

The Crucible

<http://membership.acs.org/P/Pitt>

Volume: LXXXX No.1

September 2004

Project SEED: The First Four Weeks

At the helm of Washington & Jefferson College's 400 MHz NMR spectrometer, Tamara Scherer continues to experience new synthetic and analytical techniques under the aegis of the American Chemical Society's Project SEED (Summer Educational Experience for the Economically Dis-

advantaged). Tamara has used W&J's recent acquisition (provided by an NSF MRI grant) to characterize the product of a Diels-Alder reaction. This is one of the many facets of her summer research project conducted in the laboratory of W&J assistant professor of chemistry Michael S. Leonard.



From left to right: Neal Baker, Wesley Vosburg, Tamara Scherer, Stephen Zitelli, and Dr. Michael Leonard

This fall Tamara will be a senior at Washington High School in Washington, PA. As she considers the course that her education will take, this research experience provides a sampling of the opportunities available in the chemical sciences. Tamara is learning some of the fundamentals of organic chemistry by exploring the pressure-accelerated Diels-Alder reaction of coumalic acid and its derivatives. In the course of this work, she is discovering how chemists make sense of reaction mixtures by utilizing instrumentation such as NMR and GC/MS.

Tamara is also learning that scientific inquiry takes place in a community. This summer she is working with a group of three W&J undergraduates, Neal Baker, Wesley Vosburg, and Stephen Zitelli, who are participating in an on-campus summer research program sponsored by a grant from the Howard Hughes Medical Institute (associate professor of biology Alice G. Lee, HHMI grant program director).

Tamara has presented current literature and her research progress during Friday afternoon group meetings, and she and her lab partner, Wesley Vosburg, are beginning to prepare a poster for presentation at an undergraduate research symposium hosted by Duquesne University on July 30th.

Tours of local chemical companies have added to the experience by allowing the students to witness first-hand the day-to-day activities of scientists working in local industries. Together with the Project SEED group from Duquesne University led by assistant professor of chemistry Jennifer Aitken, students and their mentors have toured Bayer's Polymer facility in Pittsburgh as well as the Westinghouse Specialty Metals Plant in Blairsville. Students also look forward to a videoconference with chemists representing Lexicon Pharmaceuticals (Princeton, NJ).

Project SEED is providing students across the country with an enriching summer experience designed to foster interest in careers in the chemical sciences. Members of the W&J community are quite pleased to join this outreach effort for the first time this year. W&J is especially grateful to Ferro Corporation, Lexicon Pharmaceuticals, Westinghouse, PPG Industries, and LabChem for donations that have made the program possible. The launch of our SEED program has truly been a community endeavor, and Tabitha Riggio (Bayer MaterialScience LLC) and David Foreman (Director of Foundation Relations, W&J) must be acknowledged for their tireless fundraising efforts.

Submitted by: Michael Leonard

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SPECTROSCOPY SOCIETY OF PITTSBURGH

September Meeting
Wednesday, September 15, 2004

Duquesne University
Mellon Hall of Science
Laura Falk Auditorium

6:00 PM - Social Hour
6:30 PM - Dinner (City View Cafe - 6th Floor)
8:00 PM - Business Meeting
8:15 PM - Speaker's Presentation

“Nanofluidics and Mass-Limited Chemical Analysis: Lessons Learned from Spatially-Defined Molecular Spectroscopy”

Dr. Paul Bohn
2004 Pittsburgh Spectroscopy Awardee
University of Illinois at Urbana

Abstract

A grand challenge problem for contemporary chemical analysis is the handling and characterization of mass-limited samples. Our approach is to integrate nanometer-scale analytical unit operations into three-dimensional architectures to create integrated fluidic circuits, i.e., structures which handle fluids with the same digital control protocols used by integrated electronic circuits. This strategy relies heavily on spatially defined molecular spectroscopy, e.g., microscopy, optical sectioning, etc. to guide design of the spatial constructs and analysis of the sample manipulations they control. Examples from the field of biothreat agent detection will be used to illustrate the general principles.

Dinner will cost \$8 and checks should be made out to the SSP. Please call Virginia Naylor at 412/831-9068 or e-mail naylor@pitcon.org.

Parking Instructions: Duquesne University parking garage entrance is on Forbes Avenue. Upon entering the garage, ask for an “all day” parking ticket and drive to the upper floors. Pay parking fee upon exiting with SSP parking chit. Pick up parking chit at the dinner or the meeting. Contact Mitch Johnson at Duquesne University if any difficulties arise.

