

The Crucible



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

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Pittsburgh Section Wins Fifth Consecutive NCW Award

This past August, during the 228th American Chemical Society (ACS) National Meeting held in Philadelphia, the Pittsburgh Section ACS was the recipient of an ACS ChemLuminary Award for its 2003 National Chemistry Week (NCW) program. The Section received an award in the category of "Best Event with Underrepresented Minority Groups," based on programs carried out during the 2003 event.

This was the Pittsburgh Section's fifth consecutive NCW-related ChemLuminary award. Previously, the Pittsburgh Section has been recognized for its NCW outreach efforts by the ACS's National Chemistry Week Task Force (now known as the Committee on Community Activities) with ChemLuminary Awards in the following categories; "Greatest Increase in Membership Involvement" in 1999, "Greatest Community Involvement" in 2000, "Outstandingly Creative and/or Unique Event" in 2001, and "Best Event with Underrepresented Minority Groups" in 2002.

Organized by the Pittsburgh Section's NCW Coordinator Michael Mautino, the Section's 2003 National Chemistry Week celebration was held at the Carnegie Science Center on Friday and Saturday, October 24-25, 2003. The theme for the 2003 NCW celebration was "Earth's Atmosphere and Beyond," honoring the innovators and pioneers of aviation and atmospheric chemistry. A total of 267 volunteers from 26 groups and organizations conducted hands-on experiments, activities, and demonstrations. There were 10 theater-style shows, presented 23 times over the two-day period, in the various Science Center stages. Total attendance for the two-day event was over 5,200 people.

For the 2003 NCW celebration, the Pittsburgh Section reached out to underrepresented "at-risk" minorities in the Southwestern Pennsylvania area to promote science education and science literacy. On Friday October 24, 2003, 1,347 students from 11 "Title 1" (economically and scholastically disadvantaged) school districts were provided an opportunity to participate in the NCW celebration at the Science Center. Through funding provided by The Society of Analytical Chemists of Pitts-

burgh and The Spectroscopy Society, the Pittsburgh Section was able to subsidize the admission and transportation costs of these students. Additionally, the NCW program reached out to women and minorities through a partnership with the Southwestern Pennsylvania Girl Scouts. Financial support was provided for admissions and transportation for approximately 200 Girls Scouts from underrepresented "inner-city" minority areas, to participate in a special "NCW/Girl Scout Overnighter" and in the two-day NCW event.

The Pittsburgh Section would like to thank its sponsors Bayer Corporation, the Carnegie Science Center, The Society For Analytical Chemists of Pittsburgh, and The Spectroscopy Society for their generous and on-going support of the NCW program. Thanks also go to the over 260 volunteers who participated in the 2003 NCW celebration. Without the support and commitment by the sponsors and the many dedicated volunteers, the Section's NCW activities would not be possible. Thanks again to everyone involved!

*Submitted by Michael Mautino
NCW Coordinator*



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Project Seed Program at Duquesne University

Project Seed is an ACS program that places economically disadvantaged high school students into a laboratory setting for eight weeks in the summer. The goal of the program is to inspire these students to pursue a career in chemistry. The program at Duquesne University began on June 14 with four students from the Pittsburgh area, Timothy McFadden, Sanora Olday, Austin Savatt, and Kami Small. After a short laboratory safety training seminar given by Paula Durkota from the Office of Environmental Health and Safety at Duquesne University, the students started their research projects.

Timothy McFadden, currently first in his class of 116 at Sto-Rox High School in McKees Rocks, expressed a desire to be in the Project Seed program in order to explore his career options and decide if a career in the medical field was for him. Under the supervision of Dr. Steven Firestine in the School of Pharmacy at Duquesne University Tim worked on determining the affinity of DNA binding agents by a restriction exonuclease protection assay. Since Tim will be a junior this year, he is looking forward to returning to Duquesne for the Project Seed summer II program in 2005.

Sanora, who will be a senior this year at Peabody High School, a Pittsburgh public school, worked on the synthesis of self-assembled monolayers on nickel with Dr. Ellen Gawalt in the Department of Chemistry and Biochemistry. After the monolayers were synthesized on the metal surface Sanora analyzed them using Fourier Transform Infrared Spectroscopy. This work is important in the area of biomaterials used for implants, prosthetics and stents. After conducting research this summer, Sanora is even more determined than before to attend college and major in both math and chemistry or physics.

