolte, Polymers Division, NIST, Gaithersburg, MD, (301) 975-2895, adam.nolte@nist.gov; Rui Huang, Dept. of Aerospace Eng. and Eng. Mechanics, University of Texas, Austin, TX, (512) 471-7558, ruihuang@mail.utexas.edu.

Novel Fluorophores, Syntheses, Properties and Uses. Uwe Bunz, School of Chemistry and Biochemistry, Georgia Inst. of Tech., 404-385-1795

Nonlinear Dynamics in Polymeric Systems (CO-SPONSORED WITH POLY. POLY IS PRIMARY). John A. Pojman, Dept. of Chemistry and Biochemistry, The University of Southern Mississippi, Hattiesburg, MS; Qui Tran-Cong-Miyata, Dept. of Polymer Science and Eng., Kyoto Institute of Technology, Matsugasaki, Kyoto 606-8585, Japan, Matsugasaki, Sakyo-ku, Kyoto 606-8585 Japan.

Plasticized Polymers and Highly Concentrated Solutions. Bryan R. Chapman Corporate Strategic Research, ExxonMobil Research and Eng. Co., Annandale, NJ, 908-730-2196, bryan.r.chapman@exxonmobil.com

Polymer Surfaces and Interfaces: Loops, Branches, and Brushes (CO-SPONSORED WITH POLY. PMSE IS PRIMARY). Mark Dadmun, Dept. of Chemistry, U. Tennessee, Knoxville, TN, (865) 974-6582, Dad@utk.edu ; S. Michael Kilbey II, Clemson U., Dept. of Chem. and Biomolecular Eng., Clemson, SC, 864/656-5423, 864/656-0784, amkilbey@ces.clemson.edu ; Jimmy Mays, U. Tennessee at Knoxville, Dept. of Chem. Knoxville, TN, 865-974, jimmymays@utk.edu.; ; Grant Smith, Dept. of Materials Science & Eng., University of Utah, Dept. of Chemical Eng., University of Utah, Salt Lake City, UT, 801-585-3381, gsmith2@cluster2.mse.utah.edu ; Rigoberto Advincula, Dept. of Chem., Dept. of Chem. Eng. University of Houston, Houston, TX, 713-743-1760, radvincula@uh.edu.

Synthesis and Self-Assembly Approaches to Polymer-Inorganic Hybrid Nanoparticles. Jeff Pyun, Dept. of Chem., U. Arizona, Tucson, Arizona, (520) 626-1834, , pyun@email.arizona.edu; Michael Bockstaller, Carnegie Mellon U., Pittsburgh, PA, (412) 268-2709 bockstaller@cmu.edu.

Cooperative Research Award. David Schiraldi, Case Western Reserve Univ., Cleveland, OH, (216) 368-4243, das44@po.cwru.edu.

General Papers/New Concepts in Polymeric Materials and Joint PMSE/POLY Poster Session: General Papers/New Concepts in Polymeric Materials. E. Bryan Coughlin, U. Massachusetts, Dept. of Poly Sci. and Eng, Amherst, MA, (413) 577-1616, coughlin@mail.pse.unmass.edu.

Program Committee

Abhimanyu Patil

ExxonMobil Research & Eng. Co.
Corporate Strategic Research Labs
Route 22 East
Annandale, NJ 08801
Phone: (908) 730-2639
abhimanyu.o.patil@exxonmobil.com

Christopher Soles

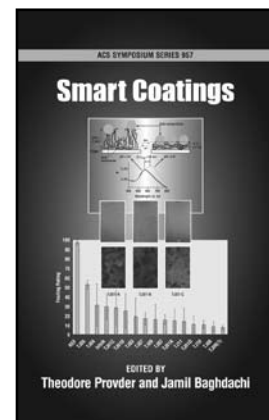
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100 Bureau Drive, Stop 8541
Gaithersburg, MD 20899-8541
Phone: (301) 975-8087
christopher.soles@nist.gov

Jeffrey Pyun

Department of Chemistry
University of Arizona
1308 E. University Blvd
Tucson, AZ 85721
Phone: (520) 626-1834
jpyun@email.arizona.edu

Smart Coatings

ACS Symposium Series 957
Theodore Provder and Jamil Baghdachi, Eds.
Oxford University Press, 2007



Reviewed by F. Louis Floyd

This volume is a short compendium of papers presented at a recent ACS symposium on “smart coatings.” What sets this volume apart from others on a similar topic is the focus on applied results, rather than just addressing possibilities. I’ve been reading about bio-active and stimuli-responsive coatings for some time, long before the term “smart” coatings came into vogue. It’s nice to finally see some concrete applications of the concept.

The most interesting of the four bioactive coating papers was Chapter 2, featuring the use of chitosan as an antibacterial finish. The health care community will be glad to know that it’s possible to develop coatings that destroy the causative agent in most staph infections. The use of a natural material, chitosan (a β -linked polysaccharide of glucosamine), is particularly interesting, given the industry’s tendency to resort to simpler and more adversely toxic alternatives in the past.

The work on pH-responsive coatings (Chapter 7) was the most interesting part of the stimuli-responsive coatings section, since these materials offer not only rheological control possibilities, but also cure-control alternatives.

The work describing thermally-reversible epoxy coatings based on Diels-Alder chemistry (Chapter 9) was also of particular interest. Such coatings introduce the possibility of easy removability for renovation.

