



The Catalyst

PITTSBURGH CHAPTER
AMERICAN INSTITUTE OF CHEMICAL ENGINEERS



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February 2004

www.aichepgh.org

FEBRUARY MEETING NOTICE - ANNUAL STUDENT NIGHT

Topic: *"The Employee as Entrepreneur –
A Marketing Approach to a Successful Career"*

Where: William Pitt Student Union
University of Pittsburgh – Oakland Campus

When: Wednesday, February 11, 2004

Time: **5:45pm** Registration
6:00pm Reception and Student Poster Session
6:45pm Dinner
7:45pm Presentation

Menu: Please select from the following:

- **Chicken Oscar** – Sauteed chicken breast topped with marinara and italian cheeses. Served over pasta.
- **Pork Piallard** - Grilled medallions of pork with sun-dried tomatoes vin blanc
- **Sole Roulades** - Flaky lemon sole stuffed with shrimp and crabmeat, topped with mornay sauce

(Vegetarian option available upon request)

All entrees served with salad, herb roasted red potatoes, vegetable medley, rolls and butter, beverage, and dessert.

Cost: \$25.00 Members
\$20.00 Students / Unemployed Members
\$30.00 Non-members

~ About the Meeting ~

At our local section's Annual Student Night, we will be hosting students from the University of Pittsburgh, Carnegie Mellon, Youngstown State, and West Virginia University.

Please make every effort to attend! For many of our students and poster presenters, this is their first contact with our local professional chapter, and a good opportunity to introduce them to AIChE.

~ About the Speaker ~

We are honored to have Bill Byers, who currently serves as the 2004 National President of AIChE, as our speaker for this year's Student Night.

Bill is Vice President and Technology Development Manager for CH2M HILL, a major engineering and construction company. He has managed projects and provided technology solutions across a broad spectrum of industries, with a focus on reducing environmental footprint while improving business performance.

Bill's talk is entitled *"The Employee as Entrepreneur - A Marketing Approach to a Successful Career"*.

Marketing literature has a lot to teach us about career management. Marketing is different from selling. As Peter Drucker says, "The aim of marketing is to make selling superfluous." This talk describes how a marketing mindset can lead to career success in chemical engineering.

**RSVP NO LATER THAN
MONDAY FEB 2ND, 2004**

TO: Dr. Jim Schneider, Vice-Chair
Phone: 412-268-4394
E-mail: schneider@cmu.edu

Your RSVP must include:

**Name, Menu Selection, Email Address, and
Phone Number.**

PLEASE PAY AT DOOR

CANCELLATIONS: If you must cancel your meeting reservation, please do so no later than 48 hours prior to the meeting. Otherwise, you will be invoiced for the cost of your meal.

CONTINUED ON PAGE 2



LETTER FROM THE CHAIR

Dear Members,

Winter is certainly upon us! I hope that you've been keeping warm these past few weeks.

I'd like to offer a warm "thank you" to Dr. Cohen, Ms. Lauer, and Mr. Donner for their report on the challenges and opportunities facing Southwestern Pennsylvania's water resources and infrastructure. This is an important issue that affects every one of us where we live. I'd also like to thank the members of A&WMA and AAEE. Joint meetings like this one broaden our view and help to open up interdisciplinary channels. Finally, many thanks to Mr. Ed Moretti for putting the event together.

This month's meeting promises to be the biggest of the year! Student night is always a great opportunity for professionals and students to interact. I am very excited to have Bill Byers, AIChE 2004 National President to be our speaker. His knowledge and experience in both the marketplace and the national organization promise to make this a memorable night. I look forward to seeing you at our section's Student Night on February 11th.

Sincerely,

Nathan Peters

AICHe Pittsburgh Section- Chair

MONTHLY MEETING – CONTINUED

MEETING LOCATION AND PARKING INFORMATION:

The William Pitt Student Union is located on the University of Pittsburgh Campus in Oakland, at the corner of Bigelow Blvd and Fifth Avenue. The Student Union is directly across the street (Bigelow Blvd) from the Cathedral of Learning.

