

# The Packed Column

American Institute of Chemical Engineers - Upper Midwest Section

January 2004

## **CHAIR'S CORNER**

by Jim Easton

### **National Slide Rule Museum**

*"If you don't know where you're going, you'll probably end up somewhere else." -Yogi Berra, former New York Yankee catcher*

Have you given much thought to your car's speedometer? It is one of the few mechanical items that has resisted the conversion from analog to digital. About fifteen years ago automobile manufacturers went to digital instruments including the speedometer. The digital speedometer was a marketing flop. Today's speedometer looks very much like it did thirty years ago.

What else will hold fast against the incoming tide? This column considers four questions. Feel welcome to e-mail your opinions and comments to [jim.easton@worldnet.att.net](mailto:jim.easton@worldnet.att.net)

*"A human being is the best computer available to place in a spacecraft. . . It is also the only one that can be mass produced with unskilled labor." Werner von Braun*

#### **1. Will all engineering calculations be done on computer?**

I was asked to determine the heat transfer coefficient of peanut butter. There was no time or budget for test work on peanut butter. Sizing the heat exchanger had to be done based upon judgement and experience. Such experience does not come from software.

*"Home computers are being called upon to perform many new functions, including the consumption of homework formerly eaten by the dog." Doug Larson*

#### **2. Are there engineering and manufacturing activities that will still be done manually?**

A hundred years ago an entire brewery could be operated with one pump. Water was pumped to the top floor of the brewery and gravity took it through the rest of the plant. Today, plants with 100 pumps and 200 level controllers have not improved the reliability of the brewery or the taste of the beer,

*"I have hardly ever known a mathematician who was able to reason." Plato*

#### **3. Does dependence upon computers remove us from a connection with reality?**

Modern chemical plants are designed so that the plant operator does not have to leave the control room. Changes in operations are done on a touch screen. Several plants have rules that every thirty-minutes the control room operator must take a reading on a manual pressure gauge. This rule is meant to get the operator out of the control room. A pipeline leak could be observed by the operator before an alarm system detects it.

*"Freedom lies in being bold". - Robert Frost*

#### **4. We not longer have to do the grunt work of manual calculations. Does that make today's engineers more creative than 30 years ago?**

The University of Oklahoma's football team lost its conference championship game to Kansas State University by a score of 35-7. As a reward for losing a game by 28 points Oklahoma was sent to the Bowl Championship Series title game. Only the creative use of a computer-based college football ranking system would permit such an imaginative outcome.

If you would enjoy dinner time conversation discussing questions like those noted in this column, attend an AIChE section meeting. Then over dessert Vice Chair, Ryan O'Connor will discuss his doctoral thesis, "The Use of Computer Models to Determine the Mythical National Championship for College Football."

# JANUARY MEETING

## University of Minnesota Campus Night

Thursday, January 22, 2004

Coffman Memorial Union, Mississippi Room  
300 Washington Ave. SE  
Minneapolis, MN 55455-0110 • Phone: (612) 624-INFO

### ***“Heterogeneous Magnetism in Homogeneous Materials”*** **Professor Chris Leighton**

Chemically homogeneous materials typically have homogeneous physical properties. In this presentation, I will talk about a family of materials that, although they are chemically homogeneous, spontaneously separate into regions with different physical properties. These materials are ceramic oxides in a crystal structure known as “Perovskite” and they exhibit a whole host of fascinating and potentially useful phenomena such as high-temperature superconductivity, colossal magnetoresistance, and ferroelectricity. I will show how modern experimental techniques have been able to prove that these materials separate into nano-scale clusters of metallic magnetic material in a matrix of insulating non-magnetic material, and how this “phase separation” can explain some of their most intriguing properties.