The American Chemical Society Division of History of Chemistry Proudly Announces A New Award Program HIST Citations for Chemical Breakthroughs

The American Chemical Society (ACS) Division of History of Chemistry (HIST) proudly announces the initiation of a new award program, the HIST Citations for Chemical Breakthroughs. Beginning in 2005, these Citations will recognize breakthrough publications and patents worldwide in the field of chemistry. Plaques, to be placed in the hallways outside the office or laboratory where the breakthroughs were achieved, will be presented annually to the departments and institutions at which these breakthroughs occurred.

Jeffrey Seeman, Chair-Elect of HIST, summarized that “we believe that identifying and celebrating chemical successes are important to the continued prosperity of chemistry worldwide. We envision that our colleagues and friends, seeing these plaques, will feel pride and inspiration in being a contributor to the sciences.” The selection process will involve open solicitation of nominations from the chemical community. An awards committee comprised of eminent scientists and historians of science will provide careful screening of the nominees and selection of each year's awardees. More details will be available within the next few months.

HIST recognizes and appreciates that the initial pool of deserving awardees is enormous and that, in the first few years of this program, only a small percentage of the most deserving recipients can be honored. However, multiple awards will be given each year. Citations for Chemical Breakthroughs now joins HIST's Dexter Award and its successor, the Edelstein Award, presented annually since 1956; these awards honor individuals having outstanding achievements in the history of chemistry. HIST intends to enlist ACS Local Sections, HIST Division members, and for international recipients, sister chemical and history organizations to participate in the awards ceremonies. For additional information, contact Dr. Seeman at HIST_CCB@yahoo.com

ACS Cut and Paste July 2004

September 2004 / The Crucible

**National Chemistry Week (NCW) Celebrations in Pittsburgh will be held
on Friday, October 22 and Saturday, October 23, 2004
at the Carnegie Science Center**

Join the Pittsburgh Section of the American Chemical Society (ACS) as we celebrate this year's NCW theme "Health and Wellness." The mission of National Chemistry Week is to reach out to the public, especially students, with positive messages about the important role chemistry plays in our lives. The activities at the Carnegie Science Center are an ideal forum to promote science education and science literacy to young people.

NCW will showcase professional societies, organizations, corporations, local businesses, colleges and universities, and secondary schools by asking you to organize an event table and staff it with volunteers from your organization.

Over the past five years, individuals and groups from across Southwestern Pennsylvania have volunteered each year to help celebrate National Chemistry Week in Pittsburgh. During these celebrations, 30,000 eager young people and curious adults have participated enthusiastically in a variety of hands-on experiments and activities and watched amazing chemistry related demonstrations. Through television and newsprint media, NCW has indirectly reached over 2.5 million people in the region with a positive message about the importance that chemistry plays in our quality of life. The Pittsburgh Section's NCW program has won recognition from the national ACS for each of the past four years.

Each organization will be responsible for coordinating their event table activities and volunteers. There are opportunities for individuals to volunteer if their organization is unable to sponsor an event table.

**We need a contact person from your organization to coordinate this endeavor.
Please complete the Point of Contact Information Form located on the reverse side by
Friday, September 17, 2004 and return by fax or e-mail to:**

Michael Mautino
Bayer MaterialScience LLC
Fax: 412-777-7864
E-mail: michael.mautino@bayermaterialscience.com

Questions??? Call Michael: 412-777-4792



The Pittsburgh Section's NCW activities are sponsored by the Bayer Corporation, the Carnegie Science Center, The Society for Analytical Chemists of Pittsburgh, and The Spectroscopy Society of Pittsburgh.

National Chemistry Week
October 22 - 23, 2004
9:00 AM - 5:00 PM, Carnegie Science Center
Point of Contact Information Form

Please complete and return this form by: Friday, September 17, 2004

POINT OF CONTACT INFORMATION

Your Name: _____

Telephone (include area code): _____

Fax: _____

E-mail: _____

Your organization's name (as you would like it to appear on the event table sign):

EVENT PARTICIPATION INFORMATION

We will participate:

____ Friday, October 22, 2004 (9:00 a.m. - 5:00 p.m.)

____ Saturday, October 23, 2004 (9:00 a.m. - 5:00 p.m.)

____ Both Friday and Saturday

Special consideration for table locations will be given to those organizations that participate on both Friday and Saturday. Additional tables are available on a limited basis. Contact the NCW coordinator if your organization would like a second table.

