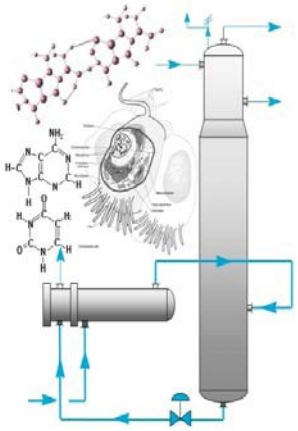
AIChE Chicago Section

March Newsletter



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AIChE Chicago

March 2012 Meeting Notice

Using a Combination of Modeling and Testing to Minimize Uncertainty in Crystallizer Design

by- **Jim Majors**
Vice President of Technology
Swenson Technology, Inc.

Date: ***Wednesday, March 14th, 2012***

Location: ***Glenwood Oaks Rib and Chop House***
106 North Main Street, Glenwood, IL 60425

Cost: **Members: $30 Non-Members: $35**
Students: $5 Unemployed Members: $15

To Register Click the Link;

http://www.cvent.com/d/3cq0vz/4W

This meeting includes a tour of the Swenson laboratories.

Agenda

5:00 PM	**Swenson Laboratory Tour**
7:30 PM	**Buffet Dinner,**

Chair's Corner

Following the death of Steve Jobs, people have inevitably begun to analyze his highly successful business style. A recent biography concluded that putting products above return on investment was the key. Jobs thought that good products would lead to good profits. Certainly that is a far cry from most American businesses, where the focus is on this quarter's financial results.

One outfit that followed a similar path to success was, interestingly, the Chicago Blackhawks. By putting a good product on the ice, Rocky Wirtz was able to turn the franchise around. That was in marked contrast to his father, "Dollar Bill", who seemed obsessed with the bottom line. Now both the Blackhawks and Apple have become case studies for turnarounds in business-school textbooks.

Previous studies have shown that companies that continue their research and development (R&D) spending during a recession outperform those that cut back. While this view goes against the grain in this country, it means that firms who follow it have products ready to launch after a recovery begins. After the dot-com bubble burst a dozen years ago, most of Jobs's competitors quit spending. Meanwhile, following the downturn, Apple came out with iPods, iTunes, Apple stores, and a new operating system.

Another example is China. By investing in their solar industry during the last meltdown, they have become market leaders. American companies, on the other hand, are still sitting on $2 trillion.

Another area where spending should continue during a downturn is in advertising. Businesses that do so will actually increase market share. The reality, of course, is that newspaper ad revenues dried up during the last recession.

Jobs taught us that innovative products, not a financial focus, foster real growth. Unfortunately, CEOs tend to emphasize the latter. When they finally begin to put engineers above accountants, then more companies will look like Apple.

CHAIR'S CORNER
By: Steve Schade

Chicago Section's April Meeting Information

The April meeting will be held on Tuesday April 10th at Northwestern University campus in Evanston at the Arthur and Gladys Pancoe-NorthShore University Health System Life Sciences Pavilion and will include a student poster competition, dinner, and a guest speaker. Students from UIC, IIT, and NWU will all be invited to participate in the competition.

February Meeting

The February AIChE Chicago Meeting was success with 87 attendees! Although not all attendees could fit in party room at Greek Islands West, everyone enjoyed the company and fantastic Greek food, including saganaki, spinach pie, and chicken skewers. Section Chair Steve Schade started the meeting, and Young Professionals Chair Aaron Matthews spoke about upcoming young professional events. Speaker Brian Gahan's presentation, "Natural Gas and Oil Shales: Boom or Bust?" informed attendees of the background of the oil industry and how shale oils fit in to the more recent years of oil industry history.

March Meeting Information

Abstract:

The goal when designing a crystallizer is an efficient, robust process that will perform well in the real world. Crystallizer design typically starts with a solubility model at steady state equilibrium conditions. Solubility data must be located or generated in glassware in the laboratory. A real crystallizer requires supersaturation to drive the growth of crystals. Kinetics, interactions and habit modification complicate things further.