Readers with an interest in monitoring the field of smart coatings should read this book. Business types will be heartened by the possibility of actually making some money by commercializing some of the more advanced concepts.

About the reviewer: Lou Floyd worked in coatings R&D for 36 years before retiring in 2004. He has continued his professional involvement as a member of the review board for both JCT Research and JCT Coatings research, as a member of the board of trustees of the Coatings Industry Education Foundation, and as a consultant to the coatings and allied industries.

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3. Formulation and Evaluation of Organic Antibacterial Coatings (D. L. Clemans, S. J. Rhoades, J. J. Kendzorski, Q. Xu, J. Baghdachi)
4. Silicone Polymers with Biocide Grafting for Antifouling/Fouling Release Coatings: Effect of Modulus on Antifouling Performance (J. Thomas, R. Fjeldheim, S.-B. Choi, P. Boudjouk)
5. Thermoset Siloxane-Urethane Fouling Release Coatings (P. Majumdar, A. Ekin, D. C. Webster)

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6. Smart Responsive Coatings from Mixed Polymer Brushes (S. Minko)
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9. Development of a Removable Conformal Coating through the Synthetic Incorporation of Diels-Alder Thermally Reversible Adducts into an Epoxy Resin (J. H. Aubert, D. R. Tallant, P. S. Sawyer, M. J. Garcia)
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11. Oxidation Resistive Coatings at High Temperatures for Iron Cores (C. A. Sizemore, C.-T. Lin)

See page 7 to order this book at a 40% discount!

PMSE Strategic Plan 2007 - 2009

An overview by Elliott Douglas and Ron DeMartino, Chairs, PMSE Strategic Planning Committee

Current state of the division

As of March, 2007, PMSE is a healthy division, having a large, interdisciplinary membership of about 6,000 whose members span a range of backgrounds, generations, cultures, and occupations. Due to consistent and exemplary leadership, the division is financially stable, has a strong volunteer base, has a web presence, publishes highly sought after preprints, and has strong programming and attendance records at ACS national meetings.

Case for change

There are issues that need to be addressed if the division is to remain strong and grow. Membership has become stagnant and there is a need to revise the current division technical focus and refine the division vision. The world is changing rapidly. There is a blurring of boundaries between disciplines and an increasing use of modern web-based technology for information dissemination. PMSE needs to respond to these changes or the Division risks losing its leadership position. If steps are not taken, PMSE will lose emerging markets and the new members associated with them. The Division will be less attractive to younger members and there will be an overall decrease in membership. This will result in a weakening of the organization as a viable entity. Currently the distinctions between PMSE and other divisions are becoming blurred, and the unique aspects of our division are not always apparent. The result of a lack of clear focus will be declining membership, declining funds, loss of valuable information to the web, and loss of people identifying with PMSE. This could lead to the weakening of our division and might necessitate the merger of the Division with POLY or other ACS divisions.

Future state of the division

We envision PMSE as an interdisciplinary community that is the premier home of professionals working within the technical areas that PMSE serves. The technical focus of a strong division draws members to the organization and its technical community develops as members interact with each other in meaningful ways. The Division must respond to the changing technical interests of current and potential members. In the future the division should focus more on applied materials science and should, for example, respond to the growth in biological materials (bio-inspired and bio-derived). It should focus less on classical polymer topics. This would be a seminal change in the division vision and mission. The division also should distinguish its activities from other divisions and should consider including more non-technical programming. PMSE needs to increase its marketing activities at regional/national meetings and universities and co-ordinate more effectively with other technical societies (domestic and international). These activities would allow for the incorporation of a more diverse set of members into the governance and running of the division. In order to enhance industrial membership at meetings, gain international recognition, launch innovative web technologies, and enhance the volunteer base, there should be a renewed focus on marketing, on changing global technical strategies, and on evaluation of member needs. The reach of the division will be increased through implementation of web-based technologies that will allow for member engagement and dissemination of information. The division should also establish more of a presence at regional and local meetings and encourage early career and student involvement.

With this future state in mind, we are working to implement the following Mission, Vision, and Strategic Goals.

Mission

PMSE is the Division of ACS that provides a forum for the exchange of technical information and fosters interactions in materials science and engineering for the global chemistry community.

Vision

Reaching out across technical, generational, and international boundaries to create the premier home of materials science and engineering for the global chemistry community.

Strategic Goals

Goal #1: Transform program content to capture emerging trends in materials science and engineering for the global chemistry community.

Goal #2: Create the premier interactive web portal in materials science and engineering for the global chemistry community.

Goal #3: Strengthen the chemistry community in materials science and engineering by fostering interactions and creating an enhanced global presence.

Film Formation in Coatings

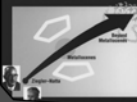
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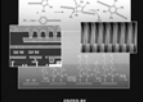
Beyond Metalloenes

Next-Generation Polymerization Catalysts



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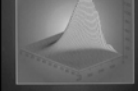
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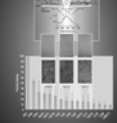
Polymeric Drug Delivery II

Polymeric Matrices and Drug Particle Engineering



Smart Coatings

Edited by Theodore Provder and Jamil Baghdachi



From ACS



POLYMERS FOR MICROELECTRONICS AND NANO-ELECTRONICS

Edited by QINGHUANG LIN, IBM T. J. Watson Research Center, China, RAYMOND A. PEARSON, Lehigh University, and JEFFREY C. HEDRICK, IBM T. J. Watson Research Center

Discusses patterning, insulating, and packaging polymeric materials for the \$150-billion microelectronics industry as well as the rapidly emerging nanoelectronics and organic electronics industries. Chapters discuss patterning, insulating, and packaging polymeric materials as well as organic materials for nanoelectronics, organic electronics, and optoelectronics. This book covers the synthesis, characterization, structure-property relationship, performance, and applications of these materials.

