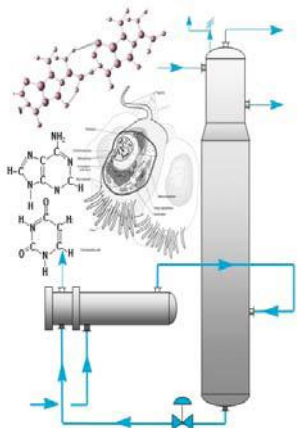


April Newsletter



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AIChE Chicago

April 2012 Meeting Notice

Engineering Approaches to Biotechnology

By: Dr. Neda Bagheri

Dr. William Miller

Dr. Joshua Leonard
(Northwestern University)

Date: **Tuesday, April 10th, 2012**

Location: **Pancoe Auditorium**

Northwestern University, 2200 Campus Drive, Evanston, IL

Cost: **Members: \$30** **Non-Members: \$35**

Students: \$5 **Unemployed Members: \$15**

Agenda

5:00 to 5:30 PM	Poster setup
5:30 to 7:15 PM	Poster session
6:00 to 7:30 PM	Dinner
7:15 to 7:30 PM	Judging wrap up and transition to lecture hall
7:30 to 7:45 PM	Section Announcements
7:45 to 8:45 PM	Engineering Approaches to Biotechnology
8:45 to 9:15 PM	Presentation of awards

Chair's Corner

SHALE GAS: BLESSING OR CURSE?

Most people have seen their natural gas bills go down substantially in recent years. Yet few probably know the reason for it. Even those aware of what is going on were most likely taken by surprise. A few years ago, there was concern that we could not import enough liquefied natural gas (LNG) to satisfy demand, since vaporization facilities were limited. Now, natural gas is so abundant that there are plans to export it.

Shale gas certainly represents a breakthrough in technology. In addition to the much lower price, there have been other benefits. For example, natural gas has a smaller carbon footprint than other fossil fuels, so it contributes less to global warming. The greenhouse effect has been confirmed from two directions. First of all, the computer model correctly predicts the one degree rise in average global temperature observed during the 20th Century. Secondly, the air bubbles in ice core samples show that while carbon dioxide levels rose and fell in the past, they have exceeded 300 parts per million only during the last century. So, shale gas will slow down the rate of temperature increase. It also buys some time for other energy technologies to develop. As a chemical feedstock, it has lowered costs for many producers. And the United States has now become energy-independent in one sector.

Shale gas holds the promise of lifting Appala-

chia out of poverty. Yet this boon comes with a caveat. If this region's economy depends primarily on a single, nonrenewable resource, as it did with coal, then the mistakes of the past will be repeated. Only a diverse economy will bring lasting prosperity.

Like corn ethanol, shale gas exhibits a dichotomy. In the former case, the two facets are food and fuel. On the one hand, shale gas will continue to supply the chemical industry with a cheap raw material for many years to come. Yet shale gas is still a fossil fuel. Although it slows the rate of carbon dioxide buildup, it only postpones the inevitable. In addition, there is some evidence that methane leakage from shale gas wells negates some of the advantage of a reduced carbon footprint. Moreover, its cheap price creates less incentive to research alternative fuels. The key will be to maintain focus and not lose sight of the goal. Scientific data, not just economics, must guide our decisions as a society .



CHAIR'S CORNER

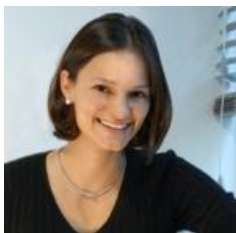
By: Steve Schade

Election Of Section Officers ABSENTEE BALLOTS

Election of officers will be held at the annual meeting on **May 22**. If you expect to be absent from this meeting, you may vote by absentee ballot. Please contact our secretary at aichechicago@gmail.com to obtain one.

