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Project SEED Makes a Difference for Area High School Students, p. 3

THE MIDLAND CHEMIST
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In This Issue ...

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Cover photography by Peggy Hill.

Chair Column

Internet Offers Much to ACS Members

Pat Cannady, Chair
ACS Midland Section

I would like to take this time to introduce you to an Internet feature that many of you have seen before, but which many of you have not really paid attention to. This would be the web site for the Midland Section. You can find it at http://membership.acs.org/m/midl/default.htm. What you'll see there are some real-time efforts at making the Midland Section more available to you. Sure, you won't always find all sections up-to-date. That's not big news. The folks who provide content as well as those who keep the web site current are all volunteers with many other responsibilities. What is important is that things that have happened are well reported. I took a look through there recently and thought I'd give you the good word about what I saw.

Next, I'd like to convince you to take a look at the national ACS website. I was particularly interested in several of the offerings to ACS members. Among these was the ACS Salary Comparator. What, you may ask, is the ACS Salary Comparator? Well, here's what the ACS says about it: "The ACS Salary Comparator is a product available only to ACS Members. It will report the complete range of full-time base salaries being paid to ACS chemists in jobs like yours (or any other position for chemists which you choose to define). The comparator gives attention to many specific factors that influence pay, including experience, level of education, professional specialties, job functions, types of employers, and geographic location. Both academic and non-academic positions are covered." Just for fun, I ran the Comparator on me, in my current job mode. Guess what? The result was right on! Good advice is available here for the average chemist looking carefully at what they are doing and who will pay them to do it. You can find this at http://center.acs.org/applications/acscomparator/page01.cfm.

Next, in my tour of the ACS web site, I took at look at The ACS Library and Information center (http://chemistry.org/portal/chemistry?pid=acsdisplay.html&doc=library\index.htm). What could this be, I wondered? Of course, along the way, I saw the listing of ACS journals—the one I had seen lots of times, and I'm sure you have, too. But what, I wondered, was there, other than this. So, let's see…here is the lead article on Science and Art.… Hmm, click on that. Okay, here are some words taking us along a general thread on the relationship between

things having to do with science and things having to do with art, but, here, at the bottom…an article on Morris Kates, Ph.D.—Lipid Chemist: Composer. Well, all right, click there and…whoosh! A very nice article about chemist *and* musical composer Dr. Morris Kates. I suggest you go to the ACS national web site and poke around.

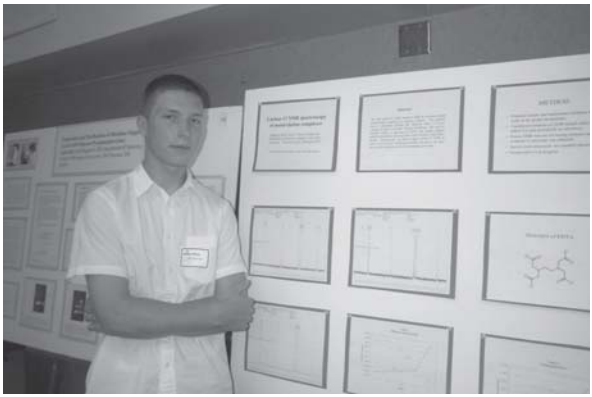
Finally, let me say just a few words about the activities we have planned in April. You've already read about them in the March newsletter, but I'd just like to give a last-minute push. There will be a social, dinner, and program April 16 featuring the 2002 Turner Alfrey Visiting Professor, Dr. Roderic P. Quirk, of The University of Akron. Dinner and a talk by Dr. Quirk will be given on "Anionic Polymerization: Development of a Science and a Technology." And the following week, on April 24, will be the Eleventh Annual Spring Science Education Recognition Dinner, from 6 p.m. to 9 p.m. These are two excellent opportunities to get out and enjoy our society at work.