(ACS Symposium Series No. 874)
(An American Chemical Society Publication)

2004 352 pp.; 160 halftones & line illus.
978-0-8412-3857-2 \$145.00/\$95.70

BEYOND METALLOENES Next-Generation Polymerization Catalysts

Edited by ABHIMANYU O. PATIL and GREGORY G. HLATKY

The past 15 years have witnessed tremendous advances in the design and use of organometallic complexes as precatalysts for olefin polymerization. Most recently, an intense search has been started in next-generation single-site catalysts. This volume presents some of the recent disclosures in this exciting and rapidly expanding field, featuring papers by some of the leading investigators.

(ACS Symposium Series No. 857)
(An American Chemical Society Publication)

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FILM FORMATION IN COATINGS Mechanisms, Properties, and Morphology

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Fourteen papers cover three areas of film formation: Aspects of film formation mechanism, film property development in thermoplastic and crosslinkable systems, and the morphology and film structure of the resulting films.

(ACS Symposium Series No. 790)
(An American Chemical Society Publication)

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POLYMERS FOR BIOMEDICAL APPLICATIONS

Edited by ANIL MAHAPATRO

Research on applications of polymers for biomedical applications has increased dramatically to find improved medical plastics for this rapidly evolving field. This book brings together various aspects of recent research and developments within academia and industry related to polymers for biomedical applications.

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PARTICLE SIZING AND CHARACTERIZATION

Edited by THEODORE PROVDER and JOHN TEXTER, both at Eastern Michigan University

Particle Sizing and Characterization provides updated applications of particle size assessment including various light scattering methods, such as confocal microscopy, fractionation and ultracentrifugation methods, acoustic attenuation methods, and electro-kinetic-based techniques.

(ACS Symposium Series No. 881)
(An American Chemical Society Publication)

2004 308 pp.; 31 halftones, 14 color & 111 line illus.
978-0-8412-3859-6 \$149.50/\$89.70

SMART COATINGS

THEODORE PROVDER, Botnat, and JAMIL BAGHDACHI, Eastern Michigan University

Over the past 25 years coatings technologies have been influenced by the need to lower volatile organic contents (VOC) in order to comply with stricter environmental regulations as well as to reduce the use of costly petroleum based solvents. Alternative technologies in the industrial and OEM sectors that include powder coatings, uv-curable coatings and high solids coatings have had significant growth. Traditionally these coatings had the primary functions of protecting and decorating substrates. More recently, there has been growth in research and development and commercial product generation of coatings which have novel functions and sense and interact with their environment in addition to having the traditional protection and decoration functions. These coatings are often referred to as Smart Coatings.

(ACS Symposium Series 957)
(An American Chemical Society Publication)

2007 202 pp.; 11 halftones, 63 line illus.
978-0-84-127429-7 \$165.00/\$99.00

MULTIPLE DETECTION IN SIZE-EXCLUSION CHROMATOGRAPHY

Edited by ANDRÉ M. STRIEGEL, The Florida State University

Multiple Detection in Size-Exclusion Chromatography provides a comprehensive view of detection techniques that are used synergistically in size-exclusion chromatography (SEC). These techniques include differential refractometry; static and dynamic light scattering; differential viscometry; fluorescence, ultraviolet, infrared, and nuclear magnetic resonance spectroscopy; electrospray ionization, matrix-assisted laser desorption ionization, chemical reaction interface, inductively coupled plasma, and tandem mass spectrometry; and dynamic surface tension. This book shows how these techniques provide useful molar mass, architectural, compositional, and thermodynamic information whether SEC is used as the sole separation method or as part of a two-dimensional chromatographic set-up.

(ACS Symposium Series No. 893)
(An American Chemical Society Publication)

2004 362 pp.; 2 color & 111 b/w illus.
978-0-8412-3878-7 \$135.00/\$81.00

STIMULI-RESPONSIVE POLYMERIC FILMS AND COATINGS

Edited by MAREK W. URBAN, University of Southern Mississippi

Science of the stimuli-responsive materials, and in particular polymers and coatings play a key role in the developments of future technologies and new knowledge in this field. The book provides the highlights for newcomers as well as a comprehensive review for experienced practitioners of the recent advances to stimuli-responsive polymeric films and coatings. This book is a must to those involved in the growing field of nanotechnologies of stimuli-responsive polymers.

(ACS Symposium Series No. 912)
(An American Chemical Society Publication)

2005 268 pp.; 27 halftones, 83 line & 9 color illus.
978-0-8412-3932-6 \$139.50/\$83.70

NEW DEVELOPMENTS IN COATINGS TECHNOLOGY

Edited by PETER ZARRAS, Naval Air Warfare Center Weapons Division, U.S. Navy, BRIAN C. BENICEWICZ, Rensselaer Polytechnic Institute, TIM WOOD, Botnat, and BROUGH RICHEY, Rohm And Haas Company

The scope of this book covers all aspects of coatings: anti-fouling, anti-corrosion, specialty coatings and testing methods for coatings. This ACS symposium book is focused on polymer synthesis, materials development, advanced applications for coatings and techniques for measuring a coatings performance in various environments. This book addresses current coating technologies geared for an organic-polymer chemist and chemical engineers perspective.

