

The Packed Column

American Institute of Chemical Engineers - Upper Midwest Section

February 2006

CHAIR'S CORNER

by Mark Arlinghaus

As an engineer, I typically tackle a problem by defining objectives and looking for solutions that best achieve those objectives. The difficulty I have had recently is that I have been undervaluing human behaviors and preferences when I define the objectives. For example, control systems that have theoretical advantages fall flat if they are not used correctly by line operators, and even when systems are simplified, those changes are not helpful if proper training is not given. The best engineering designs can be failures if the people's behaviors do not change. Dean Kamen's Segway personal transporter is an example of an underperforming invention. Technically, its gyroscopic stabilization system works well for moving from point A to point B, but few people have adopted it as an alternative to a car or bicycle. There is no shortage of examples in the computer world where arguably superior technologies fail to take hold.

As the nation looks for solutions to rising energy costs and the risk of global warming we should remember that our behaviors will always trump technology. Hybrid engines and fuels cells cannot significantly reduce energy consumption if vehicle weights rise, if consumers continue to demand increasing driving performance, or if we drive more miles. Our houses also grow faster than our innovations. In the last 30 years homes have grown from 500 square feet per person to 900 square feet per

person. This largely offsets better furnaces and insulation. Often improvements in efficiency mean that we use more of a resource, not less.

As politicians debate America's energy policy, I hope that they will spend less time worrying about which technology to rely on and more time contemplating what behaviors need to change. Ethanol, hybrids, fuel cells, liquefied natural gas, coal gasification, and bio-diesel may all play a roll in our economy's future, but all of these together cannot reduce our energy expenditures if our energy consumption continues to grow as it has since the industrial revolution began. We might hope that nuclear fusion will deliver on the promise to make electricity "too cheap to meter" but until it is proven out, we need to look at the consumption term, not just the generation term, in this energy balance.

We need not look at energy conservation as an environmental issue, although many rightly do. We can encourage conservation on purely economic grounds. The simple fact is that as demand rises faster than supplies, more money will leave the American economy. Prices for all petroleum raw materials will rise and food prices will become linked to energy prices once bio-fuel production becomes wide spread. All this makes our energy choices critical to our economy and, indirectly, our national security.

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<http://www.aichelocal.org/tc>

FEBRUARY MEETING

AIChE YPAB Presents
“Back to the Basics” Series

Positive Head: Pump Basics By PSI Engineering

Date: Monday, February 20th, 2006

Time: 5:30 PM

RSVP by Wednesday, February 15th to Matt Atkins (matt.atkins@fhr.com or 651-438-1354)

Dinner: Provided by PSI Engineering

Who: Event is open to all AIChE members and guests

Description:

This event will focus on basic information and hands-on learning about pump types, failures, and selection. We will break into three groups and travel through different stations learning about how to select different types of pumps and drivers for applications in food, chemical injection, and various other applications by request. Another stop will be a tour of pump parts in the warehouse and will include looking at various pump failures to discuss the importance of getting the right setup from the beginning. The last station will be discussing the physical parts of the pump that make it work and will be a hands-on disassembly of various pumps while discussing the pump parts.

Expect this to be a very interactive experience to allow you to gain knowledge for first time exposure as well as seasoned pump enthusiasts!

Space is limited. Please **RSVP by February 15th** to Matt Atkins.

Agenda:

5:30-6:00 Dinner and Networking

6:00-7:30 Rotations

7:30-8:00 Networking

PSI Engineering
952-894-3150
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Burnsville, MN 55337-6872

Place an ad here and get results! Reach over 600 chemical engineers!

**Nathan Johnson, doc_curtis@rocketmail.com
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MARCH MEETING

MinnTS 2006

4th Annual Minnesota Joint Technical Symposium

Alternative Energy Sources

Speakers

John Goodman, Sr. VP, Chief Technology and Innovation Officer, Entegris
Fuel Cells and the Potential Hydrogen Energy Future

Dick Hemmingsen, Director of the Institute for Renewable Energy and the Environment
at the University of Minnesota
Biological Based Energy Sources and Minnesota Based R&D

Thursday, March 16, 2006

5:00 p.m. – 9:00 p.m.

Meeting Location:

Medtronic

694 & Highway 65

Fridley, MN

Cost

\$25

Tentative Agenda

5:00 - 6:00 Registration, Medtronic tours, social with refreshments

6:00 - 7:00 Dinner (& move into auditorium)

7:00 – 9:00 Speakers

Reservations and More Information

Follow the instructions on the MinnTS 2006 website: www.MinnTS.org

Contact kurt.waananen@genmills.com with any questions

AIChE Upper Midwest Annual Symposium

Final Announcement and Call for Speakers

Tuesday, April 11th, 2006

Time : 8:30 AM – 4 PM

(lunch provided)

At the Hopkins Eisenhower Community Center

1001 State Highway 7

Hopkins, MN 55305

Keynote Speaker :

Dr. Eric Hockert

Process Development Manager, Boston Scientific

“The Medical Device Industry in Minnesota: A Brief History and Future Possibilities.”

For this year’s AIChE symposium, the keynote talk and one break-out session will focus on **“The Future of Manufacturing in Minnesota.”** We are inviting other potential speakers (either yourself or someone you would like to nominate) in this area as well as other topics. ****We will also be offering AIChE PDH credits to any engineers who are interested in keeping up their professional development hours. Please ask at the registration table for your form.****

As in previous years, undergraduate students are encouraged to submit posters for the **student poster contest**. There are cash prizes for the top winners. This year, we would like to invite at least two students to be speakers during the morning sessions. We are also looking for **corporate sponsors** for this contest.

Please contact James Easton (phone: 952-947-4083, email: jimeaston@mn.rr.com) to submit speaking interest (with topic, speaker, and speaker credentials.) Be prepared to submit an abstract. You can also contact him to sponsor this event, or to sponsor the student poster contest. **Deadline for speaker interest/nominations is February 20, 2006.**



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