#### **Agenda:**

**5:30–6:00 p.m. Reception (Mississippi Room at Coffman Union)**

**6:00–7:00 p.m. Dinner (Lasagna buffet with spinach or meat; also includes dessert)**

**7:00–8:00 p.m. Seminar by Dr. Leighton**

#### **Cost:**

Non-students: **\$20**

Students who are members of AIChE: **Free** (for first 50 who RSVP)

Students who are not members of AIChE: **\$10**

**Please RSVP by email to Carrie Beiser at [aiche@umn.edu](mailto:aiche@umn.edu) by Monday, January 19, 2004.**

#### **Directions:**

##### ***From 35W:***

**From the south:** As you are nearing the downtown Minneapolis area, proceed in the right lanes past downtown Minneapolis. You will follow the I-94 east split from downtown Minneapolis lanes, but do not get off on I-94. After the split, stay in the right lanes, and watch for the signs directing you to the U of M/ 3rd Street exit. Remain in the right lanes that split from 35W. Follow the east bank sign, exiting off 35W. You will merge onto Washington Avenue. Once you cross the bridge over the Mississippi River, Coffman Memorial Union will be second building on your right side. Stay in the right lane, proceed to the first light and turn right onto Church Street. Turn right on Delaware Street. Coffman Memorial Union south entrance will be on your right. Drop-off locations are available on the right. Entrance into the East River Road Garage is on your left.

**From the north:** Take the University Avenue/4th Street exit. Turn left at the second set of lights, University Avenue SE. You will be heading east toward the heart of east bank. Proceed up to Oak Street and turn right. Turn right at your next light, Washington Avenue. Coffman Memorial Union is five blocks up on the left side of Washington Avenue. To park or drop off,

turn left on Church Street. Proceed to the first stop sign and turn right on Delaware Street. Coffman Memorial Union south entrance will be your right. Drop-off lanes will be on your right. Access to the East River Road parking garage will be on the left.

***From I-94:***

**From the east:** Follow I-94 towards Minneapolis and take the Huron Boulevard exit (north exit only). Turn left on Washington Avenue. Coffman Memorial Union will be approximately seven blocks up on your left side of Washington Avenue. Stay in the left lane, proceed to Church Street and turn left onto Church. From Church Street, turn right on Delaware Street. Coffman Memorial Union south entrance will be on your right. Drop-off lanes will be on your right. Access to the East River Road parking garage will be on your left.

**From the west:** Follow I-94 towards St. Paul and take the Huron Boulevard exit (north exit only). Turn left on Washington Avenue. Coffman Memorial Union will be approximately seven blocks up on your left side of Washington Avenue. Stay in the left lane, proceed to Church Street and turn left onto Church. From Church Street, turn right on Delaware Street. Coffman Memorial Union south entrance will be on your right. Drop-off locations are available on the right. Entrance into the East River Road Garage is on your left.

**Parking:**

**Disability and Short-term Parking:**

Both are available in the East River Road Garage.

**Heading east on Washington Avenue Bridge,** upon crossing the bridge over the Mississippi, stay in the right lane, proceed to the first light and turn right onto Church Street. Turn right on Delaware Street. Coffman Memorial Union south entrance will be on your right. Drop-off locations are available on the right. Entrance into the East River Road Garage is on your left. Hourly rates for parking is \$2.25.

**Heading west on Washington Avenue,** stay in the left lane and proceed up to Church Street. Turn left on Church Street; proceed to your first stop sign, Delaware Street. Turn right onto Delaware Street. Coffman Memorial Union south entrance will be on your right. Drop-off locations are available on your right. Entrance into the East River Road parking garage is on your left. Hourly rates for parking is \$2.25.

**[www.coffman.umn.edu/directions.php](http://www.coffman.umn.edu/directions.php)**

# FEBRUARY MEETING

## ANNUAL SEBESTA NIGHT

### Technical and Economic Potential of Biomass Energy for Ethanol Production by Cecil Massie

Tuesday, February 17<sup>th</sup>, 2004

#### LOCATION:

Sebesta Blomberg & Associates, Inc.