(ACS Symposium Series 962)
(An American Chemical Society Publication)

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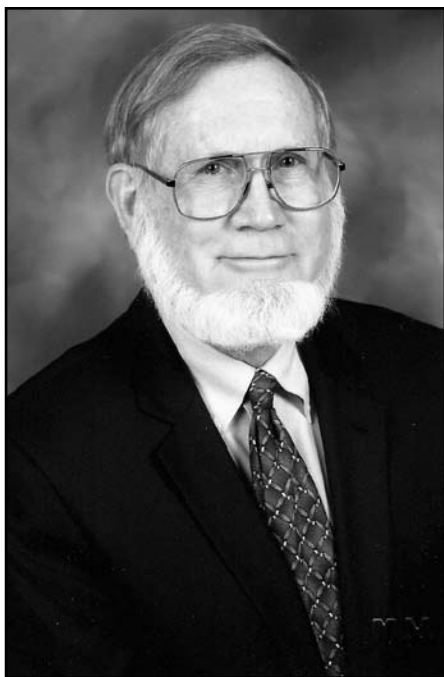
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Clifford K Schoff Named Winner of Roy W. Tess Award in Coatings



Dr. Clifford K. Schoff

Dr. Clifford K. Schoff, formerly of PPG Industries and now a private consultant, will receive the Roy W. Tess Award in Coatings for 2008. The announcement was made by the Officers and the Award Committee of the PMSE Division.

Dr. Schoff is recognized as one of the world's leading experts in the area of coatings defects, electropaint-substrate interactions, paint flow and rheological measurements, mechanical properties and cure of coatings. He has contributed over 40 papers, articles and chapters to the coatings literature and recently published his 40th one-page "Coatings Clinic" in JCT Coatings Tech.

Dr. Schoff has led ASTM Subcommittee D.01.24 on Physical Properties of Liquid Paints for over 20 years, has written numerous ASTM test procedures and has championed the use of ASTM standards. He currently is Secretary of ASTM Committee D01 on Paints and Related Coatings, Materials and Applications. Dr. Schoff is Chair of the Federation of Societies for Coatings Technology (FSCT) Publications Committee, a member of the Editorial Review Board, one of the technical editors of the Journal of Coatings Technology and Research and is active in the Pittsburgh Society for Coatings Technology.

Dr. Schoff began his college education in Engineering at the College of Marin, Kentfield, California. He then transferred to the University of Idaho, Moscow, Idaho where he received B.S. and M.S. degrees in Chemistry in 1962 and 1964, respectively. From 1964-1967, he served in the United States Peace Corps as a secondary school science teacher and sports coach in Ibadan, Nigeria. He earned his Ph.D. in Chemistry from the University of St. Andrews, St. Andrews, Scotland in 1971 with a thesis on photodegradation of methacrylates. He was a Postdoctoral Fellow at Glasgow University, 1970-72, studying thermal degradation

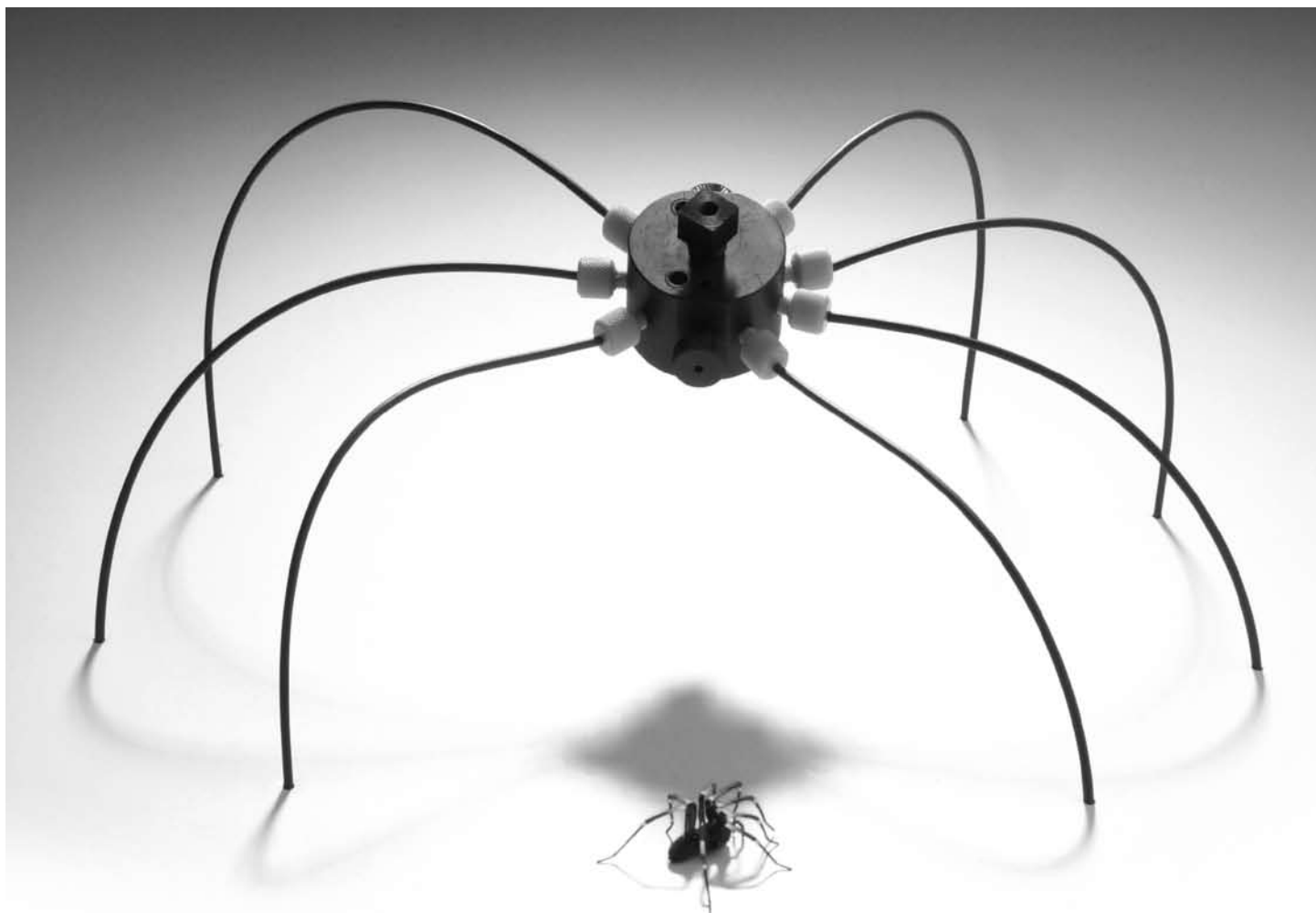
of polymers. He returned to the U.S. to be on the Research Staff in Chemical Engineering at Princeton University from 1972-1974 and led research on thermal and mechanical properties of polymers of interest to the military, NASA and the aerospace industry. From 1974 to 2002, Dr. Schoff worked for PPG Industries Inc. at the Allison Park, PA Coatings & Resins Research Center in the Physical Chemistry Group. Since 2002, he has worked on special projects for PPG Industries and has done private technical and legal consulting.