Austin Savatt, who will be a senior this year at Sto-Rox High School, conducted an exploratory research project on the synthesis and thermal analysis of alkali and transition metal monothiophosphates with Dr. Jennifer Aitken in the Department of Chemistry and Biochemistry. Austin analyzed his newly synthesized materials with differential thermal analysis, thermogravimetric analysis, and powder X-ray diffraction. Austin is planning to attend college next year and major in cinematography and chemistry.

Kami Small worked under the guidance of Dr. Bruce Beaver in the Department of Chemistry and Biochemistry on the determination of ellagitannin concentration and permeability in White Oak tree samples. Ellagitannins are among the most important chemicals that

are extracted from White Oak barrels into wines, therefore affecting their taste. Kami will be a senior this year, at Northside Urban Pathway, a Pittsburgh Public Charter School, and is planning to go to college and graduate school with hopes to be an obstetrician/gynecologist. Kami feels that she can make a difference since there are few African-American OB/GYNs in Pennsylvania.

The Seed program culminated in a research symposium at Duquesne University at the end



Left the Right, Austin Savatt, Dr. Jennifer Aitken, Sanora Olday and Tim McFadden

of July. In addition to the four Project Seed student named above, Tamara Scherer, a Project Seed student working at Washington and Jefferson College, under the direction of Dr. Michael Leonard, also participated. The Seed students presented their posters among undergraduate researchers from Duquesne University, the University of Pittsburgh and other colleges and universities in the area. All who attended were highly impressed with the Project Seed students' posters and explanations of their summer research projects.

Overall the students really enjoyed the program. When asked what was the best part of the program one student said that "it really gave me a chance to see if this is what I want to do with my life." The program also had a great affect on the students' overall career aspirations. As one student said, "it has shown me what chemistry is like in the real world and has put me on a straighter path toward a career in chemistry." In the atmosphere of a cutting edge research laboratory, the students also gathered feelings of hope and determination. One student remarked, "...hard work pays off... keep on reaching for your goal no matter what happens... be yourself and work hard regardless of anyone else."

This year's Project Seed program would not have possible without donations from generous individuals and companies. Our sincere thanks and gratitude goes out to Dr. R. J. Lee and the R. J. Lee Group, Marc A. McKithen, the Bayer School of Natural and Environmental Science at Duquesne University, Westinghouse, LabChem Inc. and PPG Industries. There were also many behind the scenes efforts that went into the program, special thanks to Tabitha Riggio, the Project Seed Committee Chairperson for the Pittsburgh Section of the ACS, Mary Jo Babinsack and Carmen Rios from the Dean's office in the Bayer School of Natural and Environment Science at Duquesne University and Sandy Russell from the Department of Chemistry and Biochemistry at Duquesne University.

Submitted by: Dr. Jennifer Aitken

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ACS "ON THE ROAD" MEETING

Pittsburgh and Northern West Virginia ACS Sections

Monday, November 8, 2004

Waynesburg College

6:30 PM Dinner (Stover Campus Center - 3rd Floor)

8:00 PM Speaker's Presentation (Performing Arts Center)

"All Things Great and Small: Avogadro And The Concept of The Mole"

Dr. Glenn Crosby, Professor Emeritus
Chemistry and Materials Science at Washington State University

Abstract: The mole concept plays an enormous role in chemistry, but its genesis is rarely discussed in modern textbooks and its importance is unappreciated by students. The speaker will trace the origin of the mole concept, its impact on the science of chemistry, and the pivotal role the concept played in establishing a scale of atomic weights and thus placing chemistry on a quantitative basis. The lecture is peppered with historical anecdotes and ends with some graphic examples of the size of the Avogadro number and why it is the number that it is.