2381 Rosegate

Roseville, MN 55113

Phone: (651) 634 – 0775

<http://www.sebesta.com>

**Agenda:** 5:30 PM  
5:30 – 7:00: Social Hour and **Free Dinner** provided by Sebesta Blomberg  
7:00 – 8:00: Ethanol Talk by Cecil Massie

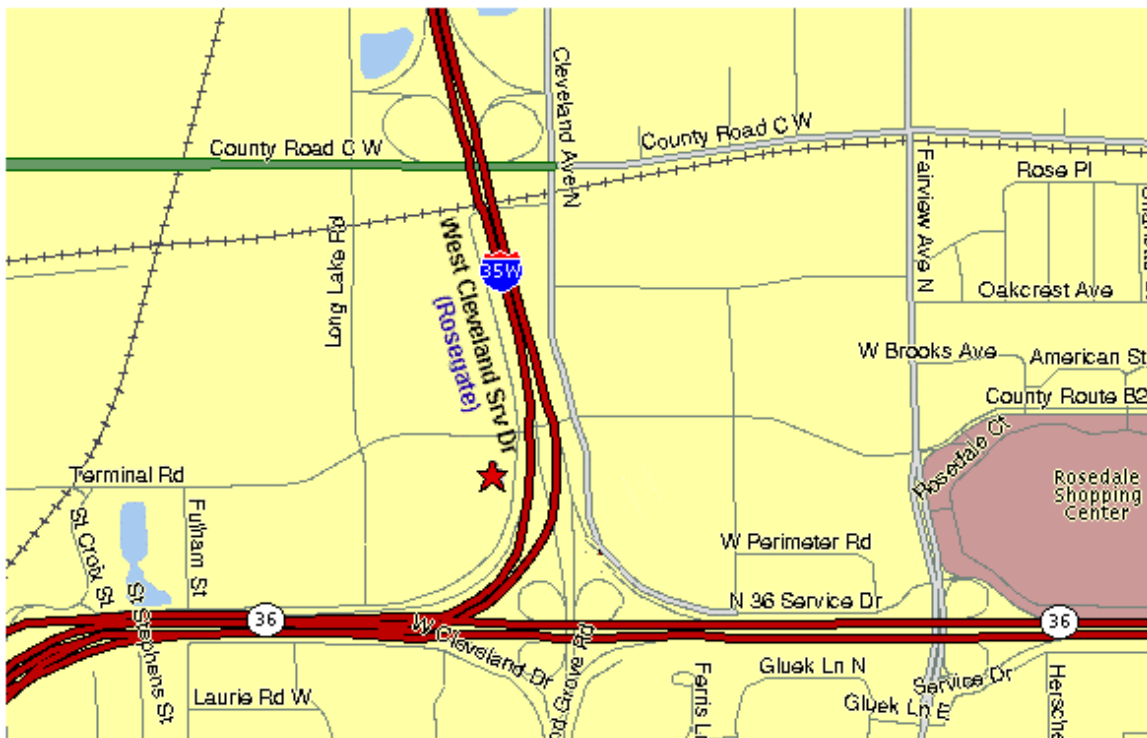
Due to popular demand, Cecil Massie is back! Last year's talk by Cecil Massie on ethanol production was such a success that it was by far the largest meeting that the local chapter has held in recent memory, with over 50 people attending. This time Cecil's talk will focus on technical and economic potential of biomass energy for ethanol production. An overview of the talk is as follows:

Soaring natural gas prices have placed significant pressure on corn ethanol profitability. Future prices are likely to remain at current levels or rise even further. Fortunately, biomass energy offers the potential to insulate ethanol production from these effects while expanding the market for renewable energy within the communities where ethanol plants are located. Technology to achieve these results is available at proven industrial capacities and re-directing the ethanol market from natural gas to biomass serves every aspect of the ethanol mandate. This presentation will give an overview of the status and benefits of this approach.

Mr. Massie is a registered professional engineer in the state of Minnesota and is the senior engineer in charge of the renewable fuels and rural economic development initiative of Sebesta Blomberg.