PARKING IS AVAILABLE AT THE SOLDIERS AND SAILORS GARAGE, ACROSS THE STREET (FIFTH AVENUE) .

An interactive campus map is available on-line at:
<http://www.unc.pitt.edu/tour/tour-firstmap.html>

Directions to the University of Pittsburgh's Main Campus (Oakland) can be found at
<http://www.unc.pitt.edu/tour/directions.html>

WANTED: VOLUNTEERS FOR NATIONAL ENGINEERS' WEEK!

The super ball kits have been ordered!! Now it's time to volunteer!!

If you have ever had the itch to get involved in your local section – this is one way to get out and meet some of our members as well as participate in one of our many fun Outreach Events.

Our local section will again be participating in the celebration of National Engineer's Week at the Carnegie Science Center. Volunteers are needed to help staff our table on Friday, February 20 and Saturday, February 21, 2004 from 9 am to 5 pm each day.

We will again be making super balls and the gumdrop chemical models that have become so popular. If anyone is interested in interacting with the public - especially children – please call me at 412-826-3636 or send an e-mail to: nhirko@air-comp.com

I sure could use the help!!

Nancy Hirko

AICHe Pittsburgh Section- Engineers' Week Chair



NATIONAL ENGINEERS WEEK
FEBRUARY 20-21, 2004

For information 412.237.3400
CarnegieScienceCenter.org

\$2 OFF general admission to
CARNEGIE SCIENCE CENTER



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 Limit four (4) per coupon. Tickets subject to availability.
 Coupon must be redeemed to receive discount. Valid February 20-21, 2004

One of the four Carnegie Museums of Pittsburgh



MEMBERSHIP CORNER

Dear Members,

We are constantly updating our local membership database. Please send all change of address notifications to our Membership Chair:

Holly Gray
Michael Baker Jr., Inc.
Airside Business Park
100 Airside Drive
Moon Township, PA 15108

hgray@mbakercorp.com

If you have not already done so, please verify your updated e-mail address with us so that you will continue to receive monthly newsletters!

Thank you!

Please sign me up for the local Pittsburgh Section of AIChE

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

Business Phone _____

Residence Phone _____

Email _____

Annual Dues are \$16.00. Make check payable to "AIChE Pittsburgh Section" and send to our Treasurer:

Leigh Anne M. Wacker,
AIChE Treasurer
705 Chrysler Street
Pittsburgh, PA 15226

ESWP TECHNICAL SOCIETY FAIR

Celebrate the Profession at the 2004 ESWP Technical Society Fair!

The Engineers' Society of Western Pennsylvania has affiliated memberships with over 35 of Pittsburgh's technical society chapters. It is a member-based, non-profit organization whose primary purpose is to promote the profession of engineering.

The ESWP is presenting this unique opportunity to join your fellow members, renew old acquaintances, meet new friends, and visit with colleagues. At a time when we are facing so many important challenges, we think it is very important to establish this dialogue.

Enjoy complimentary hors d'oeuvres and a cash bar, combined with an insightful program discussing *Engineering Today*, including speakers Bernie Fedak, GM Engineering of US Steel, and Vito Cedro, Engineering Technology Manager of Alcoa World Alumina.

The event will be held on Wednesday, March 3, 2003 (following National Engineers' Week) from 5:30 – 8:30 pm in the Engineers' Building at 337 Fourth Avenue, Pittsburgh, PA, 15222.

The Technical Society Fair is open to all members of the engineering community in Western Pennsylvania. There is no cost to attend, but reservations are requested.

Please RSVP to ESWP at (412) 261-4300, or by e-mail to c.bisacca@eswp.com (subject: Technical Fair). Please include your name, company, address, phone number, e-mail, and professional society affiliation. You may also RSVP via fax at (412) 261-1606.