Bio: Glenn Crosby, Professor Emeritus of Chemistry and Materials Science at Washington State University, joined the WSU faculty in 1967 after serving ten years on the faculty of the University of New Mexico. He retired in 2001. Crosby is internationally recognized for his research in the field of molecular electronic spectroscopy, particularly the study of inorganic complexes. In addition to his research he maintained a keen interest in teaching both graduates and undergraduates and garnered numerous awards for these endeavors.

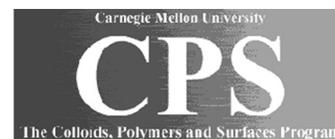
In collaboration with his wife Jane, he also directed several teacher professional development programs including a Master of Arts in chemistry for high school teachers in the Northwest, several regional teacher programs throughout the U.S., and an intensive laboratory program for high school chemistry teachers in Chile. With his wife and daughter he also ran, for 15 years, the Cougar Summer Science Camp, a residential science program at WSU designed for 8th and 9th grade students.

A longtime member of the American Chemical Society, Crosby has been deeply involved in ACS governance ranging from committee membership to the Chair of the Division of Chemical Education to the Chair of the ACS Society Committee on Education. In December 2002 he completed nine years of service on the ACS Board of Directors. Currently, he serves as the Chair of a Task Force on ACS Regional Meetings and as a consultant to the ACS Committee on Meetings and Expositions. In 2003 he was appointed Distinguished Visiting Professor of Chemistry and Chemical Physics at Concordia University in Irvine, CA where he plans to continue research in collaboration with undergraduates and faculty colleagues.

Dinner Reservations: A buffet dinner will cost \$13.00. Checks can be made out to Waynesburg College. Undergraduate students receive a discount. Please make dietary restrictions known when you RSVP. For dinner reservations, please call Regina Witouski at 724-852-3283 or email rwitousk@waynesburg.edu by Noon, November 3, 2004.

Directions to Waynesburg College and a Campus Map are available at <http://www.waynesburg.edu> by clicking on "Visitors" and then selecting "Directions to Campus" or "Campus Map". These directions guide you to the visitor parking lot. Another college parking lot is available adjacent to Stover Campus Center. A shuttle from the parking lots is available.

Carnegie Mellon



PART-TIME GRADUATE DEGREE

This interdisciplinary program of part-time graduate study (currently in its 31st year) leads to a Master of Science degree in Colloids, Polymers and Surfaces (CPS) offered jointly by the Engineering and Science Colleges at Carnegie Mellon University. Course work is relevant to many industries as chemical product manufacture and process development often require application of principles of colloid, polymer and surface science. Some examples include industries working with coatings and pigments, pharmaceuticals, surfactant-based products, food science, environmental science, polymers/advanced materials. Participating faculty are drawn mainly from the Department of Chemical Engineering and the Department of Chemistry.

Applications for Spring 2005 enrollment are now being taken. Classes begin January 10, 2005, and new students may enroll in the entry-level course, Physical Chemistry of Colloids and Surfaces.

For additional information, contact:
Dr. Annette M. Jacobson
Director, CPS Program
1107 Doherty Hall
Carnegie Mellon University
Pittsburgh, PA 15213
phone: (412) 268-2244
fax: (412) 268-7139
E-mail: jacobson@andrew.cmu.edu
www.cheme.cmu.edu/cps/



Society for Analytical Chemists of Pittsburgh



November Meeting
Monday, November 1, 2004

Duquesne University, Maurice Falk Hall

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.

“Applications of Ultra-Stable Materials for RPLC”

Peter W. Carr, PHD

Professor of Chemistry

University of Minnesota

2004 PITTSBURGH ANALYTICAL AWARD RECIPIENT

Abstract:

Coauthors: Brian Trammell, Leo Ma, Adam Schellinger, Dwight Stoll and Peter W. Carr

Microparticulate silica is currently the most widely used support for RPLC. Unfortunately, the poor chemical stability of silica-based stationary phases at low (<2) and high pH (>9) limits their utility especially at elevated temperatures. To address the low pH stability problem, we have developed a multi-layer, two-dimensional, orthogonal reaction polymerization method for modifying silica surfaces. In this novel approach, a monolayer of dimethyl ((chloro-methyl)phenylethyl)-chlorosilane anchored on the silica surface is formed into a hyper cross-linked polymer network using Friedel-Crafts chemistry with multifunctional alkylating reagents such as styrene heptamer as the primary cross linker and (chloro-methyl)methylether as the secondary cross linker. The resulting monolayer surface polymer shows dramatically enhanced acid stability. This phase was further derivatized by attaching C8 functional groups to the fully connected polymer networks to produce a Hyper-Crosslinked C8 (HC-C8) phase.