Do you have any special needs for your event table and or display?

____ Electricity ____ Other (please specify: _____)

Please fax or e-mail the completed Point of Contact Information Form to:

Michael Mautino

Bayer MaterialScience LLC

Fax: 412-777-7864 E-mail: michael.mautino@bayermaterialscience.com

Questions??? Call Michael: 412-777-4792

Due to safety concerns and liability issues, your organization will be required to complete an Experiment Description Form once you have agreed to participate, which will be e-mailed to you at a later date. Your experiment must be reviewed and approved for safety considerations for your organization to participate in the 2004 NCW event.

The Pittsburgh Section's NCW activities are sponsored by the Bayer Corporation, the Carnegie Science Center, The Society for Analytical Chemists of Pittsburgh, and The Spectroscopy Society of Pittsburgh.

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- ▲ "Vibrational Imaging"
- ▲ "Biological NMR"
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- ▲ "High Tech Crimes"
- ▲ "NIR/PAT in the Pharmaceutical Industry"
- ▲ "Biomedical Applications of Nanomaterials and Nanotechnology"



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by email at **easinfo@aol.com**

Eastern Analytical Symposium

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ACS Pittsburgh Chemists Club

Pittsburgh Section, American Chemical Society

Tuesday, September 28, 2004

"Tools and Techniques Used at Forensic Science Laboratories"

by

Frederick W. Fochtman, Ph.D.

Director, Masters of Forensic Science and Law Program;
Associate Professor of Pharmacology - Toxicology
Duquesne University

Duranti's Restaurant

128 N. Craig St., Pittsburgh PA
6:00 PM Cocktail Time - Cash Bar
6:30 PM Dinner, 7:45 PM Program

For reservations, please call Ed Martin by noon, Friday, September 24, 2004 at (724) 335-0904 or e-mail at esm@icubed.com.

Abstract

Microscopy, spectroscopy, and chromatography with the aid of computerization have become staples in examining forensic evidence. Procedures used for revealing the human genetic code are now routinely utilized to establish forensic identity. How these scientific and instrumental methodologies are used in the laboratory setting will be presented. Examples of cases where forensic science tools played an important role in solving the crime will also be presented.

Biography

Frederick W. Fochtman, Ph.D.

Director, Masters of Forensic Science and Law Program; Associate Professor of
Pharmacology - Toxicology
B.S. (Pharmacy)--Duquesne University M.S.--Duquesne University Ph.D.--Duquesne University

Dr. Fochtman is the Director of the newly developed Masters of Forensic Science and Law Program at Duquesne University. Prior to becoming Director of the Forensic Program, Dr. Fochtman had been a faculty member in the Duquesne University School of Pharmacy since 1978, teaching courses in Pharmacology and Toxicology. He is the author of a number of scientific presentations and journal articles in the area of forensic sciences. He also serves as a board member for the American Board of Forensic Toxicology, and the Drug Testing Advisory Board for HHS. Since 1998 Dr. Fochtman has served as the Director and Chief Toxicologist of the Allegheny County Coroner's Office Forensic Laboratory Division. This section of the Coroner's Office provides forensic and analytical testing services for Allegheny County.



Wednesday

September 15, 2004

"Entrepreneurial Solutions: A Chemical Reaction"

Kevin Popovic
President, Ideahaus

Silver Circle Website Launched

The ACS Silver Circle website was created to provide experienced ACS members and retirees with information on numerous outreach opportunities, ACS news, and links to valuable Web resources. Please visit the page at <http://chemistry.org/silvercircle.html>.

Also underway are suggestions for forming a Silver Circle committee in your ACS local section. If you have ideas to share, please contact: Marisa Burgener, Senior Chemists Staff Contact, m_burgener@acs.org 800-227-5558 ext. 4458

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POLYMER GROUP
Pittsburgh Section
American Chemical Society

September 8, 2004

Duranti's Restaurant
128 N. Craig St.