Pat Cannady

Students Plant the SEED of Research

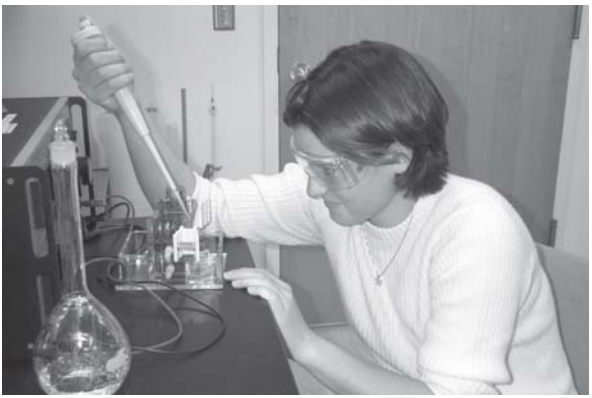
Article and photos by Peggy Hill

The summer of 2001 found two area high school students engaged in research in two chemistry laboratories in the mid-Michigan area as part of the Project SEED program. The SEED acronym represents "Summer Experience for Economically Disadvantaged." The program's mission is "to assure that students from economically disadvantaged backgrounds have opportunities to experience the challenges and rewards of chemically-related sciences." Our students have been smart, conscientious, and sincere. They find that the exposure to a research environment is a very useful experience as they make plans for future careers. Since many of these students do choose a science-based career, their SEED experience gives them extra insight and awareness of scientific professions before they make those career choices.



Robert Woys is finishing his senior year at John Glenn High School in Bay City and plans to return for a second SEED summer. He is shown here with his poster presentation at the 2001 Fall Scientific Meeting.

Every year the Midland Section provides a substantial portion of the funding for SEED students. In addition, a few Midland Section members volunteer their time to guide these students in their research projects. These preceptors work directly with their student on a day-to-day basis for 8 to 10 weeks, providing them with a research project, supervising their work, and helping them prepare a



Laura Platt was a SEED II student and is currently a freshman at North Central University in Minneapolis, Minnesota, pursuing a liberal arts degree.

written report and a poster to be presented at the annual Fall Scientific Meeting of the Midland Section.

Two SEED students worked this year with preceptors at Saginaw Valley State University and Central Michigan University. Their research topics are summarized below.

SEED I Student	Preceptor	Project
Robert Woys John Glenn H.S.	David Swenson and David Karpovich Dept. of Chemistry SVSC	Carbon-13 NMR spectroscopy of solutions containing lead and chelates
SEED II Student	**Preceptor**	**Project**
Laura Platt Shepherd H.S.	Margaret Hill Dept of Chemistry CMU	Development of methods for the purification of ADP glucose pyrophosphorylase from E. coli

Welcome to New Midland Section Members!

By Connie Murphy

Welcome! to the following people who have recently either joined the American Chemical Society or transferred into the Midland Section:

Mark Conway	Ronald Holmes	Jennifer Starrine
Kathryn Day	Carol Jensen	Donald Tomalia
Jolee Dominowski	Laurine Ottmar	Cynthia Welch
Yogesh Gala		

Welcome to New MMTG Members!

By Debbie Bailey

Welcome to the following people who have joined MMTG since the beginning of the 2002!

Sarah Bottke	Kathryn Jackson	David Plante
Gerald Brissette	Matt Jerome	Kim Quackenbush
Sharon Harris	Marie Karlsen	Terry Reinhardt
Mark Hartmann	Melissa Mielke	Bryan Roth
David Hayword	Brad Minar	Joe Rousseau
John Horstman	Gerard Nowaczyk	Amy Tesolin-Gee

MMTG Presents Seminar on Careers

By Debbie Bailey

The Mid-Michigan Technician Group (MMTG) presented its first 2002 lunchtime seminar on "Weighing the Pro's and Con's of a Career Switch from Chem Tech…Is the Grass Really Greener?" The seminar was presented by Janet Smith and Tina Leaym.

Janet has worked as a technician for Dow Corning for approximately fifteen years in areas of tech service, product development, research, and commercialization. She graduated with an associates degree in science from Delta College in 1986. She is an active member of MMTG and is currently on the Board of Directors as well as serving in the past as treasurer, delegate, chair-elect, and chair. She is also currently the treasurer for the Division of Chemical Technicians and the chair of the Bay Area Dow Corning Employees Scholarship Fund Selection Committee. In Janet's presentation, she defined the technician role versus chemist role, elaborated the similarities and differences, discussed action steps to achieve the career switch, and talked about weighing the costs of switching.