Elemental analysis data and HF digestion followed by Scanning Electron Microscopy both confirm the formation of a network polymer. We tested the stability of the HC-C8 phase under “super accelerated” low pH aging conditions (mobile phase: 47.5/47.5/5 ACN/H₂O/TFA (pH=0.5); temperature: 150 °C; F = 2mL/min). Under such aggressive low pH aging conditions, the HC-C8 phase shows much better stability than the benchmark sterically protected C18 phase. Additionally, the van Deemter flow curve comparisons of the HC-C8 phase and the sterically protected C18 stationary phases illustrate their comparable chromatographic efficiency. The HC-C8 phase was fully characterized and compared with the other commonly used RPLC stationary phases in terms of silanophilicity, hydrophobicity, and selectivity towards non-electrolyte solutes. The superb low pH stability, and the similar silanophilicity and efficiency of the HC-C8 compared to a conventional greatly extend the applications of silica-based RPLC stationary phase at low pH conditions. We have used these new phases on wide pore silica to carry out very fast (< 1 minute) gradient elution RPLC separations of proteins and greatly accelerated separations of tryptic digest peptide mixtures. We have also begun to explore the development of fast (20 minute), comprehensive, 2D-HPLC of tryptic protein digests which have peak capacities of nearly 2000 (1 unit of peak capacity per second).

Bio:

Peter W. Carr, Professor of Chemistry at the University of Minnesota is the 2004 Pittsburgh Analytical Award Winner for his seminal work in electrochemistry, thermochemistry, and especially chromatography. More recently, Carr’s research interests have solute-solvent interactions as they pertain to the prediction of retention, selectivity and optimization in chromatography. Additional areas of study include affinity chromatography, the theory of nonlinear chromatography, and the development of chemically stable supports for high performance liquid chromatography (HPLC). Peter Carr received his B.S. in Chemistry (1965) from the Polytechnic Institute of Brooklyn where he worked with Professor Loius Meites, and a Ph.D. in Analytical Chemistry of Pennsylvania State University (1969) under the guidance of Joseph Jordan. In 1977 Dr. Carr joined the faculty at the University of Minnesota where he became Professor of Chemistry in 1981. Professor Carr has supervised 38 Ph.D. dissertations and 14 M.S. thesis, and had 26 post-doctoral associates. He and his coworkers have published over 200 papers in a variety of areas of Analytical Chemistry. Carr has received several honors and awards over the years. The Eastern Analytical Symposium Award in Separation Science in both 1993 and 2000, the Stephen Dal Nogare Award of the Delaware Chromatography Forum in 1996, the 1996 ACS Award in Chromatography sponsored by SUPELCO, Inc. and the ISCO Award in 1997.

Dinner Reservations: Please call Julie Theys at 412/823-3077 or email theysj@pittcon.org, by October 28, 2004 to make dinner reservations. If you want to be placed on the permanent dinner list, let Julie know when you RSVP. The entrée for November is Filet Mignon w/Black Truffle Demi Glace. Dinner will cost \$8 (\$4 for students) and checks can be made out to the SACP. If you have any dietary restrictions, let Julie know when you leave a message.

Parking: Duquesne University Parking Garage entrance is on Forbes Avenue. Upon entering the garage receive parking ticket and drive to upper floors. Pick up a parking sticker at the dinner or meeting. Contact Dr. Mitch Johnson at Duquesne University if any difficulties arise.