Parking accessible from Neville Street

Social Hour (cash bar)	5:30pm
Dinner	6:30pm
Technical Presentation	7:30pm

“Advances in Lipase-Catalyzed Routes to Monomers, Macromers, and Polymers”

Richard A. Gross

Professor and Herman F. Mark Chair, Director
NSF Industrial/University Center for Biocatalysis
Polytechnic University

Six Metrotech Center, Brooklyn, N.Y. 11201

<http://chem.poly.edu/gross/>

Enzymes are catalytic proteins that function in an extraordinary number of chemical transformations with exquisite selectivity and efficiency. Macro- and microorganisms have been used for quite some time to prepare polymers such as rubber, starch, cellulose, silk, natural gums and many other natural products. Recently, enzymes have been discovered and/or developed that remain active in a wide-range of environments other than water, such as in organic media, at various interfaces, and at high/low pressures and temperatures. These characteristics are creating exciting opportunities for their use in a wide range of commercial processes. Over the past fifteen-years, enzyme-catalysis has increasingly found use in reactions of importance for low molar-mass specialty chemicals and pharmaceuticals. Now, an even more ambitious set of activities is underway to use whole-cell and in-vitro enzyme-catalysis for the production of industrial chemicals, including monomers and polymers. These new activities are an outcome of a recognition by industry that there is a need for new processes that make greater use of renewable materials, increase the ratio of product-to-waste, create chemical plants that are safer and reduce process energy requirements. This lecture will describe enzymatic routes to monomers and polymers of industrial importance. Methods have been developed to use lipases to form high molecular weight polyesters by both ring-opening and condensation polymerizations. These polymerizations proceed with surprising control of molecular weight, chain-end structure, and dispersity. The promiscuity of lipases have been used to form a new family of hyperbranched copolymers that don't form a gel fraction during bulk reactions that give products with Mw values up to 117,000 g/mol. Furthermore, lipase-catalysis is providing efficient routes to useful monomers, macromers, and surfactants from renewable resources.

For dinner reservations please contact Terri Ziegler (Tel: 412-951-6411; e-mail: mziegler@zoominternet.net) no later than Monday, September 6, 2004. The cost of dinner is \$16.00 per person; discount rate of \$11.00 for retirees; no charge for students. *All are welcome!*

**Assess Your Work
Style with A.C.T.**

If you are considering a career move or just feeling stuck in your current role, take advantage of Advanced Career Tools (A.C.T.), an assortment of career-building tools launched by the ACS Department of Career Services.

Among the tools available at chemistry.org/careers is the Behavioral Style Assessment, which takes ten minutes to complete, and provides users with a one-paragraph assessment of their work style at no charge. Understanding your strengths provides you with greater confidence in interviews and enhances your ability to communicate in the workplace. A 26-page report, analyzing the results of the Behavioral Style Assessment in depth, is available for a fee.

Other A.C.T. features include nearly 300 articles of frequently asked questions (FAQs) on job search and career development, access to professional career coaches, products such as CDs and books, and customized features such as e-mail alerts on topics of specific interest to the user.

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Have You Found Just One New Member?

The 2004 Member-Get-A-Member Campaign ends just a few months from now. Have you found just ONE new member yet? Don't miss your chance to win this year's fabulous grand prize: a trip for two, valued at \$5,000, to one of four great destinations: Alaska, Mexico, Greece or France (in partnership with Betchart Expeditions, a member benefit provider). All it takes is one new member to get your name in the drawing.

The Member-Get-A-Member Campaign is ACS' most successful recruitment initiative in terms of the quality of new members it attracts. It seems current members know best when it comes to finding members who are loyal, engaged, and involved—the kind ACS needs to remain vibrant and strong. Please help us beat last year's record. Look around at meetings, in your classroom, office or lab. Who do you see who belongs in ACS but has not, as yet, joined?

Download an application at chemistry.org/membership/mgm04.html, give it to your candidate and sign him or her up today! Or, call Jennie Graham at 800-ACS-5558 x 6368 to request an application.

ACS Cut and Paste July 2004

ENERGY TECHNOLOGY GROUP Pittsburgh Section American Chemical Society

Thursday, September 2, 2004

“Coal Tar and Its Products”

by

Bob Wombles

Vice President of Technology, Koppers' Inc

More Restaurant

214 N. Craig St.

Pittsburgh, PA 15213

412-621-2700

11:30 am Networking - Cash Bar

12:00 noon Luncheon

1:00 pm Presentation

For reservations, please call Christina at 412-386-4484 (for Tom Sarkus) by noon, Monday, August 30, 2004.

Bob Wombles will give a presentation discussing coal tar and its products. Coal tar is produced as a by-product of the production of metallurgical coke. Products from coal tar are important to such diverse industries as aluminum, steel, railroad, and plastics. The 21st century is seeing a flurry of activity in the area of new carbon products. Products from coal tar may be going high tech in the 21st century.