Dr. Schoff's main research interests have involved physical testing and measurement and their application to solving product and process problems and to developing new products, primarily in industrial and automotive coatings. Late in his career at PPG, he gained valuable practical experience in working to improve appearance and reduce dirt and other defects at automobile and motorcycle plants. He has developed lectures on surface defects, failure analysis, cure, rheological measurements, corrosion, pigment dispersion, surface preparation, optical microscopy and other related topics and presented these lectures world-wide (North America, South America, Europe, Asia) for PPG Industries Inc., FSCT and privately. He has taught short courses for FSCT, the Sociedad Argentina de Tecnólogos en Recubrimientos and at many universities including University of Wisconsin-Milwaukee, Kent State University, University of Southern Mississippi, University of São Paulo and North Dakota State University.

Dr. Schoff has received numerous awards for his research and development efforts. He has received the ASTM William T. Pearce Award for outstanding contributions to the science of testing paint and paint materials (1987) and the ASTM Award of Merit for distinguished service to ASTM and the cause of voluntary standardization (1992). From the FSCT, Dr. Schoff has received the 1998 Mattiello Lecture Award, FSCT's highest technical award.

Dr. Schoff will receive the Tess Award from Dr. Dean Webster, Chair of the PMSE Division, on Monday, August 18, 2008 during the 236th National ACS Meeting in Philadelphia, PA. Dr. Schoff will present an Award Address at that time. An evening reception sponsored by the PMSE Division will follow the Award Symposium.

The Tess Award is presented annually by the Division of Polymeric Materials: Science and Engineering in recognition of outstanding contributions to coatings science and technology. It is funded by a grant to the Division from Dr. and Mrs. Roy W. Tess. The purpose of the award is to encourage interest and progress in coatings science technology and engineering and to recognize significant contributions to the field. The Award consists of a plaque and a \$2000 cash prize. For further information, please contact Dr. Theodore Provder, Chairman, Tess Award Committee, tel 440-235-3680, e-mail: tprovder@cox.net



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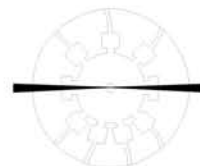
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2007 ICI STUDENT AWARD IN APPLIED POLYMER SCIENCE

The Division is pleased to announce that Kelly A. Burke is the winner of the 2007 ICI Student Award in Applied Polymer Science. This Award, which is sponsored by ICI and administered through the Joint Polymer Education Committee of the ACS PMSE and POLY Divisions, is given annually for the best paper presented at the ICI Award Symposium as part of the PMSE program at the Fall ACS Meeting.

Ms. Burke is a Ph.D. candidate at Case Western Reserve University where her advisor is Professor Patrick T. Mather. The title of her paper, which was presented at the recent Fall ACS Meeting in Boston, Massachusetts, was "Liquid Crystalline Co-Elastomers Displaying One Way Shear Shape Memory".

The other finalists who presented papers at the Award Symposium were: **Scott T. Iacono** (Clemson University); **Srivatsan Kidambi** (Michigan State University); **Paul Podsiadlo** (University of Michigan); **Rodney D. Priestley** (Northwestern University); and **Yan Yao** (University of California, Los Angeles).

The Award, consisting of \$1600 and a plaque, will be presented to Ms. Burke at the PMSE Awards Reception at the Spring 2008 ACS Meeting in New Orleans, Louisiana.

