



***Professor Robert K. Prud'homme,
Princeton University, is the 2006 Turner
Alfrey Visiting Professor at Michigan
Molecular Institute. See page 3.***

THE MIDLAND CHEMIST

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In This Issue...

Chair Column: Summer—A Busy Time for Midland Section	1
CMU Students Honored by National ACS	2
MMI Announces 2006 Turner Alfrey Visiting Professor Course	3
Midland Section Members Help with SPE Classroom Demonstrations	5
SPE/ACS/ASM/AICHe Joint Technical Society Dinner Meeting	6
Graphene Nano Sheets as a New Material for Polymer Composites	6
Call for Posters: 2006 Fall Scientific Meeting	7
Company Profile: Raven Analytical Laboratories Provides Professional Water Testing	8
CMU Undergraduate Chemistry Major Presented Study at Posters on the Hill	9
Midland Section Director Attends ACS Legislative Summit	10
Call for 2007 Officer Candidates	14
Midland Section and MCFTA Join Forces for Earth Day 2006	15
Call for Nominations	16
2006 Midland Section Awards	16
A Thank You to Science Literacy from Tawas	18
Councilor Howell Reports on 231st National ACS Meeting	19
In Past Issues of <i>The Midland Chemist</i>	21
Important Dates on the ACS Midland Section Calendar	22

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Chair Column

Summer—A Busy Time for Midland Section

Now here's why most of us love living here—the Michigan summer! (Apologies for any snowfall between now and the time this goes to press.) And what a summer we have in store for you!

First off, though, I hope you were able to join us at our first Earth Day celebration at the Midland Center for the Arts, held on April 22, 2006, and co-sponsored by the Alden B. Dow Museum of Science and Industry. What a turn-out! We handed out over 200 white pine seedlings, mini-terrariums, and compost-based seed starter kits and had well over 500 visitors for the afternoon (see pg. 15 for photos). A wide variety of booths and exhibits greeted our fellow celebrants, including:

- Nancy Brooks-Siebert and the Alden B. Dow Museum of Science and Art (with a variety of snazzy door prizes including free art classes!).
- Yours truly and Dr. Melinda H. Keefe and the Midland Section of the ACS.
- Pat Smith for the Michigan Corn Growers Association.
- Wendy Klein and John Blizzard for Raven Analytical and their cool mini-terrariums.
- Jim Gaul representing the North Midland Family Center.
- Will Sears and Jeff Sugden for Pheasants Forever.
- Esther Seaver and her kids for Midland Volunteers for Recycling (with great CD-based dream-catchers!).
- Joel Kern and Joel Kraenzlein with the ACS Younger Chemists Committee and the Midland Landfill with information on worms, composting, and compost-based seed-starters.
- Phil Swarton, professional forester, with nifty tree info. (He really got the kids into the act!)
- Ben Franklin of the Midland Master Gardeners with expert advice.
- The Children's Zoo @ Celebration Square and their tarantula.

Visitors were greeted with a wide variety of information, interaction, engagement, and freebies, and Harold Nicoll and crew from Dow TV were there to cover the event. Additionally, Bruce Winslow and the Center have graciously agreed to host the event yearly—we now have a permanent home for Earth Day in Midland! Thanks, Bruce!

Special thanks to all those who made this happen: Joel and Heather



Buford Lemon, Chair
ACS Midland Section

Kern, Mindy Keefe, Jim Gaul, Joel, Michelle, Lucas and Emily Kraenzlein for putting the composting seedling kits together; Jim Gaul from the North Midland Family Center for help with the seedling planting location; Wendy Flory, Dale LeCaptain, and Sherry Gwizdala for helping bag the seedlings; Pat Smith for representing the Michigan Corn Growers and handing out all of the nifty PLA swag bags. Extra-special thanks to Phil and Ben for their presence and charm during the event; Gretchen Kohl, Pat Smith, Harold Nicoll, and Angelo Cassar for planning and coordination; and Terri Johnson and Sandy Dust for their support. And extra-special, super-duper thanks to Bruce Winslow, Deb Anderson, the Midland Center for the Arts, and Joel Kern (our very own YCC chair) for all of the support and hard work to make this event a reality. Thanks 10 ^ 6!!!

What a great kickoff to summer! As always, please contact me with any comments or suggestions at midland_acs_chair@yahoo.com.



CMU Students Honored by National ACS

For the second consecutive year, the Central Michigan University ACS student affiliates were honored again as members of an Outstanding Student Affiliate Group at the national meeting of ACS on March 26 in Atlanta. The group promoted chemistry during National Chemistry Week, planned and participated in scientific conferences, brought speakers to campus, and performed chemical demonstrations at local schools, along with many other activities.

