

AIChE-PITTSBURGH

THE CATALYST

IN THIS ISSUE

<i>April Meeting</i>	1
<i>Chair Letter</i>	2
<i>Upcoming Events</i>	2
<i>Join AIChE-Pittsburgh</i>	2
<i>Students' Night</i>	4
<i>Jobs Program</i>	5
<i>Grossmann Nominated for President-Elect</i>	5
<i>Chief Information Officer</i>	6
<i>YSU Sustainable Energy Forum</i>	8
<i>Photos from Engineers' Week</i>	9
<i>Contact Information</i>	10



Visit us on-line at:
www.aichepgh.org

APRIL MEETING ANNOUNCEMENT

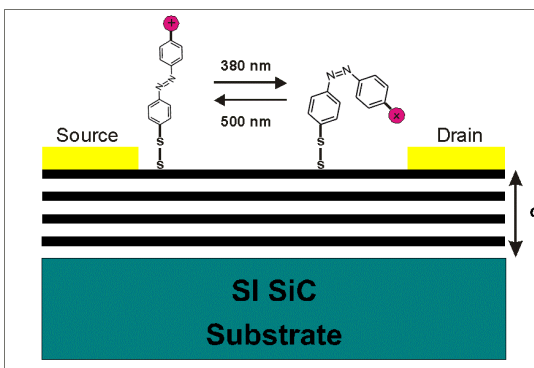
April 22, 2010

Surface Chemical Routes to Graphene Synthesis for Electronics and Sensors

Charter D. Stinespring
 Department of Chemical Engineering
 West Virginia University



Graphene is an emerging carbon-based material with the potential to revolutionize the fields of electronics and sensors. As background, this presentation will describe the basic structure and properties of graphene that make it so interesting and useful, and it will briefly overview several of the applications that are driving much of the current research activity in this area. The talk will also describe current methods of graphene synthesis and their limitations. This will provide the motivation and foundation for our research at WVU which focuses on surface chemical routes to graphene synthesis. Specifically, this involves halogen based plasma etching of silicon carbide to selectively etch silicon from the matrix. This produces a controlled number of carbon layers (based on plasma parameters) which are thermally reconstructed to form the graphene film. Characterization tools used in these studies include x-ray photoelectron spectroscopy, Auger electron spectroscopy, reflection high energy electron diffraction, and atomic force microscopy. The presentation will review the latest experimental results and will conclude with a look forward to several novel graphene device designs.



Professor Stinespring directs the activities of the Surface and Materials Studies Laboratory in the Department of Chemical Engineering at West Virginia University. His research interests lie in the area of surface chemistry associated with growth / synthesis, etching, and contact formation for a wide range of advanced electronic materials. These include silicon carbide, diamond, gallium nitride, and most recently graphene. These materials are used primarily as electronics and sensors for defense, energy, and security needs. Professor Stinespring has extensive experience in the areas of thin film and surface characterization methods. These include x-ray photoelectron spectroscopy, Auger electron spectroscopy, electron diffraction, and atomic force and scanning tunneling microscopy.

(please see page 3 for meeting details)

UPCOMING EVENTS

April 10: Jobs Program (see page 5 for details)

May: AIChE-Pittsburgh May meeting

June 7-8: YSU Sustainable Energy Forum

November 7-12: AIChE national Meeting, Salt Lake City, UT

**Please sign me up for the Pittsburgh
Section of AIChE**

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

Business Phone _____

Residence Phone _____

Email _____

BECOME A MEMBER OF AIChE-PITTSBURGH!

Local Section dues are \$20/year.