Applications are invited for the 2008 ICI student award. Graduate students, either currently in graduate school or not more than one year beyond graduation, are invited to submit a research paper for presentation at the 2008 Fall ACS Meeting in Philadelphia, Pennsylvania. The paper should conform to the preprint format of the PMSE Division and be commensurate with the regulations and customs of papers presented in PMSE/ACS programs. Up to six finalists are normally selected based on scientific merit of the submitted papers. Out-of-pocket expenses up to \$750 will be available to each finalist to attend the ACS meeting and present his/her paper in the ICI Student Award Symposium within the PMSE program. The paper must be given by the student, not by the co-author/thesis advisor. The awardee will be chosen by an anonymous evaluation committee that will audit the presentations. In addition to the \$1600 prize, all finalists will receive a one-year complimentary membership in the PMSE Division.



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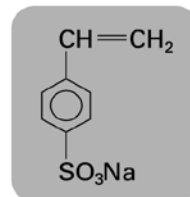
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Distinguished Service Award



The recipient of the 2007 Distinguished Service Award, given by the ACS PMSE Division, is Dr. David J. Lohse. Dr. Lohse has been a member of the PMSE Division for nearly 30 years, and he has served it in several capacities over the past 20 years.

He organized several symposia for PMSE in various areas of polymer chemistry and physics, covering topics such as polymer interfaces, scattering from polymers, compatibilization, and the miscibility of polymers. Dr. Lohse served as PMSE Program Chair from 1991-94, Secretary in 1995, and then progressed through the offices to become Chair in 1998. He served as the initial chair of the PMSE Fellows Committee in 1999, continuing in that capacity until 2003. Since 2003 he has been a Councilor for PMSE, and has been a member of the Divisional Activities Committee of ACS.

Dr. Lohse received B.S. degrees in both Physics and Computer Science from Michigan State University in 1974, and a Ph. D. in Materials Science from the University of Illinois in 1978. He then spent two years at the National Bureau of Standards (now the National Institute of Standards and Technology) in Gaithersburg, MD under an NSF-NRC Fellowship, working on the theory of polymer solutions with Isaac Sanchez.

Since then he has worked for Exxon Mobil Corporation, first in the Long Range Polymer Research Group of Exxon Chemical Co. Since 1987 he has worked in what are now the Corporate Strategic Research Labs of ExxonMobil Research & Engineering Co. in Annandale, NJ., now holding the position of Distinguished Research Associate.

His current research focuses on polymer crystallization, nanocomposites, the thermodynamics of mixing polymer blends, neutron scattering from polymers, the control of rheology by molecular architecture, the use of block and graft copolymers to enhance blend compatibility, and the application of such knowledge to develop improved polymer products. His research has resulted in over 100 publications (including a book on "Polymeric Compatibilizers" written in 1996 with Sudhin Datta of ExxonMobil Chemical Co.) and 21 US patents. He was elected a Fellow of the American Physical Society in 2000, and became a PMSE Fellow in 2005.

Chair's Message, Continued from p. 1

A particular advantage to members is that all preprints going back to 2001 are now available online to division members. We would eventually like to get all of the past preprints online and the executive committee is evaluating options for getting the paper preprints converted into electronic format. To access the online preprints, use the "Preprints Online" link on the PMSE website.

Our programming at national meetings continues to be strong, under the able direction of our program committee consisting of Abhi Patel, Christopher Soles, and Darrin Pochan. Darrin is rotating off of the program committee and has been replaced by Jeffrey Pyun. For the New Orleans meeting they have developed a great set of symposia for the meeting involving polymer interfaces and surfaces; adhesion science; plasticized polymers and highly concentrated solutions; drug delivery systems; fire and polymers; mechanical instabilities in polymer films, interfaces, and nanostructures; novel fluorophores: syntheses, properties, and uses; synthesis and self-assembly approaches to polymer hybrids and nanocomposites; and controlling cell functions through polymer synthesis and engineering. Do you notice the combination of more traditional PMSE topics and cutting-edge technology? Yes, we are moving ahead in new directions, but we continue to program in traditional areas that probably led you to join the division in the first place. As always, the program committee is open to suggestions for future symposium topics. You can contact any of the committee members to discuss your ideas.

Each year the Division honors our top scientists with awards, symposia, and a reception. The Cooperative Research Award symposium will be held in honor of the awardees Stephen Hahn, Dennis Hucul, Frank Bates, Glenn Fredrickson, and Edward Kramer. In addition, PMSE will host the ACS Award Symposium in honor of Anne Hiltner. The division's award winners will be honored at the joint PMSE/POLY Awards Reception on Monday evening.

Did you know that the Division has a business meeting each year at the Spring ACS meeting? At New Orleans, we will have the business meeting at 5 pm on Monday. This is in between the technical sessions and the reception. At the meeting we will talk in more detail about progress on the new strategic plan and the future directions of the division. Look for posters or ask at the PMSE table for the location of the meeting. We would love to see you there and get your input on the strategic plan.

As your chair, I would like to hear from you! Let me know what you think of the new strategic plan, the future of the preprints, and any other thoughts you might have regarding the current and future status of the division. I can be reached by email (dean.webster@ndsu.edu) or phone (701-231-8709) or you can grab me in between sessions at the New Orleans meeting.

