American Institute of Chemical Engineers

Materials Engineering and Sciences Division Newsletter

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http://www.mesdiv.aiche.org/

Notes from the Chair

It is my pleasure to present to you our annual MESD Election Issue, which contains biographical information on this year's candidates for the positions of Second Vice-Chair, and Director. As you'll see, we are fortunate to have an outstanding group of individuals who have indicated their willingness to serve in these positions. Each candidate has had prior involvement with various aspects of MESD program activities and, regardless of the outcome of the election, I am confident that the future of the Division will be in very capable hands. MESD members can vote directly on-line by visiting http://www.aiche-xtranet.org/divisions/. Enter division code "MES". The election website is scheduled to be open from August 25th to September 15th.

Final planning is currently underway for the AIChE Annual Meeting in Austin, TX, November 7-12th. Programming chair Alon McCormick and the area chairs have done an excellent job in assembling an exceptionally strong technical program that encompasses over 90 sessions sponsored or co-sponsored by the Division. One of the meeting's highlights will be the presentation of the Charles M.A. Stine Award to Professor John Torkelson of Northwestern University. Dr. Torkelson will have an opportunity to present his work at the Division Plenary Session to be held in his honor on Wednesday, November 10th. In addition to Dr. Torkelson's plenary lecture, *"Polymers at the Nano-level: Studies of Nanoscale Heterogeneity, Nanoconfinement Effects, and Novel Processing of Nanocomposites"*, there will be invited papers presented by Prof. Matthew Tirrell, Prof. Don Paul, Prof. Jonathan Dordick, and Prof. Stacey Bent.

Finally, if you attend the Austin meeting, I would like to encourage you to take part in our program planning for the 2005 and 2006 Annual Meetings. Programming meetings for each of the materials areas (polymers, biomaterials, ceramics, electronic materials, and composites) are scheduled for Tuesday evening, November 9th, 6:00 – 7:30 PM. These meetings are open to all interested individuals and are a great way to get involved in the future programming of the Division.

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INSIDE *this issue:*

The Division is pleased to announce this year's recipient of the Charles M.A. Stine Award: **Prof. John Torkelson**, the Walter P. Murphy Professor of Chemical Engineering and of Materials Science and Engineering at Northwestern University. Prof. Torkelson received his B.S. degree in Chemical Engineering from the University of Wisconsin, and his Ph.D. from the University of Minnesota. He has been on the faculty at Northwestern since 1983, and served as the Associate Dean for Graduate Studies and Research in the McCormick School of Engineering from 1997 to 2002. He has been recognized as a NSF Presidential Young Investigator, and as a Fellow of the American Physical Society. John served as Chair of the Materials Engineering and Sciences Division in 2001-2002.


Prof. Torkelson

The Stine Award will be presented at a plenary session held in Prof. Torkelson's honor on Wednesday morning, November 10th, at the Annual Meeting in Austin, TX. For more information on the C.M.A. Stine Award, please see the Division website.

The ELECTION SLATE: FALL 2004

Candidates for Position of Second Vice-Chair (vote for one):

Brian S. Mitchell is Professor of Chemical and Biomolecular Engineering at Tulane University in New Orleans, Louisiana. He is also Associate Director of the Tulane Institute for Macromolecular Engineering and Science (TIMES). He graduated with High Distinction with a B.S. in Chemical Engineering from the University of Illinois-Urbana in 1986, and received his M.S. and Ph.D. degrees in Chemical Engineering from the University of Wisconsin-Madison in 1987 and 1991, respectively. His research experiences include an NSF-NATO Postdoctoral Fellowship at the University Karlsruhe, a German Academic Exchange Fellowship at the University of Freiberg/Sachsen and the German Federal Materials Laboratory, and most recently, an Alexander von Humboldt Research Fellowship at the German Aerospace Agency in Cologne. He has also served as an industrial consultant to ExxonMobil, Laitrum, Inc. and LLB, Inc. Activities within AIChE have included Editor of the AIChE/MESD Newsletter; Chair of the AIChE New Orleans Local Section; Chair of the AIChE 2004 Spring National Meeting General Arrangements Committee; and session chair.

Nanostructured materials and materials processing are Brian's primary research areas of interest. In particular, his research focuses on structure-property relationships in novel hybrid organic-inorganic nanocomposites, and high temperature structural materials. The formation of nanoparticles via a top-down, mechanical attrition process is currently being studied, as is subsequent nanoparticle consolidation in a near net-shape manufacturing process to form highly interfacial hybrid composites. In this way, new electronic, separation and structural materials are created with novel bulk properties. In the process, the fundamentals of surface forces, particle agglomeration and diffusion through nanostructured materials are investigated. Brian has authored over 35 peer-reviewed journal articles, 3 peer-reviewed conference proceedings, and one U.S Patent in these areas. He is also the author of a textbook entitled "*Materials Engineering and Science for Chemical and Materials Engineers*" that is published by John Wiley and Sons. In addition, he has given over 30 national and international presentations, including a dozen presentations to Louisiana elementary school children though the state's "Speaking of Science" program.