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MMI Announces 2006 Turner Alfrey Visiting Professor Course

By Steve Keinath

Structure and Dynamics of Complex, Associating, Nano-Scale Systems
June 12–16, 2006, Monday–Friday, 3:00–6:00 p.m.

Professor Robert K. Prud'homme, director of the Engineering Biology Program and professor in the Department of Chemical Engineering, Princeton University, is the 2006 Turner Alfrey Visiting Professor at Michigan Molecular Institute. Prof. Prud'homme will offer a course on "Structure and Dynamics of Complex, Associating, Nano-Scale Systems." Descriptions of the lectures are given below, as well as course details and a biographical summary.



Lecture 1 – June 12, 2006 – “Block Copolymer Mediated Nanoparticle Formation”

A novel process involving tuning rapid nucleation and growth of a hydrophobic solute (drug, agricultural active, pigment, or gold nanoparticle) will be described. The kinetics of self-assembly of a block copolymer controls the particle size. Tunable conjugation of the active species enables controlled release from the nanoparticle formulation.

Lecture 2 – June 13, 2006 – “Polymer-Surfactant Interactions: Thermodynamics and Dynamics”

Complex interactions between self-assembling surfactant mesophases and polymers can be used to tune rheology and control phase behavior. Interactions can be enthalpic or entropic, and are sensitively controlled by interactions at nanometer length scales.

Lecture 3 – June 14, 2006 – “Self-Assembly in Non-Aqueous Media Using Crystallinity”

Prevention of gelation of waxes in oil phases is increasingly important in deep, off-shore oil production. Polymers that provide steric stabilization of wax crystals must co-crystallize with the wax phase, since polarity cannot drive self-assembly. Neutron scattering complements rheology to guide the synthesis of the correct polymer structure.

Lecture 4 – June 15, 2006 – “Single Sheet Graphene Nano Composites”

The promise of nano composites is that if filler length scales are comparable to polymer dimensions then dramatic changes in composite proper-

ties can be achieved. A process to produce single graphene sheets creates a nano filler that produces superior nano composite materials.

Lecture 5 – Friday, June 16, 2006 – “Living Polymers: Self-Assembling Worm-like Micelles”

Small molecule amphiphiles assemble into geometries with unique structures and dynamics. Worm-like micelles produce “living” polymeric networks that obey remarkably simple laws. The flow of these micelles into small pores produces some important surprises.

Details for 2006 Turner Alfrey Visiting Professor Course

Course 1033: Structure and Dynamics of Complex, Associating, Nano-Scale Systems

Lecturer: Professor Robert K. Prud’homme, Director of the Engineering Biology Program and Professor in the Department of Chemical Engineering, Princeton University

Place: Lecture Hall (Room 101), Michigan Molecular Institute, 1910 West St. Andrews Road, Midland, MI 48640

Time: Formal lectures: Monday–Friday, June 12–16, 2006, 3:00–6:00 p.m.

Fee: There is no fee for auditors if they belong to organizations that are financial sponsors of the Turner Alfrey Visiting Professor Program – Dow Chemical, Dow Corning, Saginaw Valley State University, Central Michigan University, Michigan State University, and Mid-Michigan Section of the SPE. For all others, a course fee of \$300 will be required at registration. *All participants must register.*

Registration: Pre-registration is required one week in advance with the Registrar by calling (989) 832-5555, ext. 555 or by e-mail at registrar@mmi.org.

Biographical Summary for Prof. Robert K. Prud’homme

Robert K. Prud’homme is a professor in the Department of Chemical Engineering and director of the Engineering Biology Program at Princeton University. He received a B.S. degree in chemical engineering from Stanford University in 1969, and a Ph.D. degree in chemical engineering from the University of Wisconsin—Madison in 1978, studying under Professor Robert Bird. He also completed a graduate studies program in environmental science and public policy at Harvard University in 1973.

Prof. Prud’homme has served on the executive committees of the Materials Science Division of the American Institute of Chemical Engineers and the U.S. Society of Rheology. He is also currently vice president of the

U.S. Society of Rheology. He has also served as the chair of the Technical Advisory Board for Materials Science Research for The Dow Chemical Company and was on the board of directors of Rheometric Scientific, Inc., the leading manufacturer of rheological instrumentation.

His awards include the NSF Presidential Young Investigator Award, the Princeton School of Engineering and Applied Science Outstanding Teaching Award, the Sydney Ross Lectureship at Rennselaer Polytechnic Institute, the Bird, Stewart and Lightfoot Lecturer at the University of Wisconsin, and the Turner Alfrey Visiting Professorship at the Michigan Molecular Institute.