Mail the form with payment to:

Bob Wasileski
NOVA Chemicals, Inc.
1550 Coraopolis Heights Road
Moon Township, PA 15108

LETTER FROM THE CHAIR

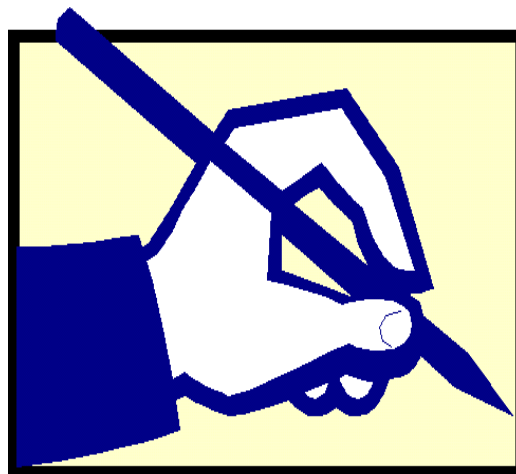
Dear Local Section Members,

As mentioned last month, we are rolling out an alternate route for you to participate in the technical meetings that are physically hosted in Pittsburgh. This internet connection to the technical presentation portion of the meeting will be free to local members. Access for non-members of the local section requires a nominal charge to encourage becoming a local member. Those funds are used for worthwhile activities such as our Engineer Week outreach that you notice in this month's issue.

We do not have a specific meeting topic for our May meeting. If you have topic ideas and a speaker in mind for our May meeting, please let me know. If a flurry of ideas mount (which would be great) we can always offer to schedule them for the next program year. Also, if your technical topic would be broad for global AIChE member interest, AIChE has solicited a request to develop them for webinar broadcasting.

April 22 is also the 40th anniversary of Earth Day, when we're reminded to do our part, take responsible action, and make a positive difference for the Earth's environment.

Paul Brezovec



APRIL MEETING ANNOUNCEMENT (FROM PAGE 1)

When: April 22, 2010

Where: ChemTech Consultants, Inc.,
Fourth Floor, Suite 402
1370 Washington Pike, Bridgeville, PA 15017
(412)221-1360 [Ted Anderson]

Agenda: 6:00-6:15 Registration
6:15-7:00 Buffet dinner
7:00- Professor Stinespring Presentation, Past Chair Awards

Menu: Chicken Marsala and Vegetarian Lasagna; plus Salad, Rolls Butter, Italian Medley Vegetables, Corn, Cajun Roasted Potatoes, and Brownies for desert

The technical presentation portion of the program will be broadcast on-line via WebEx starting at 7:00 p.m.

Price:

a.) for meal and in-person attendance - \$15/local section member, \$20/ non-member, payable at door
b.) for on-line access - free/local section member, \$5/non-member (Note: there is a service provider limit of 25 on-line attendees total – first registered, first served.) For those who are not local section members, complete registration by sending your payment for on-line access, by check payable to "AIChE Pittsburgh Section," to:

Paul Brezovec
Concurrent Technologies Corp.
100 CTC Drive
Johnstown, PA 15906

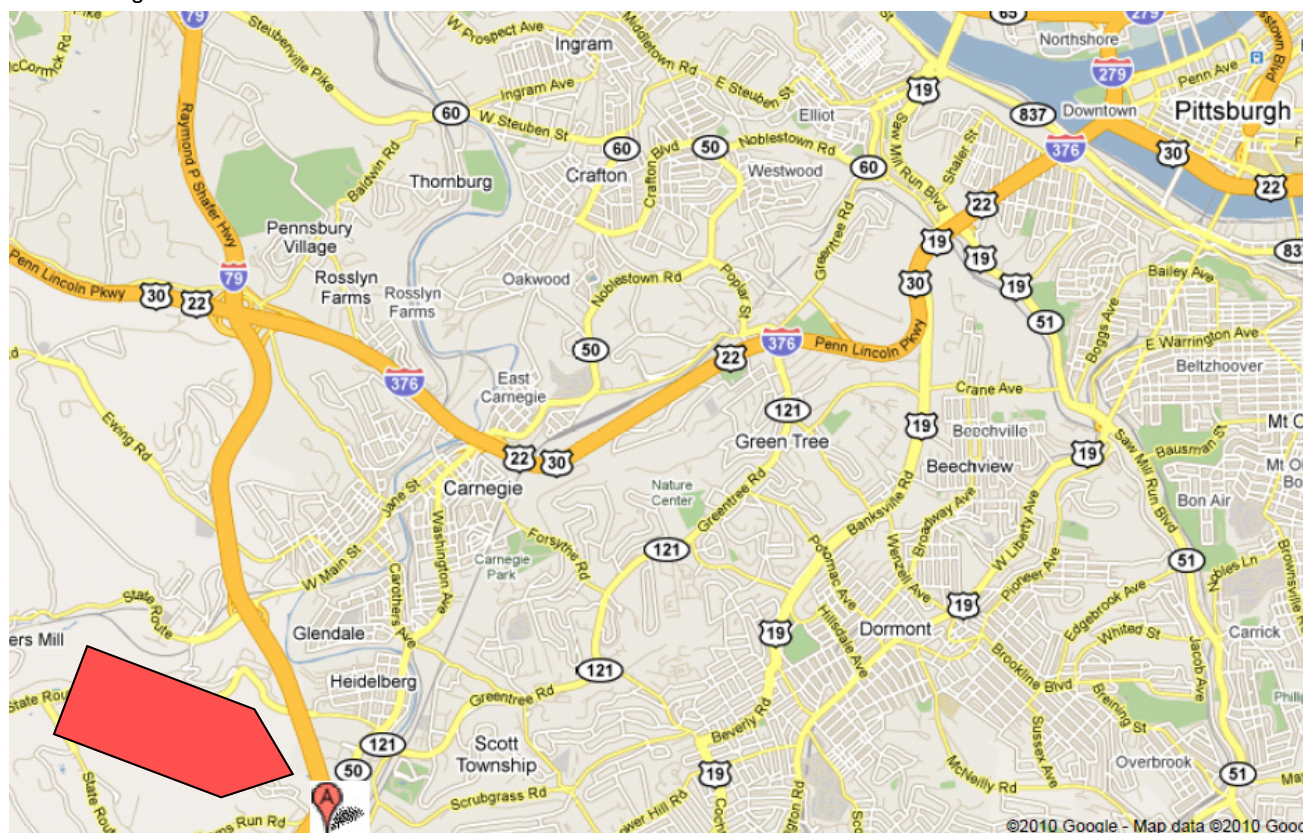
RSVP TO:

Mr. Paul Brezovec, 814-269-2844, E-mail: brezovec@ctc.com or (preferably) on-line at: <http://www.aichepg.org/reg> Your RSVP should include: Name, Company Name, E-mail Address, Telephone Number, and selection of either in-person attendance or on-line access. Details for registrants of WebEx access will be provided to your e-mail address, after your registration and membership status is confirmed.

Please make your RSVP (and receipt of payment for on-line access if applicable) by April 18th.

CANCELLATION POLICY:

If you must cancel your meeting reservation, please do so no later than 48 hours prior to the meeting, otherwise, in-person attendee registrants will be billed.



STUDENTS' NIGHT AND AWARDS BANQUET

Our March 4 meeting featured a presentation by the University Of Pittsburgh's Di Gao on his research in nanotechnology. We also recognized an outstanding senior from each of the four regional ChemE programs with our section's Professional Promise Awards. Awardees were selected by their home universities based on their potential for making exceptional contributions to our profession. Our congratulations go to :

Carmeline Dsilva - Carnegie Mellon University
Patrick Vescovi - University of Pittsburgh
Erica Sladky - West Virginia University
Michael D. Detwiler - Youngstown State University



Left: Di Gao emphasizes an important point in his presentation



Above: AIChE-President Paul Brezovec with PPA winners Dsilva, Sladky, Detwiler, and Vescovi

Also at the meeting, the following local university seniors presented outstanding posters describing their technical investigations in the field of chemical engineering. We applaud them for their knowledge and initiative. If any of these chemical engineering topics interest you or your company, you may contact these students for more details about their subject work:

- "Assessing the Signal-to-Noise Characteristics for Two Transcription Factor Assays," **Kristen D. Kief**, Kathleen M. Brundage, Christopher Cuff, Yogesh Kulkarni, and David J. Klink II. (Contact: kkief@mix.wvu.edu)
- "Fabrication of Multi-Layered Polymer Films by Spin-Coating," **James Aldridge**. (Contact: jealdrige@student.yzu.edu)
- "The Impact of CNTs on Actin Organization," **Sarah Brothers**. (Contact: sabrothers@student.yzu.edu)
- "Preparation of exfoliated graphite nanoplatelets/polystyrene nanocomposites," **Matthew Thompson**, Sushant Agarwal, and Rakesh Gupta. (Contact: mthomp29@mix.wvu.edu)
- "Promoting Middle School Alternative Energy Education with an Algae Growth Experiment (AIChE K-12 Education Initiative)," **Mike Detwiler**, **Jeff Sirko**, **Bethany Vlaiku**. (Contacts: jsirko@student.yzu.edu, bkvlaiku@student.yzu.edu)
- "Synthesis and Characterization of Au-Pd Bimetallic Catalysts Prepared by Electroless Deposition Methods," **Mike Detwiler**. (Contact: mddetwiler@student.yzu.edu)

JOB SEARCHING FOR CHEMICAL PROFESSIONALS

Presented by

The Society for Analytical Chemists of Pittsburgh
The American Institute of Chemical Engineers, Pittsburgh Section
The American Chemical Society, Pittsburgh Section
The Spectroscopy Society of Pittsburgh

Saturday, April 10, 2010

ROOM A221/A224, LANGLEY HALL, UNIVERSITY OF PITTSBURGH

4249 Fifth Avenue (entrance on Tennyson Avenue near Bigelow Boulevard)

Lunch Provided - Parking Available at Soldiers and Sailors Parking Garage

Pre-Registration Required

8:30 A.M.	Registration
9:00 A.M.	Welcome and Introduction
9:30 A.M.	MANAGING AN EFFECTIVE JOB SEARCH Daniel J. Eustace, Ph.D. Career Consultant, American Chemical Society
12:10 P.M.	OVERVIEW OF THE LOCAL JOB MARKET Joseph D. Jolson, Ph. D. Career Consultant, American Chemical Society
12:30 P.M.	Networking Lunch
1:00 P.M.	Resume Review, Personal Consultation, and Job Fair
4:00 P.M.	Close

(Undergraduates without a resume may participate in the afternoon group resume review)

Pre-Registration (by April 5)

Job Searching for Chemical Professionals Workshop

Send an email to Professor Toby Chapman

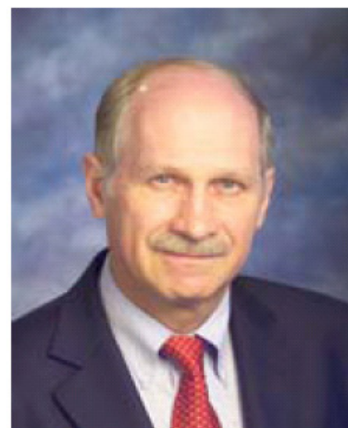
at:

tchapman@pitt.edu

*AIChE-Pittsburgh has
partnered with SACP,
ACS and SSP to
sponsor this valuable
—and timely—
employment program*

GROSSMANN NOMINATED FOR AIChE PRESIDENT-ELECT

AIChE's Nominating Committee has announced the slate of candidates for the officer and director positions for 2011. Ignacio Grossmann, Pittsburgh LS member and Rudolph R. and Florence Dean University Professor of Chemical Engineering at Carnegie Mellon has been nominated as a candidate to run for President-Elect! If—when!—Ignacio is elected, he will join Dale Keairns as a recent Pittsburgh-area President of our national organization.



A MESSAGE FROM DADY DADYBURJOR, AIChE-PITTSBURGH'S NEW CIO

An early version of some of this material was directly emailed to some members. However, that method of distribution left something to be desired. Also, it has become clear to us that not all members were covered. With apologies for any duplication, please read the "final" version below.