SPECTROSCOPY SOCIETY OF PITTSBURGH

November Meeting
Wednesday, November 17, 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

“Microfluidics and Single Molecule Detection: A Logical Choice for Real-Time Reporting of BioMarkers”

Steven A. Soper
Louisiana State University
Center for BioModular Microsystems

Abstract

In this post-genomic era, new genes are constantly being discovered and their association with certain diseases elucidated to provide information on either the patient's susceptibility to that disease (preventative medicine) or the course of treatment for that patient (personalized treatment). As an example, the new drug, gefitinib (Iressa), can be used to treat non-small-cell lung cancers. But, only about 10% of patients respond to Iressa and those that respond harbor mutations in the tyrosine kinase domain of the epidermal growth factor receptor gene. This and other examples in cancer biology clearly point to the need for obtaining detailed molecular definitions of tumors for determining the appropriate chemotherapeutic drug regimen or to decide which tissues to remove in sensitive areas, such as the head and neck, during surgical procedures. Real time reporting of molecular profiles can potentially provide important information to the surgeon during the course of a procedure. Merging microfluidics with single molecule detection (SMD) is particularly attractive when implemented in genotyping examples, since it allows removing some sample preprocessing steps, significantly reducing analysis time. In this presentation, our work in developing polymer-based microfluidic devices for the detection of low abundant point mutations in certain gene fragments (K-ras oncogenes) using single molecule detection (SMD) will be specifically addressed. This presentation will entail a discussion of our fabrication methods for preparing high throughput polymer-based microfluidic systems, integrating passive optical elements to these devices and near-IR fluorescence readout for SMD. In addition, development of spectroscopic discrimination techniques appropriate for SMD to identify rare point mutations using molecular beacon technology and FRET will be discussed.

Dinner Reservations: Entrée for November is celebrating the Pittsburgh Region with a Sampler Platter: Mini Stuffed Cabbage, Kielbasa and Sauerkraut, Mini Pierogies, Ham and Potato Soup and Green Beans. Please call Virginia Naylor at 412/476-6255 or e-mail naylor@pittcon.org to make dinner reservations NO LATER THAN FRIDAY, OCTOBER 12, 2004. Dinner will cost \$8 and checks should be made out to the SSP. If you have any dietary restrictions, please let Virginia know when you RSVP.

Parking: The Duquesne University Parking Garage is located on Forbes Avenue. Upon entering the garage, receive parking ticket and drive to upper floors. Pick up a parking chit at the dinner or meeting. Contact Dr. Mitch Johnson at Duquesne University if any difficulties arise.

New Program Aims to Help Mature Chemists

ACS industrial members age 45 and over who have lost their jobs, or have been given notice that they will become unemployed by December 31, are eligible for a pilot program that aims to assist them to return to work.

Five mid- and late-career members will receive financial subsidies to receive professional career coaching and to participate in the Chemjobs Career Center at the Spring 2005 National Meeting in San Diego. The new program, “Member Career Outreach,” was launched this fall by the ACS Department of Career Services with the support of Corporation Associates.

Data show that mature chemists (age 45+) face very different challenges in securing employment than younger chemists. Not only are older workers more likely to be unemployed and to experience lengthy periods of unemployment, but they also may lack recent experience in looking for a job, face greater family and financial responsibilities than younger candidates, have outdated skills, bring unrealistic expectations to the job search, and suffer age discrimination.

According to data from the 2004 ACS Comprehensive Salary and Employment Status Survey, the unemployment rate is positively correlated with age. Not only is the unemployment rate higher for older chemists, but chemists over the age of 45 are likely to experience a lengthier period of unemployment than younger chemists. According to the latest survey, as of March 1, 2004, 38.5 percent of the unemployed age 45+ had been unemployed for a year or more, while only 17 percent of those under age 45 were unemployed for a long period.

The “Member Career Outreach” program will help grantees in four essential ways:

* It will provide financial support to receive professional career coaching,

Continued on page 7

ENERGY TECHNOLOGY GROUP

Pittsburgh Section

American Chemical Society

Thursday, November 4, 2004

Past Chairmans' Night, Joint with Pittsburgh Local Section

American Institute of Chemical Engineers

“Mercury Emissions Control Technology”

by

Thomas J. Feeley III

Engineers Society of Western Pennsylvania
337 4th Avenue, Pittsburgh, PA, 412-261-0710

5:30 pm Networking - Cash Bar

6:00 pm Luncheon

7:00 pm Presentation

For reservations, please call Christina at 412-386-4484 (for Tom Sarkus) by noon, Friday, October 29, 2004. The cost of dinner is \$30, and includes entrée, fresh garden salad, assorted rolls & butter, coffee, decaf, tea & iced tea and Chef's choice of starch, vegetable and dessert (tax and gratuity also included).