As Second Vice-Chair, Brian would continue the strong tradition MESD has in the area of programming for the Fall Annual Meeting, and seek ways to expand this high-visibility activity to sessions at the Spring Meeting. In keeping with AIChE's plans to strengthen ties with sister organizations such as ACS, and partner with publishers such as Wiley, Brian would work to establish concrete collaborations with other materials-related societies and lead MESD into ventures which facilitate publication of conference proceedings.

Christine E. Schmidt received her B.S. degree in Chemical Engineering from the University of Texas at Austin in 1988 and a Ph.D. in Chemical Engineering from the University of Illinois at Urbana-Champaign in 1995, where she studied with Douglas Lauffenburger. She was an NIH postdoctoral research fellow in Chemical Engineering at MIT for 18 months with Robert Langer. Christine joined the faculty at the University of Texas at Austin in June of 1996. Christine is currently the Lawrence E. McMakin Jr. Associate Professor of Biomedical Engineering and Chemical Engineering at The University of Texas at Austin, and is a member of the Texas Materials Institute, the Center for Nano- and Molecular Sciences and Technology, the Institute for Neurosciences, and the Institute for Cell and Molecular Biology.

Christine's current research interests are in the area of biomaterials for wound healing, cell-material interfaces, nerve repair technologies, and electronic communication with neurons. In particular, she and her students are developing new biomaterials and biomaterial composites that can be used as nerve conduits to physically guide and stimulate regenerating nerves. In addition, her group is also investigating neuron-electronic interfacing using small semiconductor nanoparticles as a means to ultimately develop new bioprosthetics. Christine has published numerous peer-reviewed manuscripts and authored several book chapters and invited review articles on the topics of nerve injury and repair.

Christine's honors include an NSF CAREER Award and a number of college and university teaching awards. She has been a selected participant in the National Academy of Engineering "Frontiers of Engineering" Symposium and has served as a member of the advisory workshop for the National Research Council on "Challenges for the Chemical Sciences in the 21st Century: Health & Medicine". She currently serves on the Editorial Board for the *Encyclopedia of Biomaterials and Biomedical Engineering*.

Christine has been active in AIChE since 1993. She has served as the programming vice-chair and chair of Area 8b, and is a co-organizer (with Nicholas Peppas, Kristi Anseth and Angela Dillow) of the Topical Conference on "Advances in Biomaterials, Bionanotechnology, Biomimetic Systems and Tissue Engineering" for the upcoming Fall Annual Meeting in Austin. She has chaired and co-chaired a number of sessions in areas 8b and 15d/e. Christine has also been active in a number of other societies including BMES, MRS and ACS.

As Second Vice-Chair, Christine plans to promote the visibility of MESD with other groups in AICHE and externally to foster the integration of materials into "mainstream" Chemical Engineering. She will work to secure jointly sponsored sessions and topical conferences that will support the interdisciplinary nature of materials science research.

Candidates for Position of Director (vote for two):

Stacey F. Bent is Associate Professor of Chemical Engineering at Stanford University. She received her B.S. degree in Chemical Engineering from the University of California, Berkeley in 1987, and her Ph.D. in Chemistry from Stanford University in 1992. In 1992, Bent joined AT&T Bell Laboratories as a postdoctoral fellow, and from 1994 to 1998 was Assistant Professor of Chemistry at New York University. In 1998, Bent moved to Stanford University. In addition to her appointment in Chemical Engineering, she is also an Associate Professor, by courtesy, in the Departments of Chemistry, Materials Science and Engineering, and Electrical Engineering.

Professor Bent's research activities focus on electronic materials processing and semiconductor surface chemistry. She and her group have been actively exploring new approaches for surface functionalization, methods for area selective atomic layer deposition, and studies of organic electronic materials. In addition, she has a growing effort in surface patterning for control of cell growth and development of retinal prostheses.

Prof. Bent is the recipient of the CAREER Award from the National Science Foundation, the Peter Mark Award from the American Vacuum Society, and the Coblentz Award for molecular spectroscopy. She has also been named a Beckman Young Investigator, a Camille Dreyfus Teacher-Scholar, and a Cottrell Scholar.

She has been active in several profession societies, including AIChE, AVS, and ACS. Prof. Bent has served as both Division Chair and Program Chair for the Surface Science Division of the AVS, and has been a Continuing Symposium Chair for the Division of Colloid and Surface Chemistry of the ACS. In AIChE, she has organized and chaired MESD sessions, and hopes to have the opportunity for further involvement in AIChE as an MESD director.