AIChE has initiated a program of Chief Information Officers (CIOs) who will provide information to Local Sections (and other entities). I have been designated the CIO for our (Pittsburgh area) Local Section. In carrying out my responsibilities, I intend to walk the line between providing information that may be useful and inundating your mailbox. In order to avoid confusing you with AIChE messages from different email addresses, I will send a master copy to our membership chair, Bob Wasileski, and he will forward you material from a single e-address which should clearly indicate from where it is coming. But you should feel free to direct bouquets or brackbats to me directly, at dady.dadyburjor@mail.wvu.edu

As an example of information to be provided, AIChE is very proud of its new feature, the Webinar (details on page 7). This is a web-based seminar. Members have the price of six of these included in their annual dues. (One can purchase more.) Topics cover a wide variety of issues, from production-based to research. AIChE's unscientific survey indicates that very few members are aware of these. The monthly update will include upcoming webinar topics, other AIChE events, and resources. I intend to forward future updates (through Bob) when I receive them. You may get another copy from other Divisions, etc., but one is attached below.

The February issue of the AIChExchange was attached to the e-mail that brought you this newsletter. Future issues of AIChExchange will be posted at our website: www.aichepgh.org

If you would rather OPT OUT of receiving e-mailings from me, please let me know at dady.dadyburjor@mail.wvu.edu. I have no wish to be unwelcome.

Many thanks for your cooperation.

*OIC is the channeler of
important news and
information from the
national organization to
Local Section members*

AIChE 2012 NATIONAL MEETING IN PITTSBURGH

The 2012 National Meeting of AIChE will be held in Pittsburgh at the David L. Lawrence Convention Center from October 28 to November 2. Additional information will be published in future newsletters and in CEP Magazine.



AIChE Information

Upcoming Webinars: <http://apps.aiche.org/chemeondemand/LiveWebinars.aspx>

Flame Flashbacks: Causes and Prevention

Presented by Dan Banks, P.E.

Wednesday, April 7, 2010 This webinar addresses the principle of flammability of vapor/air mixtures, including flammability limits, ignition temperatures, the effect of inerts and how to determine the flammability of any particular mixture. It also covers ignition sources and the common methods of avoiding flashbacks, including mixture dilution/enrichment, velocity flame arrestors (and how to apply them), mechanical arrestors, liquid seal arrestors, quick close valves and chemical injection systems. A list of references is provided for further study.

AIChE's Leadership Webinars: Visions of the Future from Industry Leaders

Presented by Henry T. Kohlbrand

Wednesday, April 14, 2010 Our capacity to understand the key trends that will shape the future of chemical engineering will determine how we need to prepare ourselves personally and professionally. Input from industry leaders on their views of the many factors and drivers for future change can give us valuable insights as to training, education, and career development opportunities that allow us to meet the future head-on. Business trends such as globalization, sustainability, and changing business models combined with key mega trends such as energy, water, infrastructure, transportation, and health/nutrition will greatly impact the roles of chemical engineers.

Gasification: Opportunities and Challenges

Presented by Dr. Shuncheng Ji

Wednesday, April 21, 2010 Gasification of solid feedstocks, such as coal and petroleum coke, is an efficient process to produce synthesis gas for use in combustion turbines and as a feedstock for chemical and fertilizer plants. Syngas can also be used to produce hydrogen and substitute natural gas (SNG, equivalent to pipeline quality natural gas).

Right from the Start: Mistakes to Avoid While Planning Capital Projects

Presented by Adnan Siddiqui

Wednesday, April 28, 2010 This webinar starts with an overview of current best practices and tools for project planning. After sharing the latest knowledge and research from leading project management entities, the webinar lists common mistakes and traps to avoid during project planning to ensure your project's success. This webinar should be attended by project managers, process engineers, design engineers, and others involved in developing and planning capital projects.

Laboratory and Industrial Hazardous Chemical Safety: A Code-Based Approach

Presented by Jeremy Lebowitz and Jonathan Eisenberg

Wednesday, May 5, 2010 The volumes of hazardous materials needed in a chemical facility vary, depending on the research and production requirements. From a fire protection and life safety standpoint, the model codes contain several design approaches for the storage and use of hazardous materials in such facilities.