Prof. Prud'homme has been the organizer and chair of the Gordon Conference on Ion Containing Polymers and the Society of Petroleum Engineers Forum on Stimulation Fluid Rheology, in addition to organizing numerous sessions at AIChE, ACS, and Society of Rheology meetings. He is currently the director of the Princeton–University of Minnesota–Iowa State NSF NIRT (Nanoscale Interdisciplinary Research Teams) Center on Nanoparticle Formation.

His research interests include rheology and self-assembly of complex fluids, and his particular systems of interest include biopolymer solutions and gels, surfactant mesophases, and polymer/surfactant mixtures. The goals of Prof. Prud'homme's studies are to understand how weak molecular-level interactions can be used to tune macroscopic bulk properties and phase behavior, and the outcome of his work has resulted in more than 200 publications to date.

Midland Section Members Help with SPE Classroom Demonstrations

By Dave Stickles

The Mid-Michigan Section of the Society of Plastics Engineers (SPE) sponsored classroom science demonstrations at Northeast Intermediate School in Midland on April 18. Kevin Nichols organized the presentation, with Chery Weckle, Grant Von Wald, Dee Strand, and Dave Stickles giving the demonstrations. Von Wald, Strand, and Stickles are Midland Section ACS members.

Four hours of demonstrations were given to two classes each hour (a total of 50 students per hour). The first set of activities involved sorting plastics on the basis of density and solubility. The second set involved experimenting with polymers, including making three different kinds of goop, molding polycaprolactam, putting a wooden skewer through a balloon, and measuring the capacity of poly(sodium acrylate) for water. Teachers were Angela McMath and John Hoving.

SPE/ACS/ASM/AIChE Joint Technical Society Dinner Meeting

Graphene Nano Sheets as a New Material for Polymer Composites

Prof. Robert K. Prud'homme

Director of the Engineering Biology Program and Professor
Department of Chemical Engineering, Princeton University

There has been considerable interest and activity in the area of nanoparticle-filled polymer composites because of the predicted enhancement in mechanical, electrical, and transport properties. Carbon nanotubes and clay nanosheets have been the most widely studied materials, but each has significant limitations. We present a new nanofiller based on completely exfoliated graphite sheets. The process for exfoliation will be described, as well as characterization of the resulting TEGO (thermally exfoliated graphite oxide). Surface areas of 1500 m²/g and aspect ratios on the order of 10⁴ (i.e., 10 microns/1 nm) are obtained. The electrically conductive sheets show a percolation threshold between 1-2 wt% when incorporated in a poly(methyl methacrylate) (PMMA) polymer matrix. This is in contrast to 7.5 wt% loading of conductive carbon black that must be added to obtain a similar level of conductivity. The elastic modulus versus temperature for a TEGO-filled PMMA composite shows an increase. But most significantly, the addition of just 0.25 wt% TEGO increases the softening temperature (or glass transition temperature T_g) from 95°C to 118°C. This change is unprecedented at this filler loading. The shift in T_g of the matrix polymer means that the TEGO is well enough dispersed so that "every" PMMA chain is influenced by the TEGO surface. Therefore, the bulk polymer properties are modified by very low loadings of TEGO.

Date: Thursday, June 15, 2006

Time: Social 6:30 p.m.

Dinner 7:00 p.m.

Program 8:00 p.m.

Location: Holiday Inn of Midland, 1500 W. Wackerly St., Midland,
MI 48640, 989-631-4220

Cost: \$25.00 for SPE/ACS/ASM/AIChE members and guests
\$15.00 for students

Reservations: Reservations can be made via phone, fax, or e-mail to
Dawn Wright at MMI. They must be received no later
than Monday, June 12, 2006. Phone: 989-832-5555, ext.
570, Fax: 989-832-5560 E-mail: wright@mmi.org

*Call for Posters***2006 Fall Scientific Meeting***By Robin J. Hood*

Please consider presenting a poster at the Fall Scientific Meeting, which will be held on Saturday morning, October 21, 2006, in the Dow Science building of Central Michigan University in Mt. Pleasant. Abstracts are being accepted now through Friday, September 15, 2006. The theme for the meeting will be "The Future of Science and Science Education in mid-Michigan." However, posters covering all areas of chemistry and chemistry-related topics are invited.

Each abstract should contain title, author(s) and author(s) affiliations, and abstract body text. The format specifics include:

- Single spacing with blank line between title and author and between author and abstract body text.
- Times New Roman typeface in 12-point size (or comparable).
- Submitted as an e-mail attachment in Microsoft Word (preferred) or other conventional word processor format.
- 225 words or fewer.
- Presenting author's name underlined. (Note: The e-mail address of the submitter will be the default contact person for all additional information.)

E-mail all abstracts to Robin J. Hood (hood1rj@cmich.edu). Address questions to co-chairs Robin J. Hood, CMU, 989-774-1455, or Wendell Dilling, CMU, dilli1wl@cmich.edu, 989-631-1621. The FSM web pages will be available from the Midland Section web site by July at <http://membership.acs.org/m/midl/>.