The solubility model predicts what is no longer in solution, but not the characteristics of the resulting solids. Variations in feed chemistry and operating conditions affect the outcome. Different mechanical configurations have different flow patterns and temperature variations. End product quality is affected by downstream handling equipment. All of this must be factored into the design.

Process optimization can be performed iteratively at a small scale and relatively low cost using software modeling alternating with testing. Recycle streams must be carefully defined since they have a large cost impact. Determining accurate capital and operating costs is necessary to support economic justification of the new process. Glassware testing can be used for a proof of concept but a validated design with proof of product requires pilot scale testing under real world conditions.

Biography:

Jim Majors is Vice President of Technology for Swenson Technology, Inc. He is responsible for technology development at Swenson and manages the Test Center and Information Technology group. He has been with Swenson for 12 years and has a total of 23 years of experience designing and troubleshooting evaporators and crystallizers. Jim has a B.S.Ch.E. from Midwest College of Engineering (IIT West) and an M.B.A. from North Central College. He is a member of AIChE, IChemE and ACS.

To register Click the link,

http://www.cvent.com/d/3cq0vz/4W

YPAB News

YPAB Wine Webinar & Tasting

When: Friday, March 23, 6:30 pm
Where: Palatine, IL (Address will be sent out at a later date)

How much: $7/person for food

Note: Limited space available, **AGES 21+ ONLY**. Please rsvp by **March 16th** to Jon Haughton, jmhaughton@gmail.com.

As we grow older and embrace our post-college years, we begin to embrace the finer things in life. No more will we tolerate cheap beers in run down campus bars. For thousands of years, people have enjoyed the fermented grape juice known as wine. Therefore, YPs in March will set their sights to this wonderful drink.

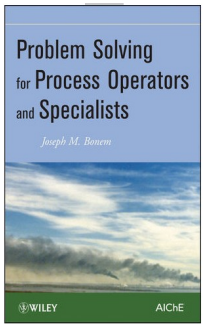
First, we will watch an AIChE webinar titled "**Cheers! The Chemistry of Wine.**" From the description:

"It is said that a meal without wine is like a day without sunshine. This webinar provides all the necessary information to fully appreciate this best companion of good food. It presents the history of wine as well as the chemical aspects of fermentation and of aging. Recent studies suggesting that moderate wine consumption is beneficial to health are also examined in a critical fashion. Informative and humorous, the webinar concludes with an introduction to the "science" of wine appreciation with particular reference to the understanding of wine labels and the proper technique of wine tasting. A pleasure for all, from the experienced oenophile, to the wine lover "in waiting."

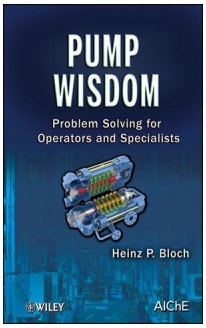
We will then enjoy a wine tasting (And maybe have debates on how best to engineer a commercial wine facility).

New Books

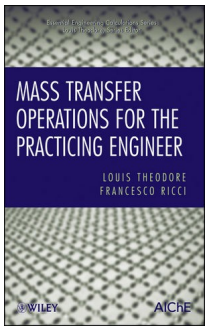
Problem Solving for Process Operators and Specialists
Joseph M. Bonem
ISBN: 978-0-470-62774-7
Hardcover
June 2011
Non-member price: $84.95
Member price: $67.96 (You save 20%)



Pump Wisdom: Problem Solving for Operators and Specialists
Heinz P. Blach
ISBN: 978-1-1180-4123-9
Hardcover
April 2011
Non-member price: $49.95
Member price: $39.96 (You save 20%)



Mass Transfer Operations for the Practicing Engineer
Louis Theodore, Francesco Ricci
ISBN: 978-0-470-57758-5
Hardcover
August 2010
Non-Member Price: $149.95
Member Price: $119.96 (You Save 20%)



Basic Process Measurements
Cecil Smith
ISBN: 978-0-470-38024-6
Hardcover
346 pages
June 2009
Non-Member Price: $89.95
Member Price: **$71.96** (You Save 20%)

Historical Engineering Events in March

March 1, 1864- Rebecca Lee Crumpler became the first African American woman to receive a medical degree and the only to receive a degree at the New England Female Medical College, which closed in 1873.