Biography

Mr. Wombles is Vice President of Technology for Koppers Inc. His responsibilities include technical service, new product development, and engineering for Koppers' global operations. Bob has a B.S. in mathematics from Georgetown College in Georgetown, KY and an M.S. in organic chemistry from Vanderbilt University in Nashville, TN. He has been involved with heavy hydrocarbon research and product development for 29 years. His experience includes 22 years with Ashland Petroleum Company and 7 years with Koppers Inc.

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Society for Analytical Chemists of Pittsburgh

September Meeting

Monday, September 13, 2004

Duquesne University, Maurice Falk Hall

“Lab on a Chip”

Mark Hayes

Arizona State University

Social Hour 5:30 P.M./Student Affiliates Meeting

Duquesne Room (Student Union) 5:45 P.M.

Dinner - Student Union

City View Café (6th Floor) 6:30 P.M.

Business Meeting - 7:40 P.M.

Technical Presentation 8:00 P.M.

For more information, call Gerry Churley at 412/825-3220 X204 or e-mail to churley@pittcon.org

Parking Instructions: Duquesne University Parking Garage entrance is on Forbes Ave. Upon entering the garage, receive a parking ticket and drive to upper floors. Pick up a sticker at the dinner/meeting. Contact [Mitchell Johnson](mailto:Mitchell.Johnson@duquesne.edu) at Duquesne University if any difficulties arise.

Thoughts to Ponder....

Assume that everything you do is a learning opportunity, but that the lesson may not be the one that you want or intend to learn.

*David B. Peterson and
Mary Dee Hicks*

Leaders don't force people to follow—they invite them on a journey.

Charles S. Lauer

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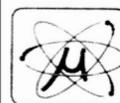
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Contact:

Traci Johnsen

124 Moffett Run Rd.

Aliquippa, PA 15001

724-378-9334

e-mail: tracijohnsen@comcast.net

2004 Directory of Pittsburgh Section Officers and Committee Chairs Available Online

A complete directory of names, phone numbers, and addresses for Pittsburgh Section officers and committee chairs can be found on the section's website.

[http://membership.acs.org/
P/Pitt](http://membership.acs.org/P/Pitt)

Paper copies are also available. Please contact Pittsburgh Section Chair, Kay Bilal, at 304-723-2358 if you would prefer a paper copy of the directory.

PITTSBURGH SECTION OFFICERS

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The Crucible

Material must be received by the 1st of the month prior to publication for inclusion in The Crucible. This rule will be enforced in order to distribute The Crucible to readers in a timely manner (before the 1st day of every publication month). The Crucible is published monthly, August through May. Circulation, 3,000 copies per month. Subscription price, six dollars per year. All statements and opinions expressed herein are those of the editors or contributors and do not necessarily reflect the position of the Pittsburgh Section.

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Pittsburgh Area Calendar

September

- Thurs. 2 **Energy Technology Group**
More Restaurant
“Coal Tar and Its Products”
Bob Wombles, Vice President of Technology, Koppers Inc.
- Wed. 8 **Polymer Group**
Duranti’s Restaurant
“Advances in Lipase-Catalyzed Routes to Monomers, Macromers, and Polymers”
Richard A. Gross, Professor and Herman F. Mark Chair, Director NSF Industrial/University Center for Biocatalysis, Polytechnic University, Brooklyn, NY
- Mon. 13 **Society for Analytical Chemists of Pittsburgh (SACP)**
Duquesne University, Maurice Falk Hall
“Lab on a chip”
Mark Hayes, Arizona State University
- Wed. 15 **Spectroscopy Society of Pittsburgh (SSP)**
Duquesne University, Mellon Hall of Science, Laura Falk Auditorium
“Nanofluidics and Mass-Limited Chemical Analysis: Lessons Learned from Spatially-Defined Molecular Spectroscopy”
Dr. Paul Bohn, 2004 Pittsburgh Spectroscopy Awardee, University of Illinois at Urbana
- Wed. 15 **SSP Technology Forum**
Duquesne University, Mellon Hall of Science
“Entrepreneurial Solutions. A Chemical Reaction”
Kevin Popovic, President, Ideahaus
- Tues. 28 **ACS Pittsburgh Chemists Club**
Duranti’s Restaurant
“Tools and Techniques Used at Forensic Science Laboratories”
Frederick W. Fochtman, Ph.D., Director, Master of Forensic Science and Law Program; Associate Professor Pharmacology-Toxicology, Duquesne University

*The
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