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Company Profile

Raven Analytical Laboratories Provides Professional Water Testing

By David Baker

Raven Analytical Laboratories is a water-testing services company that is a subsidiary of QuadSil Inc. Raven offers water testing and analysis at their Midland location at 210 Arrow Cove and in Roscommon on First Street. Both facilities are in compliance with EPA regulations. Such compliance requires



constant improvement and training to be skilled in the handling techniques and analytical procedures mandated by the government. The company employs five professionals, including chemists and microbiologists, and offers a 24/7 pick-up and analysis of samples if requested. In a typical month they analyze and test from 300 to 400 samples.

Raven currently has a wide variety of capabilities and methods to conduct microbial surface testing, identification of bacterial endotoxins, and plate counting. They also offer testing for metals, organics, and various ionic species, using a lachet flow injection analyzer for nitrate quantification, spectrophotometer for lead and sulfate analysis, and hatch test methods for chloride and iron analysis. Other tests available include microbial air testing, pH, and membrane filtration.

Their major industrial clients include Dow Corning and Dow Chemical whose process and waste water streams need to be analyzed. Other clients include local businesses, public access facilities that use well water, and well drillers who need to ensure strict compliance of their drinking water with federal and state regulations. All homes that use well water and are financed through VA, FHA, or HUD loans require at least bacterial, nitrate, iron, and lead analyses.

Raven is currently looking to fill positions at their Midland location for a field sampling technician and office professional/sample custodian. For more information about these positions or the services that Raven provides, please contact John Blizzard at 1-888-782-3745.

CMU Undergraduate Chemistry Major Presented Study at Posters on the Hill

Adapted from CMU press release

An extraordinary undergraduate student who takes her studies so seriously that she takes her textbooks to athletic events was selected to display her work on dendrimers in Washington, D.C. Central Michigan University senior Casey Manning of Southgate presented her study, "NMR Study on PPI Dendrimer Encapsulation of L-Dopa," April



(l-r) Casey Manning, U.S. Senator (D-MI) Debbie Stabenow, and Minghui Chai

25 at the national Undergraduate Research Posters on the Hill. She is the daughter of Timothy and Patricia Manning of Southgate and was one of 40 students selected from more than 400 national applicants.

Manning works extra-long hours on her class work, in addition to her athletic training on the CMU women's basketball team, said Manning's mentor Minghui Chai, a faculty member in CMU's chemistry department and Midland Section ACS member. "During basketball season, she has to miss a lot of classes," said Chai. "She takes her textbooks to the out-of-town games and takes any available time to study by herself. She maintains a 3.8 grade point average. She is a role model for all chemistry and athletic students."

Using nuclear magnetic resonance spectroscopy, Manning examined whether the drug L-Dopa, commonly used to treat Parkinson's disease, could be encapsulated in a dendrimer, reducing the side effects of the medication. L-Dopa causes neurological problems after chronic use. Dendrimers allow drugs to be encapsulated inside the dendrimer and released in targeted cells. Manning's study indicates that it "clearly enhanced the drug solubility" and that the drug "diffuses much slower than the drug alone in water, which indicates the encapsulated drug might have longer retention inside the human body for a slower release." Manning plans to pursue forensic science and work in a crime laboratory helping solve criminal cases.

Midland Section Director Attends ACS Legislative Summit

By Connie Murphy

As the recently appointed Committee on Committees liaison to the ACS Committee on Chemistry and Public Affairs (CCPA), I was invited to attend the CCPA meeting in Washington, DC. CCPA is responsible for advising on and making recommendations for ACS action on public policy matters involving the chemical sciences and technologies. Following the CCPA meeting, on April 25-26, ACS held its fifth annual Legislative Summit. The Legislative Summit is an opportunity for ACS members to advocate for the chemical enterprise with members of Congress. CCPA members, associates, consultants, and liaisons are invited to participate in the summit. Also participating were most of the ACS Board of Directors, including ACS President E. Ann Nalley, President-Elect Catherine Hunt, and some former ACS Directors. This year, in addition, members of the Council for Chemical Research joined ACS in the visits to Capitol Hill.

The topic this year focused on the need for a national innovation initiative and support for the basic research funding and science and math education programs in the President's American Competitiveness Initiative (ACI). If you listened to the State of the Union message this year, you would have heard a brief description of this initiative which was put together to address issues described in the National Academies of Science report, "Rising Above the Gathering Storm: Ensuring and Employing America for a Brighter Economic Future." (The report may be found at <http://www.nap.edu>.) The report describes the growing crisis in science education and support for basic research. The ACI proposes doubling the federal dollars spent on R&D in the physical sciences in the next 10 years through increased funding for the National Institute of Standards and Technology (NIST), the National Science Foundation (NSF), the Department of Energy (DOE) Office of Science, and science and math education.