March 3, 1831–Thomas Jennings became the first African-American to receive a patent for his invention of 'dry-scouring', a process better known today as dry-cleaning. As a free man, he established a local business in New York in which he sold clothing.

March 5, 1991 – The 5 millionth patent is issued for a process turning garbage into fuel by Lonnie O. Ingram, a professor of microbiology at the University of Florida; Tyrell Conway, a former post-doctoral student at the university, and Flavio Alterthum, a visiting professor who is now chairman of the microbiology department at the University of Sao Paulo in Brazil.

March 7, 1979 - Voyager 1 transmits first images of a ring system around Jupiter. Voyager 1 was launched on September 5, 1977 and it passed Saturn in November 1980. A second spacecraft, the Voyager 2, was launched earlier on August 20, 1977.

March 8, 1775 – Priestley discovers oxygen through experiments with mice. Oxygen was independently discovered in the 1770′s; the most famous names associated with this discovery are Joseph Priestley, Carl Wilhelm Scheele and Antoine Lavoisier.

March 8th is International Women's Day – "a global day celebrating the economic, political and social achievements of women past, present and future". On March 8th and the weekend before, thousands of events are held throughout the world to celebrate women's achievements and highlight global issues concerning women and girls.

March 9, 1964 – First Ford Mustang rolls off assembly line. Ford sold 22,000 of the sporty car on the first day of sales in April 1965. The Mustang was one of the most successful product launches in automotive history with over one million units sold in its first 18 months.

March 13,1970 – PDP-11 minicomputer introduced by DEC (Digital Equipment Corporation) and remained in active production until 1996. It was one of the most popular 16-bit minicomputers ever produced.

March 14, 1987 – First Pi Day is celebrated. 3/14 (3.14) was chosen by physicist Larry Shaw of the Exploratorium Museum in San Francisco to be celebrated as Pi Day. For more information, browse the Engineering Pathway's educational resources on Pi Day and other irrational numbers.

March 14, 1927 – First female engineer in ASCE. Elsie Eaves was the first woman in the US to be elected as a full member to the American Society of Civil Engineers (ASCE).

March 16, 1926 – Dr. Robert Hutchings Goddard launched the world's first successful liquid-fuel rocket. Goddard's rocket was a very small contraption connected to tanks with gasoline and liquid oxygen, and sitting atop a frame 10 feet tall. It screeched into the air for a few seconds, reaching an altitude of about 40 feet and crashing down about 200 feet from its launch site.

March 19, 1932 – the Sydney Harbour Bridge, Australia, was opened. It is the world's largest steel-arch Bridge. For more information, see the Engineering Pathway's resources on bridge design and construction.

March 22, 1985 – The Vienna Convention for the Protection of the Ozone Layer is adopted in response to studies documenting the harm caused to the environment and our own health by ozone-depleting substances. Ozone is a colorless gas, closely related to the oxygen in the air we breathe.

March 24, 1959 – the maser was patented by Charles Hard Townes (No. 2,879,439), who was a professor at Columbia University. "Maser" is an acronym for "Microwave Amplification by the Stimulated Emission of Radiation ".

March 25, 1954 – Production of RCA's first color television sets. RCA based their color television on the 1947 patent application of Alfred Schroeder, for a shadow mask CRT. Their system passed FCC approval in late 1953 and sales of RCA color televisions began on March 25, 1954.

March 27, 1933 – Polyethylene is discovered. Polythene is also known as polyethene or polyethylene. It was discovered in 1933 by Reginald Gibson and Eric Fawcett, two scientists working at ICI's research laboratory at Winnington, Northwich, who accidentally discovered the white, waxy solid while attempting to react ethylene with benzaldehyde in an autoclave.