With over 30 years experience in process development and scale up, Mr. Massie has directed the development of new processes and products in a number of ag related fields including wheat gluten, modified starches, edible oils and most recently renewable fuels. Mr. Massie holds multiple process patents and has commercialized multiple new process technologies. Projects executed by Sebesta Blomberg have included studies of the economics and engineering of renewable fuel based projects for the Department of Energy, the Minnesota Renewable Fuels Fund and the Department of Agriculture. With the commencement of the gasification and co-generation project at Central Minnesota Ethanol in Little Falls, Minnesota, the technologies developed by Sebesta Blomberg and its partner Primenergy of Tulsa, Oklahoma are entering into the commercialization stage in ethanol production.

In addition to listening to this educational talk, you will get a **free dinner** provided courtesy of Sebesta Blomberg and Associate, Inc. Don't miss this exciting opportunity of hearing this dynamic speaker and getting a **free dinner**. Space is limited to the first 50 people that sign up, so register now! Deadline for signing up is Thursday, February 12<sup>th</sup> with Ryan O'Connor: **[Ryan\\_Oconnor@cargilldow.com](mailto:Ryan_Oconnor@cargilldow.com)**, ph: **952-742-0455**. **1.0 PDH (continuing education) credits** will be available for the speech. Please let Ryan O'Connor know **when you register** if you want PDH credits for the event.



Please note that "Rosegate" is the new name for "West Cleveland Service Drive North".

## **TECHNOLOGY CORNER**

by Slava Thaler

Starting next month, you will find a new feature back in this newsletter: a "Technology Corner". This column will contain information and updates on new technologies relevant to our field, Internet sites of interest, and/or questions-and-answers about anything new related to CPI and Chemical Engineering.

If you would like to share and explain a new technology you have heard about, feel free to e-mail it to me at [sthaler@reachapex.com](mailto:sthaler@reachapex.com). If you have something specific you have questions about or a would like to find out more about, please e-mail me and we will do our best to find an answer and include it in our next newsletter.

## **EXPANDED CAREER SERVICES FOR AIChE**

### **LOCAL SECTIONS**

Special Announcement

ExecuPlanet's CareerTools, an online suite of career products, may be of interest to many of you. Through a partnership with Lee Hecht Harrison/ExecuPlanet, AIChE members can access a full array of career development and job search activities and tools. Access is FREE to members.

Members who are looking for job-search assistance, strategies for career advancement, or tips for maintaining employability will be pleased by what they find at CareerTools. You can post a question to Ask a Coach and get an answer from a Lee Hecht Harrison professional. Or you can learn and contribute by participating in an online discussion group. If personalized career coaching is what you want, it, too, is available at a substantial discount to members. Visit ExecuPlanet at <http://www.execuplanet3.com/default.asp?epsite=aiche>. Set up a personal and confidential account; the group password is aiche2003. Career Services Hotline: 1-800-803-3446.

# AIChE Upper Midwest Annual Symposium

## Preliminary Announcement and Call for Speakers

Wednesday, April 14<sup>th</sup> 2004

**Time : 9 AM – 4 PM**

(lunch provided)

**At the Thunderbird Hotel**

**2201 East 78 St**

**Bloomington, MN**

**Keynote Speaker :**

**Dr. David Glassner**

For this year's AIChE symposium, the keynote talks and one break-out session will focus on biological-based sustainable manufacturing. Other topics will be considered for the other break-out session, including fuel-cell technology, optimization and simulation of processes, process design and engineering, intellectual property protection, etc. We are inviting other **potential speakers** (either yourself or someone you would like to nominate) in any of these areas, as well as "nontraditional" areas and 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 Nathan A. Busch (phone : 952-542-3858, email : [busch034@umn.edu](mailto:busch034@umn.edu) ) 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 09, 2004.**

**Place an ad here and get results! Reach over 400 chemical engineers!**

**Nathan Johnson, [doc\\_curtis@rocketmail.com](mailto:doc_curtis@rocketmail.com)**

**651-736-1568**

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Vice Chair	Ryan O'Connor, Ph.D.	Cargill Dow LLC	<a href="mailto:ryan_oconnor@cargilldow.com">ryan_oconnor@cargilldow.com</a>	952-742-0455
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**American Institute of Chemical Engineers**

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