Peter (Pete) J. Ludovice received his B.S. and Ph.D. in Chemical Engineering from the University of Illinois and M.I.T., respectively. After postdoctoral research at the ETH-Zürich, IBM and NASA, Pete spent two years managing the production of materials simulation software for Molecular Simulations Inc. (now ACCELRYS Inc). He joined the faculty of the School of Chemical and Biomolecular Engineering at Georgia Tech in 1993 and is currently an Associate Prof. with a joint appointment in the Bioengineeirng Program. During his tenure at Georgia Tech Pete has focused his efforts on using molecular simulation to elucidate structure property relationships in synthetic and biological macromolecules of commercial interest. As such, his research is highly collaborative with companies such as Hoechst Celanese, BF Goodrich, Promerus, Halliburton and IBM. He has also focused his research on education, pioneering the use of on-line collaborative tools in the Chemical Engineering curriculum at Georgia Tech and giving numerous workshops and short courses in polymer science and polymer simulation through AIChE and other professional societies. Pete has been active in Materials Engineering and Sciences Division (MESD) and the Computational Molecular Science and Engineering Forum (COMSEF) of AIChE. Over the past decade he has chaired numerous technical sessions in those divisions and organized the MESD student poster contest. For the last three years he has served as webmaster for the MESD website. His involvement in the website and the student poster contest has afforded him the opportunity to attend MESD board meetings and interact with the Directors over the last six years. During that time he has observed the effort of a number of Directors to make MESD more responsive to the membership of MESD. As a Director he intends to continue that trend by reducing the distance between the MESD academic and industrial members who sometimes partition their focus between the Spring and Fall National meetings. He has participated in similar activities as a board member of the Plastics Analysis Division of the Society of Plastics Engineers and is confident that a greater synergy between industrial and academic members in MESD will result in benefits to both groups.

Richard A. Register received his B.S. (Chemistry, Chemical Engineering) and M.S. (Chemical Engineering Practice) degrees from MIT, and his Ph.D. in Chemical Engineering from the University of Wisconsin in 1989 (with Stuart L. Cooper). Rick joined Princeton in 1990, where he is currently Professor in the Department of Chemical Engineering and the Princeton Institute for the Science and Technology of Materials, and also serves as Associate Director for the NSF-funded Princeton Center for Complex Materials. His research interests revolve around micro- and nanostructured polymers, such as block copolymers, polymer blends, semicrystalline polymers, and ionomers. His work on such materials has spanned from polymer synthesis, to morphological characterization, to applications in areas ranging from packaging film to electroluminescent devices. A particular interest is in the design of self-assembling materials, where a desired mesoscale structure can be built into the molecule during synthesis to achieve robust control of material properties. Rick has been honored as an NSF Young Investigator, a DuPont Young Professor, a Fellow of the American Physical Society, and as the MESD 2002 Stine Awardee.

Rick brings to the Director's position a wealth of experience both within AIChE/MESD as well as with allied professional societies, including ACS (where he previously served as Technical Program Co-Chair for the Polymeric Materials Science and Engineering Division) and APS (where he currently serves as Chair of the Division of Polymer Physics). In these capacities, he has been able to observe and influence trends in technical programming and member educa-

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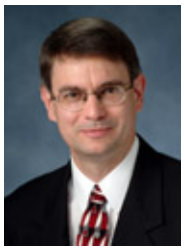
Register (*continued*)

tion within these societies, and hopes to bring the "best practices" with him as MESD Director. As the technical areas in which chemical engineers work continue to diversify, it is essential that MESD position itself as a programming leader in emerging materials areas (such as nanomaterials), including synergistic joint programming with other divisions.

Candidate for Position of Secretary/Treasurer:



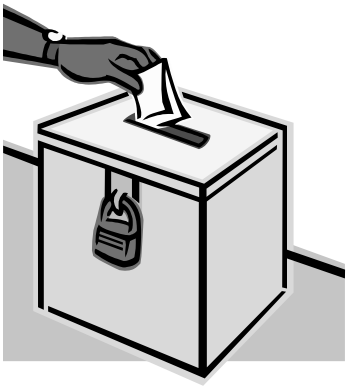
Stevin H. Gehrke is Professor of Chemical and Petroleum Engineering at the University of Kansas. He received his B.S. from Kansas State University (1980), and his M.S. and Ph.D. degrees from the University of Minnesota (1983; 1986), all in Chemical Engineering.

Steve has served as the Secretary/Treasurer of the Materials Engineering and Sciences Division since 1993.

MESD Members can vote at the AIChE electronic voting site: http:// www.aiche-xtranet.org/divisions/

The Division code required for log-in is "MES".

The election period will be August 25th through September 15th.



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