2004-2005 LOCAL SECTION EXECUTIVE BOARD NOMINATIONS

Now is the time to start thinking about joining the Pittsburgh AIChE Executive Board. The Section cannot run smoothly by itself. It's the commitment of volunteers like you that keeps the Section running.

Becoming an officer is a great way to become more involved in AIChE and the Section. If you think you might be interested, please contact Past-Chair JoAnn Truchan at 412-578-7981 or jtruchan@achd.net.

TAKING THE P.E. EXAM?

Are you interested in taking the Chemical Engineering P.E. Exam?

Several Pittsburgh Section Members have expressed an interest in forming a study group for the P.E. Exam. If you are interested in participating in a study group, or would like information about an online refresher info, please contact Carl W. Schwartz at 412-374-3678 or email schwarcw@westinghouse.com.

SPONSORSHIPS

Interested in placing your company's information in future AIChE Newsletters?

Full Page	\$300
Half Page	\$175
Quarter Page	\$95
Business Card Size	\$45
1/12 Page	\$30

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Three consecutive ads – 10% off
Eight consecutive ads – 30% off*

Please contact Mariangela Peters at mariangela.peters@bayerpolymers.com or 412-777-4195 for more information.

NATIONAL AIChE NEWS

BIOTECH AND PHARMACEUTICAL CONFERENCE

Learn how biotechnology is transforming the pharmaceutical sciences at the American Association of Pharmaceutical Scientists (AAPS) National Biotechnology Conference, May 16-19, Boston, MA, featuring multiple tracks, poster sessions, exhibits, and career center.

Cosponsored by AIChE and U.S.

FDA. For program and registration information, visit <http://www.aapspharmaceutica.com/nationalbiotech>.

DESIGNING A SUSTAINABLE FUTURE

Interdisciplinary teams of students will design solutions to meet sustainability technical challenges in the EPA's student sustainable design contest. The teams of graduate and/or undergraduate students are encouraged to partner with industry and/or NGO communicates for guidance, R&D, contributions, and implementation. Applications are due by March 15, 2004. For more information, visit: <http://es.epa.gov/ncer/p3>.

AIChE is a cosponsor, and will nominate a member to help judge. Interested? Contact Darlene Schuster at darls@aiiche.org.

2003 ANNUAL MEETING PROCEEDINGS

CD-ROM AVAILABLE

AIChE's first-ever overall meeting contains over 1,000 papers and 9,000 pages from topical and non-topical authors from the 2003 AIChE Annual Meeting. The total cost is \$99.

To order, contact Omnipress at

<http://shop.omnipress.com/aiiche-members.asp>

or call 1-800-482-4788

CALL FOR PAPERS: GREEN CHEMISTRY AND ENGINEERING

A call for papers has been issued for the 8th Annual Green Chemistry and Engineering Conference, "Green Chemistry and Engineering: The Business

Imperative for Sustainability," June 28-30, Washington, D.C. Abstracts must be submitted by January 30, 2004.

Sessions will address successful

innovations in green chemistry and engineering and will consider next steps for the adoption of these technologies in business. Conference information

and electronic submission of abstracts is available at:

<http://chemistry.org/meetings/greenchem2004.html>



WEB LINKS FOR WORK...

JOBSEEKER AND EMPLOYER RESOURCES

Looking for a job or have a job to fill? Consider AIChE's many recruiting options.

Classified Advertising in CEP: Affordable listings in the Institute's flagship publication reach AIChE's high-caliber constituency.

CareerEngineer: The only recruiting Web site geared specifically for chemical professionals. Jobseekers can conduct a targeted job search, apply online, and upload their resume for no charge in the Premier Resume Database. Employers who subscribe take a proactive approach to finding the right candidate.

Visit <http://www.aiche.org/careerservices> to learn more. To place an ad, contact Denise DeLuca Mallon, AIChE account executive, at 212-591-7170; denid@aiiche.org. Discounts are available for multiple and Web/print combination ads.