The ACS Office of Legislative and Government Affairs split the participants into teams by geography and scheduled congressional appointments. Susan Butts and I (both from The Dow Chemical Company in Midland, MI) were on the MI-GA-SC team with ACS Board member Gordon McCarty (retired from Bayer, now living in SC) and CCPA committee associate, Lily D'Angelo (The Coca-Cola Company, GA). These are not exactly contiguous states, but regional teams are not always possible.

The afternoon of April 25 was spent in a briefing to prepare for the visits. Participants were provided with background information and "talking points" on innovation and competitiveness, a copy of the President's American Competitiveness Initiative (ACI), and information on proposed

legislation in the Senate and House. Each team was given state-specific information on the legislators with whom we had appointments, federal funding for R&D, demographics, economic indicators, and the state's "K-12 Science, Technology, Engineering & Mathematics (STEM) Education Report Card."

Included in the briefing were reports from both House and Senate staff members, describing how the system works and what we might expect in the visits, including what information the legislators might be most interested in. I must admit that I hadn't really thought about the process to put federal dollars into R&D. Using this issue as an example, first the President issued a report on his planned initiative (the ACI). He also placed the money to fund the initiative (a \$1.05 billion increase for R&D through NSF/NIST/DOE plus a \$380 million increase for science and math education through the Department of Education) into the budget he submitted to Congress. Congress takes it from there. First the programs must be authorized through legislation. Typically bills are introduced in the House and Senate and then they go to conference to work out differences. After being authorized, there is another step to get appropriations to fund the programs. For large initiatives like this one, it often takes more than one session of Congress to both authorize and appropriate funds for a program. Even after a multi-year program, like the ACI, is authorized, each year Congress must appropriate the dollars to fund it.

Also included in the briefing was a report from the Council for Chemical Research on the second phase of the study on the value of R&D. The first phase of the study was completed in 2001 and was entitled "Measuring Up: Research and Development Counts for the Chemical Industry." The study's findings, based on 20 years of data from more than 80 chemical companies concluded:

- Every dollar invested in R&D produces, on average, \$2 in corporate operating income over six years—an average return of 17% after taxes.
- Research funded by the federal government and other public sources



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makes significant contributions to new technologies in the chemical industry, based on citations in patent filings.

- The linkage of publicly funded science to chemical patents is higher than in most industries, roughly six citations per patent and increasing.

These results and continued interest in the value of chemical R&D, led to a follow-up study, “Measure for Measure: Chemical R&D Powers the US Innovation Engine” (Phase II). The results of Phase II, now completed, concluded:

- Shareholder value is significantly higher (35–60%, on average) for chemical companies with high-quality patent portfolios, based on citation impact, innovation speed, and links to scientific literature.
- Chemistry is the most enabling science/technology; it underpins technology development in every industry. Chemical technology is unrivaled in its reach and enabling capability for manufacturing industries.
- The time frame from initial public-funded basic research in chemistry to commercial scale utilization is roughly 20 years.

The CCR study also concluded that a billion dollars of publicly funded R&D ultimately results in roughly \$40 billion in gross national product through products and jobs created. The briefing concluded with each of the teams talking through their message and an opportunity to have any questions we had answered by ACS staff.

The morning of the summit began with a bus ride to Capitol Hill and breakfast in the Rayburn House Office Building with Representative Mark Udall (D-CO), co-chair of the House Science, Technology and Mathematics caucus making a few remarks. Our team left for their visits following

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breakfast. The MI-GA-SC team met in the morning with legislative assistants for Senator Isakson (R-GA), Senator Debbie Stabenow (D-MI), Senator Jim DeMint (R-SC), and Senator L. Graham (R-SC). After lunch we met with Representative Dave Camp (R-MI), Representative David Scott (D-GA), and Representative Joe Wilson (R-SC). Each of the visits was led by a constituent of the legislator being visited. Every meeting was different with different responses from the people we talked to. Some were easier than others. For example, Debbie Stabenow is a co-sponsor of the Senate's National Innovation Act (S.2390) and its PACE (Protecting America's Competitive Edge) legislation package (S.2197-Energy, S.2198-Education, S.2199-Finance), both of which authorize parts of the ACI. Other visits were more challenging—some questioned the cost of the initiative and how it might fare against competing priorities. I took the lead in speaking to Dave Camp who is my representative. I began by telling him I was there to talk to him about innovation and American competitiveness. I outlined the President's initiative and pointed out the state-specific information in the package we brought for him. I explained the importance of science and math education to fill the pipeline of American innovators for the future and how investment in R&D now will more than pay for itself with jobs and the taxes industries will pay on their profits from new products in the future. Surprisingly, Dave Camp, who lives in Midland, MI, corporate headquarters and major research centers for both Dow and Dow Corning, was not well informed on these initiatives and even said he was glad I



(l-r): Stephen Benn (Royal Society of Chemistry, Parliamentary Affairs Officer), C. Gordon McCarty (ACS Board of Directors and constituent of Joe Wilson), Congressman Joe Wilson (R-SC, representing the 2nd District), Connie Murphy (The Dow Chemical Company), Joy Titus-Young (ACS Staff), and Peter Kelly (ACS Staff).

came to talk to him because “people don’t talk to me about R&D.”