Tina has worked in the chemical industry in research and development for approximately twelve years. She worked nine years as a technician (six years at Dow Chemical and three years at Dow Corning) and is currently in her third year as a chemist at Dow Corning. She graduated with a bachelor's degree in chemistry from Saginaw Valley State University in 1999. She was on the original steering committee to get MMTG started as well as serving as secretary, chair-elect, and chair. She is still a member and participates in MMTG activities. She is currently a member of the advisory board of ACS's *Chemistry* magazine, and a member of the Delta College's Chem Tech Advisory Board. In Tina's presentation she shared her trials and tribulations in the transition from a technician to a chemist. Tina shared that changing careers can be great, but challenging. For instance, she went back to school, along with her husband raised two young children, and worked full time. Switching is challenging but can be done. She also shared success tips for transitioning along with reasons for transitioning or not transitioning.

This seminar was extremely informative and a great success for MMTG. At the end of this presentation we had six new MMTG members. Thanks, Janet and Tina! Look for more lunchtime seminars to come.

Science Olympiad Attracts 400 Participants

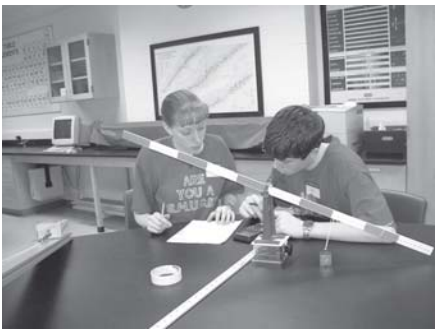
Article and photos by Joan Sabourin

The Region IV Science Olympiad Competition was held at Delta College on Saturday, February 23, 2002. Approximately 400 participants came from eleven middle schools and twelve high schools, along with their coaches and families and friends. There are 23 different problems that a team of 15 high school or middle school students can work on. These problems are all related to the National Science Education Standards. According to Gerard J. Putz, President of Science Olympiad:

> "The Science Olympiad is a national nonprofit organization devoted to improving the quality of science education, creating a passion for learning science, and providing recognition for outstanding achievement in science education by both students and teachers. These goals are accomplished through classroom activities, research, professional development workshops, and the encouragement of intramural, district, regional, state, national and international academic interscholastic tournaments.
>
> Science Olympiad tournaments are a celebration of (a) team's accomplishments in demonstrating understanding and mastery of science, mathematics, and technology content that requires not only knowledge and problem-solving skills but also the ability to work together as a team."

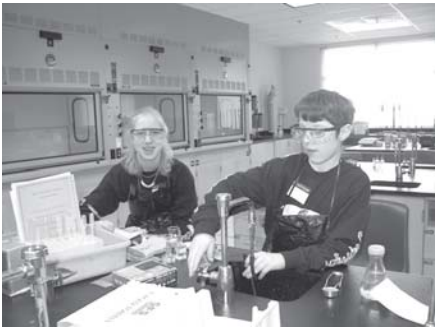
Cynthia Peck and Robert Keller from Delta College were Region IV Tournament co-directors. Many volunteers from Delta College faculty and staff

Balloon Race: Students attach a weight to helium-filled Mylar balloons and "race" them to a predetermined level. The objectives are to demonstrate skillful use of a balance, an understanding of density, and an appreciation of the differences between theory and practical application.



Boomilever: Students design and build the lightest boomilever capable of supporting a given load. The boomilever is a cantilevered wooden structure that is attached to a vertical testing wall at one end, and a supporting load at the distal end.

Can't Judge a Powder by its Color: Students test and characterize one pure, white substance, then based only on the data they collect, answer a series of questions about that substance.