AND PLAY...

ARE YOU READY FOR THE SUPERBOWL?

The first Superbowl game was played January 15, 1967 by the Green Bay Packers and Kansas City Chiefs. This year, Superbowl XXXVIII will be held February 1. Whether you're anticipating watching the game or demolishing the seven-layer dip, here's a site for you:

<http://entertaining.about.com/cs/superbowlsunday/>.

THE YEAR IN REVIEW: HIGH TECH

Take a look at the top 100 technological innovations of 2003, including GPS and Wi-Fi, rotary and rockets. It's the gear that made the year.

<http://www.popsci.com/popsci/bown/>



4916 William Penn Highway
Monroeville, PA 15146
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Marcella Manning
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120TH ANNUAL BANQUET OF THE ENGINEERS' SOCIETY

On Wednesday, February 25, 2004, the Engineers' Society of Western Pennsylvania (ESWP) will host its 120th Annual Banquet at the Sheraton Station Square in Pittsburgh.

The gala will feature guest speaker Bill Hillgrove of WTAE-TV Sports, and the presentation of the Society's Annual Awards. This year's highest award to be presented is the William Metcalf Award, named for the founding president of the ESWP. This prestigious award honors lifetime achievement for significant contributions to engineering.

The 2004 Metcalf will be awarded to Allen Biehler, Secretary of the PA Department of Transportation. Mr. Biehler has played an instrumental role in the development of the region's transportation infrastructure over the past 34 years. Prior to his current position, Mr. Biehler was a vice-president at DMJM+Harris, where he was responsible for managing the North Shore Light Rail Transit Connector Project and the Strategic Visioning Study in Pittsburgh. Mr. Biehler also served as the Director of Planning, Engineering and Construction, and Director of Planning and Business Development during his 17-year career at the Port Authority of Allegheny County. In addition, Mr. Biehler worked for 12 years in city and county government in Pittsburgh on highway and aviation planning. Mr. Biehler has served on committees of the Transportation Research Board, the American Public Transportation Association, and is the recipient of a Distinguished Alumnus Award from the University of Pittsburgh.

The Engineers' Society will also be presenting the 2004 "Project of the Year" and "Engineer of the Year" Awards at the banquet.

The 120th Annual Banquet is open to all members of the engineering community. Individual seating is available, as well as corporate tables of ten. The evening will begin with a social hour at 6:00 PM, followed by dinner at 7:00 PM. For more details, please contact the Society at (412) 261-0710 ext 13, at eswp@eswp.com, or visit

http://www.eswp.com/eswp/annual_banquet.htm

**NEWSLETTER DEADLINE**

THE DEADLINE FOR THE FEBRUARY NEWSLETTER IS
THURSDAY, FEBRUARY 15, 2004.

Please submit information to:

Mariangela Peters
Bayer Polymers, LLC
100 Bayer Road
Pittsburgh, PA 15205

Phone (412) 777-4195
mariangela.peters@bayerpolymers.com

FAN OF THE FLAMES...

The winter season is upon us, bringing logs in the fireplace and candles of every kind. From a chemical point of view, the flames are rapid exothermic reactions that convert complex organic compounds to simpler compounds and byproducts.

In the inorganic world, combustion can work the other way around, providing the energy to drive redox reactions and to form complex oxides from binary components. Combustion synthesis, also known as self-propagating high-temperature synthesis (SHS), has been used to produce phosphor compounds for the field emission displays being developed for flat-panel computer screens. SHS can also produce artificial bone materials, intermetallic target-sputtering source materials, and the superconducting boride MgB_2 .

Typically, a mixture of reagent powders, sometimes mixed with an additional oxidizing agent, is ignited to initiate the reaction. A combustion front travels rapidly down the length of the reagent mixture, causing a sudden extreme rise in temperature and leaving a trail of reaction products in its wake.