The most important lesson I learned from this summit is that we all need to communicate with our representatives in Washington. We should be telling them about the importance of science in keeping our country competitive in the global market. They need to understand the role that investment in R&D plays in homeland security, sustainability, and energy, and how it will impact the number and kind of jobs we have in the future. They are interested in our opinions as their constituents and need the information that we, as the science and technology community, can provide to them. If you have not already done so, I urge you to become more engaged with these issues by joining the ACS *Legislative Action Network*.

What is the *Legislative Action Network*? The American Chemical Society is committed to keeping its members informed of legislation that may impact the chemical enterprise and bringing the expertise of ACS members to bear on science policy. The *Legislative Action Network* is the Society’s electronic grassroots program for updating members on federal legislation and facilitating contact with members of Congress. The network focuses primarily on federal science education and R&D policy, but also addresses environment, workplace, and competitiveness issues. For more information, go to *chemistry.org* and select “Govt Affairs” from the Quick Find pull-down list.

Call for 2007 Officer Candidates

By Brent Zimmerman

Here is your chance to become more involved in your local ACS section. We need candidates to run for the following positions for 2007:

One-Year Terms

Chair-elect
Secretary
Treasurer
Chair, Nominations & Elections

Three-Year Terms

Directors (3 slots open)

If you are interested in running for any of these positions or know someone who might be interested, please contact Brent Zimmerman at 989-496-6526 or b.zimmerman@dowcorning.com. If you have any questions regarding what the positions entail, contact your current officers on the Leaders & Contacts page of the Midland Section web site <http://membership.acs.org/M/Midl/>.

Midland Section and MCFTA Join Forces for Earth Day 2006

*Ben Franklin
(right) shows
Wendy Klein (left)
some earth-wise
gardening tips.*



*The Raven Analytical
Laboratories
display at the Mid-
land Center for the
Arts attracts a
young scientist.*



*Angelo Cassar
(left) and Pat
Smith (right) give a
taste of what's
happening at Earth
Day 2006.*

Call for Nominations

2006 Midland Section Awards

By Minghui Chai

Outstanding Achievement and Promotion of the Chemical Sciences

Each year the Midland Section honors an individual residing within the Section's geographical area who has demonstrated outstanding achievement and promotion of the chemical sciences. This award recognizes dedication and service to the chemical profession. The recipient need not be an ACS member. Nominations should include a biographical sketch, list of pertinent publications, evidence of professional growth and involvement, and letters of support from colleagues. Previous recipients are:

1976	Turner Alfrey, Jr.	1991	Thomas H. Lane
1977	Etcyl H. Blair	1992	Donald A. Tomalia
1978	David C. Young	1993	Dale J. Meier
1979	Vernon A. Stenger	1994	Philip T. Delassus
1980	Daniel R. Stull	1995	Duane B. Priddy
1981	Bob A. Howell	1996	Hans G. Elias
1982	Wendell L. Dilling	1997	Ludo K. Frevel
1983	Donald R. Weyenberg	1998	Patrick B. Smith
1984	Edwin P. Plueddemann	1999	David E. Henton
1985	Raymond P. Boyer	2000	Steven J. Martin
1986	Stanley P. Klesney	2001	Edwin C. Steiner
1987	Warren B. Crummett	2002	Thomas J. Delia
1988	A. Lee Smith	2003	Robert M. Nowak
1989	Do Ik Lee	2004	Herbert D. (Ted) Doan
1990	Joseph E. Dunbar	2005	Mike Owen

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Outstanding Service to the American Chemical Society

The Section sponsors an annual award to recognize outstanding service to the Midland Section of the ACS. This award recognizes achievement in the promotion of the goals of ACS. Nominees shall be members of the Midland Section. Nominations should include a biographical sketch, a history of service to the Midland Section, and supporting letters from fellow ACS members. Previous recipients are:

1989	David C. Young	1998	Vicky S. Cobb
1990	Linneaus C. Dorman	1999	Theodore E. Tabor
1991	Donald R. Petersen	2000	Peter and Patricia Dreyfuss
1992	Wendell L. Dilling	2001	George W. Eastland, Jr.
1993	Bob A. Howell	2002	Joan Sabourin
1994	Eldon L. Graham	2003	John Blizzard
1995	Gretchen S. Kohl	2004	Steven Keinath
1996	Fran K. Voci	2005	Ann Birch
1997	Thomas H. Lane		