2008 Cooperative Research Award

The 2008 winners of the Cooperative Research Award in Polymer Science and Engineering presented by the American Chemical Society's (ACS) Division of Polymeric Materials: Science and Engineering (PMSE) are Professor Frank S. Bates, University of Minnesota; Professors Glenn H. Fredrickson and Edward J. Kramer, University of California, Santa Barbara; Dr. Dennis A. Hucul, and Mr. Stephen F. Hahn, Dow Chemical Company. Professors David Schiraldi and Kurt Wiegel, Co-Chairs of the PMSE Cooperative Research Award Committee, announced the award, which is endowed by the Eastman Kodak Company, and has been presented annually since 1992.

This three-location team won the 2008 award for their highly productive and sustained collaborative efforts in the area of poly(cyclohexylene) (PCHE) block copolymers - thermoplastic materials that exhibit excellent optical transparency, high modulus and toughness, high glass transition temperatures, low moisture uptake and low birefringence. This class of polymers represents potentially breakthrough products for optical media, and components in advanced lighting, displays, and materials for precision molding applications. Research in this family of polymers began over fifteen years ago independently at Dow and the University of Minnesota. Dow developed catalytic technology necessary for the hydrogenation of polystyrene homopolymer, producing high quality material which Hahn and Hucul began to develop for optical media applications.



Prof. Frank S. Bates, U. Minnesota, (L),
Profs. Glenn H. Fredrickson (C) and
Edward J. Kramer (R), U. California, Santa Barbara

The University of Minnesota catalyst proved not to be commercially viable, but provided Bates with a variety of polymers, especially PCHE-polyethylene (PE) copolymers, which serves as the basis of future materials of interest. These two organizations joined forces in 1995. Bates joined the effort, as part of Dow's Technical Advisory board, working with Hahn to change the focus of the corporate research to PCHE block copolymer systems, then as a research collaborator in the team. Innovations in copolymer architecture followed, resulting in a PCHE-PE-CHE-PE-PCHE pentablock design. The hypothesis that the central PCHE block serves to bridge PE domains, increasing the effective entanglement and toughness of the materials was validated at Minnesota and Santa Barbara, with Kramer playing a major role in developing an understanding of the mechanisms of ductility in the new products.

In the current decade, the collaboration continues, and is playing an integral role with the much-expanded DOW R&T team, which is now moving this product line into the marketplace.



Dr. Dennis A. Hucul (L) and Mr.
Stephen F. Hahn (R),
Dow Chemical Co.

Professor Frank Bates, Distinguished McKnight Professor and Head of Chemical Engineering and Material Science at the University of Minnesota, is internationally known for his work in thermodynamics, dynamics, physics and chemistry of Polymers. Professor Glenn H. Fredrickson, Department of Chemical Engineering, University of California, Santa Barbara, is internationally known for his work in relaxation phenomena, microphase separation, statistical mechanics and thermodynamics, phase transitions, and structure-property relationships in polymers. Professor Edward Kramer, Department of Materials and Chemical Engineering, is internationally known for polymer thin films, interfaces, ordering and other properties of block copolymers, and incorporation of nanoparticles into polymeric systems.

Industrial Collaborator, Stephen Hahn, Senior Research Scientist, Dow Performance Business Development Group holds over 30 issued U.S. patents and 30 refereed journal papers, has contributed numerous conference proceedings and textbook/reference book chapters, and was named Dow Chemical Inventor of the Year in 1990 and 1996, among many honors. Dennis Hucul spent almost 25 years with the Dow Chemical Company before becoming a consultant to the industry, and holds 21 U.S. patents and 20 journal publications, and was the 2004 Giuseppe Parravano award for Excellence in Catalysis Research and Development.

The award, which includes a \$3,000 prize, will be presented at PMSE's awards reception and will be recognized by the Cooperative Research Award Symposium at the 235th American Chemical Society meeting in New Orleans, Louisiana (April 2008).

50th ANNIVERSARY SYMPOSIUM OF THE DISCOVERY OF POLYMER SINGLE CRYSTALS

Held at the ACS National Meeting, Boston, 19-22 August 2007

Organizers - Stephen Z. D. Cheng and Andrew J. Lovinger

A recap by Peggy Cebe

At the August 2007 ACS National meeting in Boston, a very special symposium was organized by Stephen Cheng and Andy Lovinger. The symposium, titled "50 years of polymer single crystals - A look back, current discoveries, and future opportunities," brought together scientists from industry and academia to discuss the profound progress that has occurred over the last 50 years in understanding polymer crystals. The symposium included a historical review of the discovery of polymer single crystals, novel observations in polymer single crystal structures and morphologies, semi-crystalline polymers in hybrids and heterogeneous systems, crystalline polymers under external fields and in nano-confinements, polymer crystallization: theories and experiments, and structure-property relationships and their industrial applications. Today, polymer crystal physics is a mature core component of Polymer Science and Engineering taught in universities and research institutes and is a key to the success of the next generation of polymer scientists. These fundamental understandings have had a tremendous impact on industry, economics, and human lives.

A very important event of this symposium was a panel discussion for the future direction of fundamental studies and technological applications in this area. The symposium attracted a large number of attendees (see the accompanying picture of the invited speakers and organizers) and members of the audience. The symposium was supported by the Air force, the Petroleum Research Fund and the PMSE Division.