April Meeting Information

Professor **Neda Bagheri** completed her studies at the University of California Santa Barbara. Her graduate research, conducted with Professor Frank Doyle, combined control theory with biological measurements to investigate circadian phase dynamics. After completing her PhD, she conducted postdoctoral research with Professor Doug Lauffenburger at MIT, where she investigated cell regulatory dynamics underlying virus-host interaction and immune function. Professor Bagheri's research objective is to employ control theory principles to address modern challenges in medicine and biology.



Dr. Leonard is an Assistant Professor in the Department of Chemical and Biological Engineering, and a member of the Chemistry of Life Processes Institute and Robert H. Lurie Cancer Center at Northwestern University. He received a B.S. from Stanford University, a PhD. from U.C. Berkeley, and he studied immunology as a postdoctoral fellow at the National Cancer Institute. At Northwestern, Dr. Leonard co-directs a graduate cluster on Biotechnology, Systems, and Synthetic Biology, and he advises the NU iGEM team, an undergraduate synthetic biology competition.



Professor Miller received a BS in ChE from Lehigh and an MS from MIT. After 8 years with Rohm & Haas and Air Products, he returned to UC Berkeley for his PhD. Bill has been at Northwestern since 1987; he served



as department chair and currently directs the Master of Biotechnology Program. He is a Fellow of AAAS and AIMBE, and is Editor of the Biochemical Engineering Journal.

Abstract:

Three talks will be presented. Professor Bagheri will discuss how computational tools can be integrated with biology to impact medicine. Example applications involve recovery from jet lag, cancer therapy, and immune function. Joshua Leonard will present a short overview of challenges and opportunities in synthetic biology - an emerging technical discipline that seeks to transform biology into a system that truly can be engineered to meet pressing societal needs in manufacturing, medicine, and energy. Dr. Leonard will also highlight the frontiers of this field being pursued by researchers at Northwestern University. Professor Miller will discuss Progress Towards Culture-Derived Platelet Production from Blood Stem Cells. Production of platelets from megakaryocytic (Mk) cells in culture would increase the supply of rare blood types and decrease the risk from blood-borne pathogens. Inspired by gradients of increasing pH and pO₂ with increasing Mk maturation in the bone marrow, we showed that low pH and pO₂ enhance Mk progenitor production, while supravascular pH and pO₂ increase Mk ploidy (platelet-producing potential). We also showed that the vitamin nicotinamide (NIC) greatly increases Mk ploidy and proplatelet formation in culture. We are developing a 3-phase process for Mk cell expansion and maturation. Understanding the mechanisms responsible for NIC-mediated increases in Mk ploidy is likely to lead to the discovery of even more effective conditions for Mk polyploidization. Professor Miller will also give a brief introduction to the Masters of Biotechnology Program at Northwestern.

Historical Engineering Events in April

April 6, 1938 – Teflon ® is discovered.

April 14, 1932 – First atom is split by a proton beam on a lithium target.

April 16, 1977 – Apple II personal computer released, featuring a central processing unit (CPU), keyboard, floppy disk drive, and a \$1,300 price tag.

April 19, 1957 – Release of FORTRAN programming language.

April 25, 1925 – Florence Rena Sabin is the first woman elected to National Academy of Science.

April 25, 1961 – Robert Noyce and Fairchild awarded patent for the integrated circuit.

April 26, 1986 – The Chernobyl nuclear plant exploded in the Ukraine and parts of Belarus, Russia; it was the world's worst civil nuclear catastrophe.

April 29, 1998 – Ten percent of the Amazon rain forest is preserved. On this day, Brazil agreed to set aside about 25 million ha (62 million ac) of the Amazon rain forest for conservation in cooperation with the World Bank and the World Wildlife Fund.

April 30, 2008 – Toyota Prius worldwide sales top 1 million mark.

Judges Needed NorthWestern University Student Poster Competition

Judges are needed for the student poster competition that will be held at the **April 12** local section meeting. Posters will be judged on quality and organization, the student's delivery and ability to answer questions, and the importance/relevance of the project. Please contact pgherena@yahoo.com if you would be willing to assist.