Outstanding Chemical Technician

The Section presents an annual Outstanding Chemical Technician Award to an individual who has demonstrated an extremely high degree of professionalism as a chemical technician. The ACS defines a chemical technician as a person whose training includes successful completion of a two-year post-high school level chemistry curriculum leading to an Associates Degree, or the equivalent course work in a Baccalaureate program, or the equivalent knowledge gained by experience. The primary work of a chemical technician is conducting experimentation and/or correlating information to help solve chemical problems and/or discover new chemical knowledge. Criteria used to judge the award include job skills, safety, teamwork, leadership, publications and presentations, reliability, communication skills, and additional professional and community activities. Nominees must have worked for five years as a chemical technician. Chemical technicians do not need to be a TECH Division Affiliate or ACS member to be eligible for this award. Nominations should include a biographical sketch and supporting letters that address each of the criteria above. Previous recipients are:

1997	Connie J. Murphy	2002	Cynthia J. Gould
1998	David Stickle	2003	Robert D. Krystosek
1999	Ronald L. Good	2004	Sharon Allen
2000	Kurt A. Bell	2005	Bill Rievert
2001	Gordon R. Roof		

Nominations for **all three** awards are invited. The deadline for receipt of nominations and all supporting materials is **September 15, 2006**. Nominations should be sent to:

Minghui Chai, Central Michigan University
Department of Chemistry, Mt. Pleasant, MI 48859

Fax 989-774-3883 or electronic nominations are also welcome. If you have questions or need additional information, please contact Minghui at 989-774-3955 or chai1m@cmich.edu. Nominators should provide their address and phone number in case the committee needs to contact them. The Awards Committee encourages all section members to nominate deserving colleagues and appreciates your efforts in helping these individuals receive recognition for their efforts. We look forward to hearing from you!

A Thank You to Science Literacy from Tawas

Editor's Note: The workshop described below is part of the Science Literacy program. Tawas schools have also joined the other schools involved with the Bay Watershed Program.

Tawas science teachers from all buildings took part in a special laboratory workshop sponsored by the American Chemical Society (ACS) at their February In-Service.

Chemists from The Dow Chemical Company and Dow Corning Corporation conducted the session, which included 16 labs that can be adjusted to K–12 curriculum using everyday materials available at

the grocery store. Special thanks to ACS for providing all the materials for the workshop, and especially to presenters John Blizzard, Chuck Roth, and Paul Popa for an inspiring, useful workshop.



Midland Section members John Blizzard, Chuck Roth, and Paul Popa visited Tawas schools, giving teachers there some ideas and tools for their science students.

Councilor Howell Reports on 231st National ACS Meeting

By Bob Howell

The 231st National Meeting of the American Chemical Society was held March 24–30 in Atlanta. Despite the cooler than normal weather, the meeting attracted 12,546 registrants (6,323 regular attendees, 4,158 students, 1,288 exhibitors, 413 exhibition only, and 364 guests). The Employment Clearing House was again a site of heavy activity. A total of 72 employers listed 197 available positions. Vying for these positions were 1,247 candidates; 1,180 interviews were scheduled. Midland Section Councilors were busy with committee activities, the District II Caucus, and the Council meeting. Several items of interest arose from each of these activities.

Howell is a longtime member of the Patents and Related Matters Committee, which prepares nominations for the National Inventors Hall of Fame, the National Technology Medal, and the Women's Hall of Fame as well as dealing with intellectual property legislation. He also serves as a member of the Organic Chemistry Examination Committee. At this meeting, the first-term organic examination was finalized and will be available for Fall 2006.

Lane is the chair of Corporation Associates, which sponsors several activities, selects recipients of the industrial chemistry awards, and represents the voice of the chemical industry. At this meeting he delivered the keynote address at the Division of Chemical Technicians banquet at which the Midland Section's Robert Krystosek received the National Chemical Technician Award.

News from the Budget and Finance Committee was considerably more



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positive than in recent years. For 2005 there was a net contribution from operations of \$11.6 million (\$9.1 million favorable to the approved budget). This improvement was due to a substantial contribution from the Publications Division (\$37.3 million) and savings. While the financial resources are nowhere near the level of a few years ago, this represents a major turnaround.