March 30, 1842 – Dr. Crawford Long first uses ether as anesthesia to provide his patients with painless surgery. Diethyl ether (C2H5-O-C2H5), also known as ethyl ether or simply ether, is a clear, highly flammable liquid with a sweet, pungent odor.

March 31, 1889 – Eiffel Tower opens. The 300m Eiffel Tower was commissioned to commemorate the French Revolution. Amazingly, all of the elements were prepared in Gustav Eiffel's factory located at Levallois-Perret on the outskirts of Paris. There were 18,000 pieces used to construct the Tower.

Du Page Engineering Week (E-Week) Expo 2012

The 28th Annual DuPage Area Engineers Week was held at Illinois Institute of Technology's Daniel F. and Ada L. Rice Campus in Wheaton.

DuPage E-week is a celebration of the fun that math, science and engineering that is open to the public. The theme for the 2012 event was "Engineering: The Gateway to Tomorrow's Technology." The goal of the annual event is to ensure a dedicated, diverse and well educated future engineering workforce by promoting pre-college literacy in math and science.

AIChE-Chicago's Young Professionals group hosted a table that included a fuel cell car demonstration and an overview of corn refining. YPs also spoke to students about what Chemical Engineers do, companies that hire them, and the type of classes that will prepare them for a Chemical Engineering degree.

Expo's target age group is middle school, though people of all ages participated in the hands-on activities and demonstrations directed toward introducing students of all ages and their parents to the current state of technology and advances being made throughout industry.

We had a record turn out of volunteers this year! Special thanks to all those that donated their time!

To see more photos of the event, visit the YP-Chicago website at www.aiche-chicago.org/ypab

Upcoming Meetings

Chicago Sections Meeting
March 14th@ Glenwood IL
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 March

AIChE/NSEF Webinar: Carbon Nanomaterials for Energy-Related Applications

Presented by Dr. Yury Gogotsi
Wednesday, March 7, 2012

This webinar will provide an overview of research activities in the area of nanostructured carbon materials with focus on supercapacitors and other energy-related applications. Supercapacitors are devices that store electrical energy electrostatically and are used in applications where batteries cannot provide sufficient power or charge-discharge rates. Until now, their higher cost, compared to batteries with similar performance, has been limiting the use of supercapacitors in many household, automotive and other cost-sensitive applications. This presentation describes the material aspects of supercapacitor development, addresses unresolved issues, and outlines future research directions.
High surface area carbon materials are widely used as supercapacitor electrodes. Extraction of metals from carbides can generate a broad range of potentially important carbon nanostructures, which range from porous carbon networks to onions and nanotubes. They are known as Carbide-Derived Carbons (CDC). The CDC structure depends on the crystal structure of the carbide precursor as well as process parameters including temperature, time, and environment. Extraction of silicon, boron, aluminum, zirconium, or titanium from their respective carbides by chlorine at 200-1200°C results in the formation of micro- and mesoporous carbons with the specific surface area up to 3000 m²/g. CDC technology allows the control of carbon growth on the atomic level, monolayer by monolayer, with a high accuracy. It will be shown that the pore size to ion size ratio determines the efficiency of electrochemical energy storage systems.

AIChE Live Webinars in March

Design of nanoporous carbons for supercapacitor electrodes, hydrogen and methane storage, fuel cells, and other applications will be briefly addressed in this presentation.

Attendees will learn about the variety of Carbon Nanomaterials for Energy-Related Applications, from graphene to nanotubes, activated carbons to carbon onions, and carbide-derived carbons. Their synthesis, structure, properties and applications will be described.

Those who would benefit from this presentation include scientists and engineers working on carbon materials, nanomaterials, materials for energy-related applications, batteries, supercapacitors fuel cells, gas storage, electrolytes, etc.