2013 AIChE Midwest Regional Conference





Young Professional Development Symposium

Saturday, April 14

12:00 PM – 4:30 PM

ETIQUETTE LUNCH presented by Shaun Adeoye from the Inner-Beauty Charm School

WORKSHOPS presented by the Young Professional Advisory Board (YPAB) of Chicago

Topic	Speaker
<i>Negotiating Your First Job and Finances</i>	<i>Dan Archer (Sterling Engineering)</i>
<i>Managing Online Profiles</i>	<i>Nathan Schurr (UOP)</i>
<i>Management Careers</i>	<i>Jessica Swary (PQ Corporation)</i>
<i>College and Professional Career Parallels</i>	<i>Janet Chu and Julie Gruhn (Middough)</i>
<i>Graduate School 101</i>	<i>Meagan Lewis (UOP)</i>
<i>Panel for Open Discussion</i>	<i>all YPs who attend</i>

5:00 PM – 6:30 PM

DINNER with Aaron Matthews from Navistar speaking on
"Being Involved With YPAB/AIChE After Graduation"

\$30 Ticket includes Symposium and Dinner

Link to purchase tickets on <http://iitaiiche.org>



at the
The Idea Shop in Tech Park

aiche@iit.edu

Ticket Sales will be Monday, April 2 – Friday, April 6

SAF Funded

Upcoming Meetings

Chicago Sections Meeting

April 10th @ Northwestern University
May 16th,

Spring Meeting and 8th Global Congress on Process Safety

Houston Hilton and George Brown Convention Center
Houston, TX
April 1-5, 2012

3rd International Conference in Stem Cell Engineering

Sheraton Seattle
Seattle, WA
April 29 - May 2, 2012

2012 AIChE Process Development Symposium

HYATT house
King of Prussia, PA
June 5-7, 2012

6th International Conference on Bioengineering and Nanotechnology

University of California, Berkeley Campus
Berkeley, CA
June 24-27, 2012

4th Latin American Conference on Process Safety

Hotel Sofitel Rio de Janeiro Copacabana
Rio de Janeiro, Brasil
July 3-5, 2012

2012 Annual Safety in Ammonia Plants And Related Facilities Symposium

Hyatt Regency Chicago
Chicago, IL
September 9-13, 2012

2012 Annual Meeting

Pittsburgh Convention Center
Pittsburgh, PA
October 28 - November 2, 2012

Sustainability in (Bio)Pharmaceuticals

Sheraton Old San Juan
San Juan, PR
November 11-14, 2012

AIChE Live Webinars in April

SBE Webinar: Biomaterials for Stem Cell Tissue Engineering by Dr. Treena Arinzeh

Dr. Treena Arinzeh
April 5, 2011
2:00 - 3:00 pm ET

AIChE Webinar: Maintenance and Reliability for Chemical Engineers, Part Four-Building the Business Case

Presented by David A. Rosenthal P.E.
Tuesday, April 10, 2012
2:00 - 3:00 PM ET

AIChE Webinar: Understanding Those Chemical Engineers!

Presented by Jack Hipple
Wednesday, April 18, 2012
2:00-3:00 p.m. ET

AIChE Webinar: Understanding Why Bulk Solids Behave Differently Than Liquids

Presented by Eric Maynard
Wednesday, April 25, 2012
2:00 - 3:00 p.m. ET

MAY 22 AICHE CHICAGO ELECTIONS

PROPOSED SLATE FOR 2012

PLEASE NOTE THAT THE OFFICER ELECTIONS FOR FISCAL YEAR JULY 1, 2012 - JUNE 30, 2013 WILL BE HELD DURING OUR MAY MEETING. IF YOU CANNOT ATTEND PLEASE CONTACT [Jerry Wilks](mailto:gwilks@citgo.com) (gwilks@citgo.com) FOR AN ABSENTEE BALLET.