In Council actions Bruce E. Bursten and Bassam Z. Shakhshri were selected as candidates for President-Elect and dues were set at \$132 (the fully escalated rate). The coming year, 2007, is the last year for the special assessment for Divisions. This was scheduled to be \$8 in 2007, but was reduced to \$4. (The Board was able to find other sources of revenue.) A major discussion item at Council was the qualification for ACS membership. It is clear that there is a need to broaden the current base for qualification. The lines between disciplines are merging and many people with formal training in areas other than chemistry work as chemists. Even within chemistry the subdiscipline divisions are being blurred. Depending on the source of the estimate, between 50 and 65% of all chemists work in polymer or polymer-related areas independent of area of training.

The Society's new vision statement, "Improving people's lives through the transforming power of chemistry," was unveiled. It was noted that it is remarkably similar to the old DuPont slogan, "Better things for better living through chemistry," which has been around for over sixty years.

Society membership ending 2005 was 158,422 (still down from the peak number). Membership retention in 2005 was 92.4%. Undergraduate participation in the Atlanta meeting was the largest ever for a national meeting. The undergraduate poster session sponsored by the Division of Chemical Education contained 1164 presentations. The polymer session alone contained 39 displays of undergraduate research. The POLYED Committee selected three of these for awards. The Polymer Division sponsored a symposium on "Excellence in Undergraduate Polymer Research," which featured eleven oral presentations by participants from around the country. One of these was Stephen June from Central Michigan University. Steve was a recipient of a Weyenberg travel grant from the Midland Section. The Polymer Division also again sponsored a symposium on "Excellence in Graduate Polymer Science Research." Young Cho from CMU was the recipient of a certificate and a monetary award. Most will recall that Jennifer Dingman, a current member of the Midland Section Board, was a recipient of this recognition a few years ago. The opportunity to generate Symposium Series volumes has now been extended to regional meetings.

The last ACS election was the first to provide an opportunity for electronic balloting. This was quite successful and brought about an increase

in the number of members casting ballots (4,000 increase over the previous election).

The Pacificchem Conference held in December, 2005, was the most successful in the history of the meeting with 11,000 attendees from 72 countries. The meeting featured 11,000 presentations (oral and poster). The Fall 2006 San Francisco meeting will feature a symposium on "Carbon Nanotubes" to honor Richard Smalley who discovered the fullerenes, most prominently C_{60} . Presidential events at the upcoming meeting will include chemistry of communication, sustainable chemistry, science literacy, frontiers in materials science, and careers in chemistry.

In Past Issues of *The Midland Chemist*

By Wendell L. Dilling, Midland Section Historian

- **40 Years Ago This Month**—In a letter to the editor by Malcolm H. Filson, Chairman, Department of Chemistry, Central Michigan University: The Department of Chemistry of Central Michigan University, Mount Pleasant, is pleased to announce that the American Chemical Society has approved Central Michigan as a certified department. Central will be included in the 1966-67 list of approved universities. We hope that we can increase our service to the Midland Section of the ACS and to the central Michigan area.
- **30 Years Ago This Month**—In "ACS Midland Section Award" by James K. Pierce: At the February meeting of the ACS Midland Section Board, the 1976 awards program was endorsed. A part of this program includes the establishment of an annual ACS Midland Section Award. The award is to be presented to an individual in the Midland Section geographic area to recognize "outstanding achievement and promotion of the chemical sciences."
- **20 Years Ago This Month**—In "Chairman's Corner" by Tom Lane: Dan Swart, John Gaul, and all of the others associated with the 22nd E.C. Britton Symposium deserve our resounding thanks for a wonderfully successful meeting. Thirty-one university professors from as far away as California participated in the May symposium, whose theme was "Managing Risk as an Element of Progress."
- **10 Years Ago This Month**—In "From the Chair..." by Tom Lane: First, please join me in congratulating The Dow Chemical Company for supplanting DuPont as the largest chemical producer in the United States, in terms of chemical sales. Well done! DuPont has held the number one position since Chemical & Engineering News began ranking the top chemical producers in 1969.

Important Dates on the ACS Midland Section Calendar

- June 5 **Note Date Change!** Midland Section board meeting, Central Michigan University, 7:00 p.m., Dow Science Building, Room 264
- June 5 Deadline for registration for Turner Alfrey Visiting Professor Course (see June 12–16, below)
- June 12 Deadline for reservations for Joint Technical Society Dinner Meeting (see June 15, below)
- June 12–16 Turner Alfrey Visiting Professor Course, Professor Robert K. Prud'homme, "Structure and Dynamics of Complex, Associating, Nano-Scale Systems," Michigan Molecular Institute, 989-832-5555, ext. 555, registrar@mmi.org
- June 15 SPE/ACS/ASM/AIChE Joint Technical Society Dinner Meeting, Prof. Robert K. Prud'homme, "Graphene Nano Sheets as a New Material for Polymer Composites," 6:30 p.m., 989-832-5555, ext. 570, wright@mmi.org
- July 1 Deadline for August issue of *The Midland Chemist*

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