Mercury exists in trace amounts in coal. In the United States, coal-fired power plants emit about 48 tons of mercury and are the largest point sources of emissions. The U.S. Environmental Protection Agency determined the need to control mercury emissions from power plants and proposed regulations in December 2003 that are to become final in March 2005. In addition, several legislative proposals have been introduced in the 108th Congress to reduce mercury emissions from the electric-utility sector.

Recognizing the potential for mercury regulations, the U.S. Department of Energy/National Energy Technology Laboratory (DOE/NETL) has been carrying out a comprehensive mercury research and development (R&D) program since the early 1990's. Working collaboratively with industry, academia, and EPA, DOE/NETL has helped to advance the understanding of the formation, distribution, and capture of mercury. However, uncertainty remains, particularly related to the overall cost and effectiveness of controlling mercury from a diverse population of coal-fired boilers, as well as the ultimate fate of mercury once it is removed from the flue gas.

This presentation will provide a summary of DOE/NETL's mercury RD&D program, with a focus on the development of advanced emission control technology. The presentation also briefly describes research directed at the characterization of mercury in coal utilization by-products (e.g., fly ash) and the transport and transformation of mercury in power plant plumes.

Biography

Thomas J. Feeley III is currently the Manager of the Environmental and Water Resources (Innovations for Existing Plants) Product Line at the U.S. Department of Energy/Office of Fossil Energy's National Energy Technology Laboratory (DOE-NETL). In this capacity, Mr. Feeley is responsible for the strategic planning and management of DOE-NETL's research and development (R&D) programs in the areas of emissions control technology, byproduct utilization, and water quality and availability related to fossil-fuel-fired power plants.

Mr. Feeley has been with DOE-NETL since 1984 where he has served as a project manager on a variety of advanced coal cleaning and flue-gas-cleanup technology development activities. This has included both pre-combustion and post-combustion technologies to control the emission of sulfur oxides, nitrogen oxides, air toxics (mercury), fine particulate matter, and carbon dioxide from conventional and advanced coal-based power system. Prior to joining NETL, Mr. Feeley worked for Roy F. Weston, an environmental consulting firm.

Mr. Feeley has a Bachelor of Science degree in Environmental Sciences from California University of Pennsylvania. He also has a Masters degree in Energy Resources from the University of Pittsburgh, with over twenty credit hours in Environmental Engineering. Mr. Feeley is currently pursuing a Masters in Public Policy and Management from Carnegie Mellon University.

Mr. Feeley is a Qualified Environmental Professional and a Fellow in the Council for Excellence in Government.

December Meeting: December Meeting: Thursday, December 9, 2004 - "Back to the Future: Taking Another Gander at Coal-Water Slurries" by Mark Woods of Parsons Corporation. Note that the December meeting will be a luncheon meeting at the More Restaurant. 11:30 am Networking; 12:00 noon Lunch; 1:00 pm Presentation. Mark your calendar!

ACS Pittsburgh Chemists Club

Pittsburgh Section, American Chemical Society

Tuesday, November 30, 2004

"Biolinguistics and Proteins "

by

Dr. Judith Klein-Seetharaman,

Dept. of Pharmacy, University of Pittsburgh

Medical School and Research Scientist, Language Technologies, Software Research

Carnegie Mellon 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, November 26, 2004 at (724) 335-0904 or e-mail at esm@icubed.com.