AIChE Leadership Development Conference, June 4-6, 2010 Kingsport, TN, <http://www.aiche.org/ldc>

AIChE Benefits – <http://www.aiche.org/MemberCenter/FinancialBenefits.aspx>

AIChE Library – <http://www.aiche.org/MemberCenter/KnovelLI.aspx>

Webinars are a great way to stay up to date in our profession. Six are included with annual national membership dues.

Sustainable Energy Forum

Advanced Materials for Sustainable Energy

June 7-8, 2010

Youngstown State University, Ohio



FORUM OBJECTIVES:

1. Drive regional economic development through the commercialization of energy technologies
2. Information exchange on technologies related to renewable energy and energy efficiency
3. Identification of specific areas of research that are needed and topics for future discussion and exploration
4. Pinpoint opportunities to pursue joint research in technology development for sustainable energy
5. Discuss current models for developing partnerships and collaboration in energy technology development (work sharing, funding, contracting)

Tentative Schedule

SUNDAY, JUNE 6 – REGISTRATION AND PRECONFERENCE ACTIVITIES

- Noon – 5 pm – Pick up pre-registration packets and badges
- Evening networking event TBD

MONDAY, JUNE 7 – GENERAL SESSION OVERVIEWS: What are the needs?

- Invited Keynote Speaker: Secretary of Energy Dr. Steven Chu (invited)
- Invited Keynote Speaker: Governor Ted Strickland (invited)
- National perspective on Sustainable Energy (invited speakers on topics indicated below)
 - DOE, national perspectives on sustainable energy
 - General Motors, alternative fuels
 - Dominion Gas, Opportunities for gas utilization
 - First Energy, American Electric Power, the renewable energy grid
 - more
- Presentations by collaborating organizations

Networking Reception

TUESDAY, JUNE 8– RESEARCH WORKSHOPS: What are the solutions?

A series of breakout sessions will provide attendees with an opportunity to discuss their technology, its application in the advanced energy sector, and their needs to collaboration. Presentations will be made on technologies related to identified topical areas; a moderator will ensure discussion following presentations. Technology end users also have the opportunity to discuss their needs as well as group discussions in working format to further develop the needs/solutions for each area. The duration of each concurrent workshop will be based on interest and the number of accepted abstracts.

Organizing Committee:

- Martin Abraham, Michael Hripko, Michael Costarell, Clovis Linkous, Youngstown State University
- Barb Ewing, Office of Congressman Tim Ryan
- Mike Garvey, M*7 Technologies and Ohio CleanTech Group
- Dave Karpinski, NorTech
- DeWitt Peart, Allegheny Conference
- Eric Planey, Youngstown-Warren Chamber of Commerce

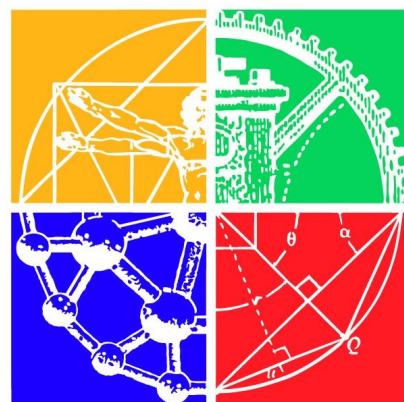
Visit our website at www.ysu.edu/sef for more details

AICHE-PITTSBURGH PARTICIPATES IN ENGINEERS' WEEK CELEBRATION

The Pittsburgh AIChE chapter sponsored a booth at the National Engineers Week event at the Carnegie Science Center held on February 19 and 20th.

AIChE volunteers assisted about 1,000 children of all ages (and a few adults) with making "superballs".

Thanks to all the volunteers for making this event possible: Paul Arch, Rob Boback, Tom Bressler, Mei Ling Ch'ng, Julia Johnson, Linda LeGoullon, Deborah Kosmack, William Mentzer, David Misenda and Mary Lou Vargo.



**ENGINEERS
WEEK® 2010**
February 14 - 20



AIChE-Pittsburgh Executive Committee 2009-2010

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Paul Brezovec
(brezovec@ctc.com)
Concurrent Technologies Corp
814-269-2844

Vice-Chair and Program

Open

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Past chair and Nominations

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www.aichepgh.org

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