The glowing combustion front is the most spectacular feature of combustion synthesis. Recently, however, Quentin Pankhurst (University College of London) and colleagues wondered about other effects associated with the sudden sharp temperature increase. Previous research has shown that a sudden extreme temperature change ionizes

reagents and elevates electrons into excited energy states, producing an electromagnetic pulse. A magnetic field of a few nanoTeslas has even been observed in systems where both the reactants and products are nonmagnetic, such as in the combustion synthesis of barium titanate from titanium metal and the binary oxides.

This inspired Pankhurst's group to explore the effects of an applied magnetic field on the SHS of ferrite materials, magnetic oxide phases that are widely used in the electronics, audio recording, and microwave device industries.

They mixed BaO_2 or SrO_2 , Fe , Fe_2O_3 , and $NaClO_4$ and ignited the mixture with a hot filament while applying steady-state magnetic fields as high as 20 T. After grinding the combustion products and annealing them for about 2 hours, they obtained the desired single-phase ferrites.

The researchers found that in a magnetic field of 1.1 T, the SHS reactions proceeded faster and at higher temperatures than in the corresponding SHS reactions with no applied field. The applied magnetic field also affected the coercivity, magnetization, and unit cell volume of the end products.

Pankhurst sees great potential in using SHS to control the structural, microstructural, and magnetic properties of a variety of ferrite materials. "With this in mind, we went so far as to lodge a patent on the process," he stated, noting that they have attracted some initial interest from industry (Pankhurst, Q. A.; Parkin, I. P. University College London, U.K. Patent Office Filing 21 July, 1998).

Similar results were observed in the SHS preparation of hard ferrites in the barium-iron-chromium system and soft ferrites in the lithium-iron-chromium and magnesium-zinc-iron-chromium systems, demonstrating the versatility of the technique.

Here's wishing you combustion of the scented-candle and fireplace log variety as we embark on the beginning of another year.

Source: <http://www.chemistry.org>



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412-889-7833

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Carnegie Mellon University
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724-942-3717

Dr. Joseph McCarthy (mccarthy@engrng.pitt.edu)
University of Pittsburgh
412-624-7362

Past Chair & Nominations

JoAnn Truchan (jtruchan@achd.net)
Allegheny County Health Dept.
412-578-7981

Additional Officers and Chairs

Membership Chair

Holly Gray (hgray@mbakercorp.com)
Baker Environmental, Inc.
412-269-6059

Newsletter Editor

Mariangela Peters (mariangela.peters@bayerpolymers.com)
Bayer Polymers, LLC
412-777-4195

Engineers' and Chemistry Week

Nancy Hirko (nhirko@air-comp.com)
Air/Compliance Consultants, Inc.
412-826-3636

Student Outreach Chair

David Missenda (david_missenda@URSCorp.com)
URS Corporation
(412) 351-2044 x230

Scholarship Chair

Ed Moretti (emoretti@moretticonsulting.com)
Moretti Consulting Group, LLC
412-276-2233

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Richard Dupree (rrd@telerama.com)
Dupree & Associates
724-775-5122

2003-2004 Tentative Monthly Meeting Schedule

Date	Topic	Location
January 14, 2004	Joint Meeting with AWMA	Penn Brewery
February 11, 2004	Annual Student Night	Univ of Pittsburgh - Oakland
March 17, 2004	Plant Tour	Seagate - Pittsburgh
April 2004	Technical Presentation	TBA
May 2004	Last Meeting of the Year	TBA

Mark your calendars!

For the Following Dates:

February 11, 2004	Monthly Meeting	Annual Student Night - Featuring Bill Byers - our 2004 National AIChE President
February 25, 2004	Outreach Event	2004 Engineers' Week at Carnegie Science Center
March 3, 2004	ESWP Event	Western PA Technical Society Fair
March 17, 2004	Monthly Meeting	Site Tour of Seagate in Pittsburgh



The Catalyst

American Institute of Chemical Engineers
337 Fourth Avenue
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