50th ANNIVERSARY SYMPOSIUM OF THE DISCOVERY OF POLYMER SINGLE CRYSTALS

Stephen Z. D. Cheng and Andrew J. Lovinger, Organizers

American Chemical Society Meeting, Boston, 19-22 August 2007



1: Darrell Reneker (U. Akron); 2: Robert Prud'homme (U. Montreal); 3: Phil Geil (U. Illinois); 4: Gert Strobl (U. Freiburg); 5: Bernard Lotz (ICS, CNRS, Strasbourg); 6: Akihiko Toda (Hiroshima U.); 7: Buck Crist (Northwestern U.); 8: Haopeng Wang (Case Western); 9: Rufina Alamo (Florida A&M U.); 10: Rick Register (Princeton U.); 11: Andy Lovinger (NSF); 12: Bernhard Wunderlich (U. Tennessee); 13: Christoph Schick (U. Rostock); 14: Matthias Ballauff (U. Bayreuth); 15: Peggy Cebe (Tufts U.); 16: Hendrik Meyer (ICS, CNRS, Strasbourg); 17: Kohji Tashiro (Toyota Tech Inst.); 18: Daniel Alcazar (MIT); 19: Ben Hsiao (SUNY Stonybrook); 20: Hyun Hoon Song (Hannam U., Korea); 21: Greg Rutledge (MIT); 22: Jerry Schultz (U. Delaware); 23: Lei Zhu (U. Connecticut); 24: Lekshmi Kailas (U. Sheffield); 25: Freddy Khoury (NIST, NSF); 26: Ned Thomas (MIT); 27: Dave Martin (U. Michigan); 28: Rong-Ming Ho (National Tsing Hua U.); 29: Stephen Cheng (U. Akron); 30: Sanjay Rastogi (Loughborough U.); 31: Claudio De Rosa (U. Naples); 32: Tom Russell (U. Mass. Amherst); 33: Julie Kornfield (Caltech); 34: Peter Dias (Case Western); 35: Chris Li (Drexel U.).

Who's Who in PMSE 2008

CHAIR

Dean Webster

North Dakota State University
(701) 231-8709 dean.webster@ndsu.edu

VICE CHAIR

Julie L.P. Jessop

University of Iowa
(319) 335-0681 julie-jessop@uiowa.edu

CHAIR ELECT

E. Bryan Coughlin

University of Massachusetts
(413) 577-1616 coughlin@mail.pse.umass.edu

SECRETARY

David Schiraldi

Case Western Reserve University
(216) 368-4243 das44@po.cwru.edu

PAST CHAIR

Elliot P. Douglas

University of Florida
(352) 846-2836 edoug@mse.ufl.edu

TREASURER

Todd Emrick

University of Massachusetts
(413) 577-1613 tsemrick@mail.pse.umass.edu

COUNCILORS

RAY A. DICKIE

(919) 563-9617 rdickie@mebtel.net

ALTERNATE COUNCILORS

CHARLES E. CARRAHER

Florida Atlantic University
(561) 297-2107 carraher@fau.edu; carrahercm@bellsouth.net

MICHAEL JAFFE

New Jersey Institute of Technology
(973) 596-6497 jaffe@adm.njit.edu

CLARA D. CRAVER

(573) 358-2589 clara@irspectroscopy.com

DAVID J. LOHSE

ExxonMobil Research & Engineering Co.
(908) 730-2541 david.j.lohse@exxonmobil.com

BENNY D. FREEMAN

University of Texas at Austin
(512) 232-2803 freeman@che.utexas.edu

THEODORE PROVDER

Polymers and Coatings Consultants
(440) 235-3680 tprovder@cox.net

FRANK N. JONES

(313) 769-5296 frankjones@comcast.net

MEMBERS AT LARGE (2007-2009)

Jamil Baghdachi * Eastern Michigan University * jamil.baghdachi@emich.edu

Zhenan Bao * Stanford University * zbao@stanford.edu

Timothy J. Bunning * Air Force Research Laboratory * timothy.bunning@wpafb.af.mil

James Rawlins * University of Southern Mississippi * james.rawlins@usm.edu

Stuart Rowan * Case Western Reserve University * sjr4@case.edu

Debra Tindall * Eastman Chemical Company * dtindall@eastman.com

MEMBERS AT LARGE (2008-2010)

Lisa Saunders Baugh * ExxonMobil Research & Engineering Co. * lisa.s.baugh@exxonmobil.com

John W. Gilmer * King College * jwgilmer@king.edu

David Martin * University of Michigan * milty@engin.umich.edu

Leslie H. Sperling * Lehigh University * lhs0@lehigh.edu

Richard A. Vaia * Air Force Research Laboratory * richard.vaia@wpafb.af.mil

Visit the PMSE Website for full list of Executive Committee and for complete contact information
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PMSE News Team

Prameela Susarla

(Editor)

General Electric Company
Global Research Center
CEB 2577
1 Research Circle
Niskayuna, NY 12309
(518) 387-4505
susarla@research.ge.com

Lisa S. Baugh

(Books)

ExxonMobil Research & Engineering Co.
Corporate Strategic Research Laboratories
Route 22 East
Annandale, NJ 08801
(908) 730-2240
lisa.s.baugh@exxonmobil.com

Peggy Cebe

(Features)

Dept. of Physics & Astronomy
Tufts University
Science and Technology Center
4 Colby Street, Room 208
Medford, MA 02155
(617) 627-3365
peggy.cebe@tufts.edu

Patrick Malenfant

(Advertising)

General Electric Company
Global Research Center
K-1, 4D45
1 Research Circle
Niskayuna, NY 12309
(518) 387-7212
malenfant@research.ge.com



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