Physics Lab: Students compete in laboratory activities involving compound simple machines.

served as event supervisors. Donations from the Midland Section of the American Chemical Society and from the Midland Section of Sigma Xi provided funding to cover the cost of the 4th through 8th place medals. Cramer Junior High School and Meridian Junior High School were the top winners from the Division B Schools. Essexville-Garber High School and Pinconning High School took top honors in Division C Schools. All four teams were invited to advance to the State Tournament, which will be held at Michigan State University on April 27, 2002. Third place winner, Bay City Western High School, will be replacing Pinconning High School at the State Tournament due to a scheduling conflict for the Pinconning team.

Bottle Rocket: Students design, construct, and launch two rockets designed for greatest time aloft.

Dr. Winnie Black presented awards to Science Olympians.

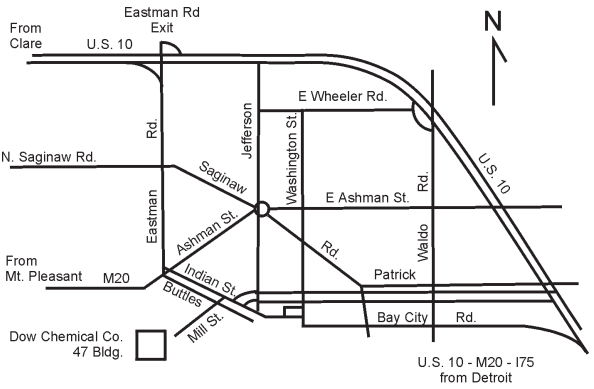
Eleventh Annual
Spring Science Education Recognition Dinner

Wednesday, April 24, 2002
6:00 p.m. to 9:00 p.m.
47 Building Cafeteria, The Dow Chemical Company
Midland, Michigan

Program: 6:00 p.m. Reception
6:30 p.m. Buffet Dinner
7:30 p.m. Awards Presentations—Teachers and students will be recognized for their outstanding achievements in science education.

The cost of the dinner is $15.00 per person and includes appetizers, dinner, dessert, and beverage. Please respond by mail using the form below. Your dinner reservation request must be received by April 12, 2002. You may also register by e-mail (aneta.i.bialek@dowcorning.com) and pay at the door.

This event is sponsored by the Midland Section of the American Chemical Society and underwritten by grants from The Dow Chemical Company and Dow Corning Corporation. For further information, contact Phil Squattrito at 989-774-4407.



47 Bldg. is at the end of Mill St., parking is located nearby.

To reserve a place at the 2002 Spring Science Education Recognition Dinner, return this form with payment by ***April 12, 2002*** *to* Aneta Bialek, C042C1, Dow Corning Corp., 2200 W. Salzburg Rd., Auburn, MI 48611-9548.

Name(s): _____

Affiliation: _____

Address: _____

Phone/Email: _____ ACS member? Y N

Enclose payment of $15.00 per person. Checks should be payable to "Midland Section ACS."

TSIC Promotes Communication between Technical Societies

By Eldon Graham

The Technical Society Interface Committee of the Midland Section ACS promotes cooperative activities and information exchange with other professional organizations in the area, such as Sigma Xi, American Institute of Chemical Engineers, Society of Plastics Engineers, etc.

A list of the officers and contact persons for area technical societies, and their telephone numbers and e-mail addresses has been prepared, and is available to any Midland Section ACS member. Please contact Eldon Graham if you desire a copy (989-790-4127 or graham@svsu.edu).

An example of cooperative activities with other area technical societies that have been carried out by ACS committees last year includes the Sci-Fest Community Education Program, as a part of National Chemistry Week. Organizations participating with the ACS in this event were the American Institute of Chemical Engineers, Delta College Biology and Science Divisions, and the Hall of Ideas, the Midland Center for the Arts.

Also, the Family Fun Day and exhibits at the Midland County Fair was jointly sponsored by the ACS and the Society of Plastic Engineers.

A joint technical society dinner meeting was held on May 1, 2001, at the Northwood University campus in Midland. This event was sponsored jointly by the ACS, Society of Plastics Engineers, and AIChE. The speaker was Professor James Mark of the University of Cincinnati who spoke on "The Importance and Technical Status of Rubberlike Elasticity."