AIChE Webinar: Pressure Relief Valve Sizing Equations' Basis

Presented by Aubry Shackelford
March 14, 2012

For sizing pressure relief valves, many turn to the guidelines and practices of ASME and API that present specific sizing equations given a required relief rate and basic fluid properties. Application of these sizing equations is fairly straightforward for idealized systems (nonflashing liquids or ideal gases), but increase in complexity for non-idealized systems. In some cases, there are no sizing equations presented, leaving the engineer to wonder if some simplifying assumptions can be made to allow the use of idealized equations or if further analysis needs to be done. A fundamental understanding of the basis for the relief valve sizing equations, which is founded on isentropic nozzle flow, will allow one to view the sizing equations as part of a unified mathematical approach, to determine the applicability and limits of the idealized assumptions, and to have a general alternative for use in any fluid regime.

In this webinar, engineers who are responsible for the sizing of pressure relief valves and would like a more in-depth understanding of the mathematical basis for the sizing equations learn 1) the basis for the sizing equations as the isentropic nozzle mass flux integration 2) the effects that the idealized assumptions have on the mass flux integration to yield the common sizing equations, and 3) how to apply a numerical integration to size a pressure relief valve for any fluid.

AIChE Webinar: Effective Delegation

Presented by Henry T. Kohlbrand
Wednesday, March 21, 2012

Delegation is a critical skill in today's fast-paced and increasingly global business world. This webinar focuses on how supervisors and teams can effectively delegate important tasks and get optimal results. It also explores how those who are assigned tasks can make sure the delegation is set up for success. As more teams work across geographic distances, understanding the principles of effective delegation can positively impact productivity and job satisfaction. The webinar discusses principles of effective delegation and gives examples of good (and bad) practices.

This webinar is directed towards anyone who delegates or has tasks delegated to them and is interested in understanding success factors for effective delegation. Participants will learn principles for successful delegation. It applies to people in industry, academic, and government sectors

Five Tips to Ace Your Next Phone Interview

In today's job market a phone interview is the first step toward a face-to-face interview. Yet most job seekers dread phone interviews. The lack of facial cues and body language tends to unnerve interviewees. If you feel this way as well, the following tips will help you feel more in control and confident for your next phone interview.

Eliminate distractions.
Choose your environment wisely. For best results plan to interview at home in a room cut off from kids, TV and pets. Use a good quality land line and disable phone features like call waiting.

Print out these documents.
The best thing about phone interviews is that you can have as much supporting documents handy as you need. Minimally, have your resume and the job description printed out.
Optimally include a list of your accomplishments that you can share. Additionally, you can have a list of answers to the toughest questions you anticipate at hand. For unplanned phone interviews, keep these documents within easy reach so that you are always ready refer to them.

Watch your own body language.
The toughest thing about phone interviews is the lack of physical cues, but they will be able to &#65533;hear&#65533; the positive energy in your voice when you smile as you speak. Your voice will carry better when you sit up straight, or better yet, stand as you speak.

Ask the right question.
Be prepared with a short list of questions to ask that will uncover your interviewers &#65533;hot buttons.&#65533; This will help you to hit the right selling points when you answer his questions. You'll be less dependent upon body-language ques when you already know what he wants to hear. Your questions might include:
What qualities are you looking for?
What are the most significant challenges of the position?

Sell yourself.
If you don't sell yourself you won't be invited for the face-to-face interview. Specific examples are the best way to demonstrate how well you've done your job. Stories sell. Before the interview practice talking about your best accomplishments. Don't think of it as bragging. After all, potential employers are looking for people who can solve problems. If you don't tell them how you've solved problems they will never know that you are the best candidate for the job.

A face-to-face interview is the goal of the phone interview. Don't be shy to ask to be included in the next phase of interviews. Let your enthusiasm for the employer and position come across loud and clear. Once you've aced your phone interview you'll be on your way to wowing them in person.

Deborah Walker, Certified Career Management Coach
Read more career tips and see sample resumes at:
www.AlphaAdvantage.com
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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.

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Half-Page (~7"x 4.5")	280	1260	420	1890	N/A	N/A
Job Posting (Size?)	50	225	100	450	250	N/A
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