Abstract

Understanding the structure, dynamics, and function of proteins strongly parallels the mapping of words to meaning in natural language. The words in a text document map to a meaning and convey rich information pertaining to the topic of the document. Similarly, protein sequences also represent the "raw text" and carry high-level information about the structures, dynamics and functions of proteins. This information can be extracted to obtain an understanding of the complex interactions of proteins within biological systems. Availability of large amounts of text in digital form has led to the convergence of linguistics with computational science, and has resulted in applications such as information retrieval, document summarization and machine translation. Thus, even though computational language understanding is not yet a reality, data availability has allowed us to obtain practical solutions that have a large impact on our lives. In direct analogy, transformation of biology by data availability opened the door to convergence with computer science and information technology. The talk will review the applications of language technologies to the understanding of protein structure, dynamics of function from the Biological Language Modeling Project. For more information, please visit www.cs.cmu.edu/~blmt and flan.blm.cs.cmu.edu for a compilation of web interfaces to tools developed as part of the project.

Biography

Dr. Judith Klein-Seetharaman attended the University of Cologne from 1990 to 1995, and earned separate degrees in Chemistry and Biology. She earned a Ph.D. from MIT in 2000 in Biological Chemistry, and was a post-doc there for another year. She holds three positions from 2001 to the present:

Research Scientist at CMU in Language Technologies, Software

Research in Biological Magnetic Resonance, University of Frankfurt, Germany

[International cooperation USA - Germany]

Assistant Professor, Dept. of Pharmacology, University of Pittsburgh Medical School.

She belongs to the Protein Scientist Working Group of the ACS. She has published over 30 papers in biolinguistics and proteins as well as biological chemistry.

New Program...Continued from Page 5

purchased online and delivered via telephone and e-mail. This personal, one-on-one assistance can help members refine their job-search strategy.

* It covers travel expenses to attend the Spring 2005 National Meeting in San Diego. This will enable grantees to participate in Chemjobs Career Center, including taking interviews with prospective employers and attending workshops and technical sessions.

* A reception for mid- and late-career job seekers and selected employers will be held at the San Diego National Meeting. This will afford grantees an opportunity to interact informally with other chemists, including prospective employers. Networking is known to be one of the main mechanisms by which job seekers learn of job opportunities and eventually secure positions.

* Each participant will receive a career transition workbook developed by the Department of Career Services. The workbook will guide ACS members through the stages of the career transition process as well as provide a record-keeping system for tracking the progress of their job search.

After advertising "Member Career Outreach" in Chemical & Engineering News, DCS will select awardees by a combination of lottery and evaluation of their application materials with the assistance of the Subcommittee on Professional Services of the Committee on Economic and Professional Affairs (CEPA). (CEPA reviews ACS career programs and services.) Those selected for the program will be notified in early January.

To apply for the program or for further information, contact Elaine Diggs.

ACS Cut and Paste September 2004

POLYMER GROUP
Pittsburgh Section
American Chemical Society

Wednesday, November 10, 2004

Duranti's Restaurant
128 N. Craig St.

Parking accessible from Neville Street

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

“Nanospiders: From Movement to Nanofiber Formation

Ayusman Sen
Department of Chemistry,
The Pennsylvania State University
University Park, PA 16802
E-mail: asen@psu.edu

The presentation covers two topics. The first encompasses the formation of nanostructured polymer filaments in nanochannel reactors. Channels with nanodimensional cross-sections were fabricated by e-beam lithography and top-down silicon processing, and used as templates for controlled polymerization. The dimensions of these nanotemplates are 20nm high, 20nm to 200nm wide, and 100 mm long. Nanostructured polymer filaments with controlled size, location and orientation were grown inside the channels by either radical (polyacrylates), coordination (polynorbornene), or photochemical polymerization (1,4-diiodothiophene). The polymer filaments produced are continuous and, when released from the template, can twist without breaking. The approach allows the just-in-place manufacturing and processing of patterns and devices from nanostructured polymers using well-established polymer chemistry.

The second topic involves the design of nanomotors powered by catalytic reactions. We have discovered that nano/micro-objects with spatially defined catalytic zones exhibit directed (linear and rotational), non-Brownian, movement of when placed in an aqueous “fuel” solution. Depending on the shape of the object and the placement of the catalyst, different kinds of motion (linear to rotational) can be achieved. Applications include: (a) motors for nanomachines, (b) static and roving sensors, (c) delivery vehicles, (d) formation of patterns or arrays by spontaneous deposition of materials, and (e) pumps and valves for nanofluidic and bio-chip devices.