Chair Elect - Jerry Wilks

Jerry Wilks is a senior metallurgy and corrosion engineer at the CITGO Lemont refinery since 2005. Prior to that Jerry has been a US Air Force officer and also worked at different engineering position at AMOCO and BP Naperville campus and Whiting refinery. He has a BS in Metallurgical Engineering and two masters degree in Materials Engineering and Chemical Engineering all from IIT in Chicago. Jerry holds three US patents and is the author of several publications. He has served as the secretary and vice-chair program of the AICHe Chicago section and has been a contributor and organizer of the AICHe midwest regional conferences since 2006. He is currently the secretary of the Chicago section.

Secretary - Steve Wozniak

Steven Wozniak is a Consultant with Jacobs Consultancy since 2011. Prior to that Steven was a Senior Process Engineering Lead with Jacobs Engineering in Houston where he lead a team of process engineers in the design and integration of various process units into refineries. He has over 10 years experience and design expertise in ULSD hydrotreaters. Steven served as the House Chair for AICHE Chicago in 1998. He holds a B.S. in Chemical Engineering from the University of Illinois Champaign Urbana and earned a M.S. in Chemical Engineering in a joint degree between the National University of Singapore and the University of Illinois Champaign Urbana.

Treasurer - Jessica Swary

Mike Buettner— Vice-Chair Programming

Mike Buettner is a Sales Manager at Alfa Laval, Inc. focused on the Chicago market. Mike has over 15 years of experience primarily in the refining industry, utilizing that experience to create heat transfer and separation solutions for the process industry. Mike has had been a part of the AICHe organization in Chicago for over 3 years with roles as Secretary and Treasurer. Mike lives in Yorkville and in his free time is focused on the busy lives of his three children. He is currently the treasurer of the Chicago section.

Director at Large - Jennifer Guilfoyle

Jennifer Guilfoyle is a Process Engineer with Middough in Oak Brook. She joined Middough in 2010 after receiving a BS in Chemical Engineering from Illinois Institute of Technology (IIT) and passing the fundamentals of engineering exam. In her current position, she is involved in process design in the refining industry. She was an active member of the IIT student chapter of AICHE and is a current active member of the Chicago Section's Young Professional Advisory Board.

Officers and Contact Information

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AICHE CHICAGO SECTION

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We are on the web
www.aiche-chicago.org

We want you for AIChE-Chicago!

We need your help!

How many opportunities can you find to learn project management, delegation and leadership skills for free? Becoming an officer in the Chicago Section of AIChE is such an opportunity. While you're learning new skills, your local network grows. Just about all of us are either undergoing a career change, contemplating a career change, or are wondering if our career will be changed for us. Volunteering with AIChE is a way to add skills and accomplishments to your resume.

aichechicago@gmail.com

http://www.aiche-chicago.org/Section_Info/Volunteer.html

Submitting Articles to AIChE Columns

We welcome email submissions for our monthly newsletter. Commercial announcements are subject to the fee schedule below. News stories, editorials, technical or career related non-commercial contributions are always welcome with no charge. We consider job postings, announcements of for-fee training courses, expositions, conferences as commercial. Categorization of announcements is at the sole discretion of the Chicago AIChE Board of Directors. Chicago AIChE may publicize activities of interest to our members by cooperating professional societies and other non-profits without charge.

Please submit your material to aichechicago@gmail.com with "newsletter article" as a subject line.

AICHE Publicity Committee Fees	Academic (non-AICHE)		Company		Recruiters	
	Per Month	Per Year	Per Month	Per Year	Per Month	Per Year
Advertisements (3X3)	100	450	150	675	N/A	N/A
Half-Page (~7"x 4.5")	280	1260	420	1890	N/A	N/A
Job Posting (Size?)	50	225	100	450	250	N/A
Special Sizing	Contact Publicity Committee aichechicago@gmail.com					

For the purchase of a year ad, customers have the option of changing ads/jobs month to month.

Student and AIChE Member Related Postings are Free.