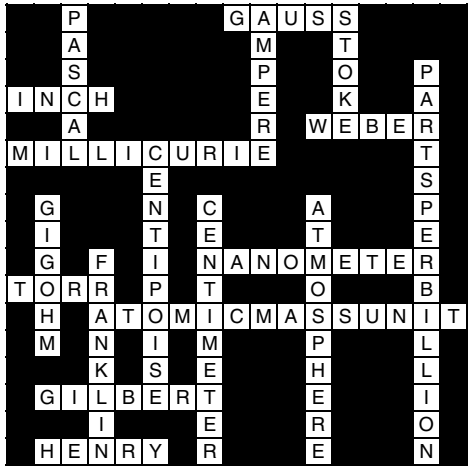
The Midland Section of the ACS is a participating member of the Saginaw Valley Engineering Council (our ACS membership includes chemical engineers). This council has eighteen participating organizations which share information about their activities and programs.

Each year the Saginaw Valley Engineering Council has a banquet and program that officers and representatives of the participating organizations attend. This year the banquet was held on February 21, 2002, at the Bavarian Inn in Frankenmuth. It was attended by 125 persons. The speaker was William Kibbe of Kibbe and Associates, Structural Engineers, who spoke on the topic "Lessons We've Learned from the World Trade Center." He addressed the question of whether the engineering design of the Towers was a success or a failure. One way to look at it is that it was a "towering success" because the towers resisted the impact of the planes and stood long enough for 25,000 persons to escape unharmed. However, it could be considered a failure because eventually the Towers collapsed with a loss of life of 3,000 persons, the majority of which were from the collapse.

It is not known if any design could have prevented this, but W. Kibbe had some suggestions which might have prevented the collapse. He gave the following examples: better insulation of the structural steel members to prevent their softening and loss of strength resulting from the fire; more cross-bracing, as is done for buildings in earthquake zones; more vertical supports and posts in the interior of the building; and a central core structure for the elevators and utilities of a combination of masonry and structural steel rather than only steel. W. Kibbe felt that a safer design can be developed and specified, but that public confidence in those improved designs may be an on-going problem. Space is so limited in large cities that W. Kibbe felt that there will be a continuing need for tall buildings. The world's tallest building will soon be constructed as twin towers in Kuala Lumpur, Malaysia.

Solution to March ChemPuzzler

Here's the solution to the ChemPuzzler that appeared in the March issue of *The Midland Chemist*. How did you measure up?



MMI Announces Turner Alfrey Visiting Professor/Course

by Steve Keinath

Professor Roderic P. Quirk, Kumho Professor and Distinguished Professor of Polymer Science, The University of Akron, is the 2002 Turner Alfrey Visiting Professor at Michigan Molecular Institute. Professor Quirk will offer a course on "Frontiers in Anionic Polymerization." Specific topics will include:

- Fundamental and general aspects of anionic polymerization
- Living polymerization
- Kinetics and mechanism of anionic polymerization
- Chain termination and chain transfer
- Diene polymerization
- Copolymerization
- Block and graft copolymers
- Star-branched polymers
- Chain-end functionalized polymers
- Polymerization of polar monomers
- Anionic ring-opening polymerization

Course Details

Course 1029:	Frontiers in Anionic Polymerization
Lecturer:	Roderic P. Quirk, Kumho Professor and Distinguished Professor of Polymer Science, The University of Akron
Location:	Lecture Hall (Room 101), Michigan Molecular Institute, 1910 West St. Andrews Road, Midland, MI 48640
Time:	Formal lectures: Mon.–Fri., April 15–19, 3:00–6:00 p.m.
Fee:	There is no fee for auditors if they belong to organizations participating in the Turner Alfrey Visiting Professor Program: Dow Chemical, Dow Corning, Saginaw Valley State University, Central Michigan University, Michigan State University, Midland Section ACS, and Mid-Michigan Section of the SPE. A course fee of $250 will be required at registration for others. *All participants, however, must register.*
Registration:	Preregistration is required one week in advance with the registrar by calling (989) 832-5555, ext. 555 or by e-mail at *registrar@mmi.org*.