For dinner reservations please contact Terri Ziegler (Tel: 412-492-5674; email: tziegler@ppg.com) no later than Monday, November 8, 2004. The cost of dinner is \$16.00 per person; discount rate of \$11.00 for retirees; no charge for students. *All are welcome!*

The ACS Invites Industrial Chemical Companies to Nominate Its Scientists for the 2005 Regional Industrial Innovation Awards

Why should you nominate?

- * To recognize industrial researchers for their creative and valuable contributions
- * To promote the importance of the chemical profession and the support of corporate leadership in advancing science
- * To enhance the company's public image by promoting awareness about good science and successful commercialization
- * To showcase the advances of industrial companies within your region

How to place a nomination?

Visit <http://chemistry.org/industry/regionalawards> or contact Vanessa Johnson-Evans at 1-800-227-5558, ext. 4373. Nominations are due by January 17, 2005.

Participating Regions:

Middle Atlantic, Northwest, Northeast, Midwest, Southeast, Southwest, and Western

ACS Cut and Paste September 2004

International Chemistry Olympiad Results

Emily Tsui, Potomac, MD, Eric Brown, Chattanooga, TN, Fan Zhang, Montvale, NJ, John Leon Kiappes, Jr., Houston, TX, the nation's top high school chemistry students have each won a silver medal for the United States in the 36th annual International Chemistry Olympiad in Kiel, Germany.

The four competed with 234 students from 61 other countries in the event.

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Committee On Chemical Safety Website

The ACS Committee on Chemical Safety (CCS) provides advice and counsel on the handling of chemicals, and seeks to ensure safe facilities, designs, and operations by calling attention to potential hazards and stimulating education in safe chemical practices. CCS has developed publications such as Safety in Academic Chemistry Laboratories, Safety Audit/Inspection Manual, and Safety in the Elementary (K-6) Science Classroom. For more information, including on-line publications and resources, visit the CCS website at: <http://chemistry.org/committees/ccs>

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Thoughts to Ponder

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to figure out what really matters.*

--Elaine St. James

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Keep up-to-date on all the events of the Pittsburgh Section by visiting the Pittsburgh Section website.

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

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>

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.

The Crucible

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Pittsburgh Area Calendar

November

- Mon. 1 **Society for Analytical Chemists of Pittsburgh (SACP)**
Duquesne University, Maurice Falk Hall
"Applications of Ultra-Stable Materials for RPLC"
Peter W. Carr, Professor of Chemistry University of Minnesota
2004 Pittsburgh Analytical Award Recipient
- Thurs. 4 **Energy Technology Group**
Past Chairman's night, Joint with Pittsburgh Local Section American Institute of Chemical Engineers
Engineers Society of Western Pennsylvania
"Mercury Emissions Control Technology"
Thomas J. Feeley III
- Mon. 8 **ACS "On the Road" Meeting**
Pittsburgh and Northern West Virginia ACS Sections
Waynesburg College
"All Things Great and Small: Avogadro and the Concept of the Mole"
Dr. Glenn Crosby, Professor Emeritus, Chemistry and Materials Science, Washington State University
- Wed. 10 **Polymer Group**
Duranti's Restaurant
"Nanospiders: From Movement to Nanofiber Formation"
Ayusman Sen, Department of Chemistry, The Pennsylvania State University, University Park, PA
- Wed. 17 **Spectroscopy Society of Pittsburgh (SSP)**
Duquesne University, Mellon Hall of Science, Laura Falk Auditorium
"Microfluidics and Single Molecule Detection: A Logical Choice for Real-Time Reporting of BioMarkers"
Steven A. Soper, Louisiana State University, Center for BioModular Microsystems
- Tues. 30 **ACS Pittsburgh Chemists Club**
Duranti's Restaurant
"Biolinguistics and Proteins"
Dr. Judith Klein-Seetharaman, Dept. of Pharmacy, University of Pittsburgh, Medical School and Research Scientist, Language Technologies, Software Research, Carnegie Mellon University

December

- Thurs. 9 **Energy Technology Group**
More Restaurant
"Back to the Future: Taking Another Gander at Coal-Water Slurries"
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