Professor Quirk to Discuss Anionic Polymerization at Dinner Meeting

by Steve Keinath

Dr. Roderic P. Quirk, University of Akron, will be featured at a technical society dinner meeting sponsored by SPE, ACS, and AIChE on April 16. Dr. Quirk will be presenting "Anionic Polymerization: Development of a Science and a Technology." A social hour and dinner will precede the presentation.

Abstract: The use of sodium and potassium to polymerize isoprene dates back to the work of Matthews and Strange in England in 1910 and by Harries in Germany in 1911. The polymerization of butadiene by means of metallic sodium became the prime method for synthetic rubber production in Germany and the USSR during the 1920s. However, widespread academic interest and industrial development did not occur until two key discoveries were revealed almost simultaneously. In 1956, Szwarc and coworkers described the phenomenon of living polymerization. Also in 1956, Stavely and coworkers at Firestone Tire and Rubber Company reported that lithium metal is capable of polymerizing isoprene to a very high *cis*-1,4-chain unit content, analogous to natural rubber. These were the key ingredients that led to the development of modern methods for the synthesis of well-defined polymers using alkyllithium-initiated anionic polymerization. Polymers with control of molecular weight, molecular weight distribution, comonomer content and distribution, molecular architecture, and supramolecular structure can now be routinely prepared. Worldwide commercial developments proceeded in parallel with the academic discoveries. Today, more than 20 major companies use anionic polymerization processes to produce a variety of useful materials. The range of products includes polybutadiene, styrene-butadiene rubber, tapered styrene-butadiene copolymers,

polyisoprene, polystyrene-*block*-polydiene-*block*-polystyrene thermoplastic elastomers, polybutadiene liquid rubbers, clear impact-resistant polystyrenes and α,ω-difunctional polydienes. The development of anionic polymerization science and technology, the uniqueness of these polymerizations, and the properties of the corresponding polymers will be described.

Presenter: Professor Roderic P. Quirk, Kumho Professor and Distinguished Professor of Polymer Science, Maurice Morton Institute of Polymer Science, The University of Akron, and 2002 MMI Turner Alfrey Visiting Professor.

Date: Tuesday, April 16, 2002

Time:
Social 6:00 p.m.
Dinner 6:30 p.m.
Program 7:30 p.m.

Location: NADA Center, Northwood University, 4000 Whiting Drive, Midland, MI 48640, 989-835-7755

Cost:
$23.00 for SPE, ACS, and AIChE members with reservations
$13.00 for SPE, ACS, and AIChE student members with reservations
$15.00 for other students with reservations
$25.00 for others or SPE, ACS, and AIChE members without reservations

Reservations: Reservations can be made via phone, fax, or e-mail to Randi Merrington at MMI. They must be received no later than Monday, April 8, 2002.
Phone: 989-832-5555, ext. 555
Fax: 989-832-5560
E-mail: merringtonr@mmi.org

Important Dates on the ACS Midland Section Calendar

April 1	Midland Section board meeting, Delta College, Midland Center, room 12, 7:00 p.m.
April 8	Deadline for reservations for MMI course and dinner meeting with Prof. Quirk (Randi Merrington, 989-832-5555, ext. 555)
April 12	Deadline for reservations for the Eleventh Annual Spring Science Education Recognition Dinner (Aneta Bialek, aneta.i.bialek@dowcorning.com)
April 15–19	Dr. R.P. Quirk, "Frontiers in Anionic Polymerization," Michigan Molecular Institute (Randi Merrington, 989-832-5555, ext.555)
April 16	Dr. R.P. Quirk, "Anionic Polymerization: Development of a Science and a Technology," NADA Center, Northwood University, 6:00 p.m. (Randi Merrington, 989-832-5555, ext.555)
April 24	Eleventh Annual Spring Science Education Recognition Dinner, The Dow Chemical Company, 47 Bldg., 6:00 pm (reception) (Phil Squattrito, 989-774-4407)
May 6	Midland Section board meeting, Delta College, Room D, 135
May 6	Deadline for June issue of The Midland Chemist

All meetings are open to all ACS members and the public.

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