NEWSLETTER

Oklahoma Section
American Chemical Society

Volume 13 Number 4 May 1, 2007

Annual Awards Banquet
Followed by Presentation:
"Caution: Heating May Cause Freezing"

Tuesday – 15 May, 2007
Banquet Room
Coach's Restaurant and Brewery
102 West Main Street
Norman OK 73068
Phone: 405.360.5726

Dr. Charles Rice
Professor of Chemistry
University of Oklahoma
Norman OK 73069

Polymer hydrogels exhibit unique chemical and physical properties. For instance, heating causes a reduction in motion, contrary to what one would expect. Polymer hydrogels are at the forefront of technology for tissue scaffolds, drug delivery, and wound repair. In addition to these applications, we will discuss the nature of these unique properties and experimental methods to study them.

[Reservation Information on Page 2]

Schedule:

5:30 PM **Social Hour [Cash Bar]**

6:30 PM **Dinner:** **Coach's Restaurant & Brewery**
102 West Main Street
Norman OK 73069

7:15 PM **Awards Presentations**

7:30 PM **Speaker: Professor Charles Rice**
University of Oklahoma

Menu: Sliced Lean Beef Brisket and Peppered Turkey Breast, with rosemary and garlic roasted red potatoes, baked beans, cole slaw.

Cost: $15.00-ACS Member; $5.00-ACS Student Affiliate.

Reservation Deadline: Monday, May 14th, 2007 4:00 p.m. Charles Rice 405.325.5831 rice@ou.edu

Dr. Charles Rice

Professor Rice received his BS in Chemistry [1993] and a MS in Chemistry [1995] from Illinois State University. Dr. Rice completed his Ph.D. at Purdue University in 2000 and moved to Washington University in St. Louis for a postdoctoral researcher appointment. In 2002, Dr. Rice joined the University of Oklahoma as an Assistant Professor in the Department of Chemistry and Biochemistry. At OU, Professor Rice uses NMR spectroscopy to study polymer-based biomaterials, the cell wall of Gram-positive bacteria, and the structure of lithium ion batteries. **Recently, Dr. Rice received a CAREER Award research grant from the National Science Foundation**. He served as Chair of the Oklahoma Section of the American Chemical Society in 2006.

Councilor's Report: 233rd Annual ACS National Meeting March 25 – 29, 2007 Chicago.

The Oklahoma local section councilor, **Cheryl Baldwin Frech** of the University of Central Oklahoma, represented the section at the 233rd ACS National Meeting in Chicago, March 25-29, 2007.

Here are some highlights of the council's actions.

- The Council selected **Thomas H. Lane** and **Howard M. Peters as candidates for 2008 President-Elect.** These two candidates will stand for election in the Fall National Election.
- **Candidates for Directors-at-Large for a 2008-2010 term**: Janan M. Hayes, Helen A. Lawlor, Kent J. Voorhees, and **Frankie K. Wood-Black [who works for ConocoPhillips in Ponca City**]. Councilors will elect the director-at-large by written mail ballot.
- The Petition on Rules for Nominating Members of N&E for National Offices establishes a one-year waiting period following service on the Committee on Nominations and Elections before an individual can be nominated for District Director, President-Elect or Director-at-Large. The Council VOTED by recorded vote to defeat this petition.
- The Council VOTED to accept the Petition on Multi-Year Dues. It will allow members paying full dues without any of the discounts to pay for periods of two or three years if they wish, at a rate equal to two or

three times the rate for a one year period. Council also VOTED to make this petition effective when technical components are instituted to offer and track the payments, but no later than January 1, 2010.

Note: The Board of Directors will vote within 90 days on whether to ratify the approved petitions, above.

- The Council VOTED to set the member dues for 2008 at the rate of $136.00
- The ACS spring national meeting attracted 14,520 registrants as follows: Regular attendees 7,152; Students 5,059; Exhibitors 1,283; Exposition only 573; and Guests 453.
- The Council VOTED to establish the Snake River Local Section with headquarters in Boise, ID. This brings the total number of local sections to 190.
- ACS closed 2006 with 160,491 members, the highest year-end membership since 2002. Of the 17,857 applications processed in 2006, more than 1,000 came from the Member-Get-A-Member campaign, for which any member can receive an ACS logo blanket.
  The Council is considering a change in the classification of student memberships, from student affiliates [current] to student members [proposed]. This will be presented in detail at the Fall council meeting.

State Science & Engineering Fair: ACS Winners—2007

Award amounts—Senior High: 1st $150, 2nd $75, 3rd $50
Junior High: 1st $100, 2nd 50, 3rd $25

Senior High Division

#1. **Molly Steen**—Assessing the Long Term Pollution in Cave Springs Branch: Correlating macro invertebrate communities & sediment composition. 12th grade—Grove High School, Grove, OK

#2. **Aaron Weaver**—Evaluating the effects of Heavy Metal Sediments on Water Quality and Selected Invertebrate Models. 12th grade—Miami High School, Miami, OK

#3. **John Scott**—Pollution Distribution. 10th grade—Vici Public School, Vici, OK

Junior High Division.

#1. **Taylor Runyan**—How do supermarket tomatoes compare in lycopene? 9th grade--Atoka High School, Atoka, OK

#2. **Brenton Greaux**—Corrosion. 7th grade--Evangelistic Temple School, Tulsa, OK

#3. **Ida Sinclair**—Well Water Quality Tested at Site and Time of Day Over Time. 8th grade—Lane Elementary, Lane, OK

Report courtesy of Ken Brown, Section Treasurer. **Ken was a judge** at the recent State Science Fair at ECU.

BioEthanol Rolls On!

The bioethanol juggernaut rolls on, particularly in the corn producing states. Some questions are not being asked or shunted aside as relatively unimportant. There were 4 letters in the 03/12/07 C&E News that addressed some of the concerns seldom mentioned re bioethanol. 3 of the letters are reprinted.

The Wentworths address the massive federal subsides for bioethanol. They also question the use of corn to produce fuel. Can the environment sustain the impact of additional corn production?

Many articles cite the potential of cellulosic ethanol. Two materials often mentioned: wood chips and switch grass. Switch grass is the favorite! Yet they never indicate the huge acreage needed to produce the switch grass.**Harold Reisman's** letter puts the **immediate potential of cellulosic ethanol** into perspective!

Energy gain/loss in corn ethanol production depend on one's position re bioethanol. Each side suggests the other is using old data. **J.C. Jones,** uses a different criterion for bioethanol energy figures. The Energy Return On Energy Invested, [EROEI] appears to be a more meaningful idea in the discussion. Readers may visit the *Energy Bulletin* web side for more information.

The Ethanol-from corn industry, buoyed and pushed by massive governmental subsidies and relentless pressure from Cargill and ADM [who are to every aspect of corn growing and usage what paint is to a frame house – they cover it], seemingly move inexorably forward.

Inexorable though it may be, we can and should ask questions. Is the energy obtained from ethanol from corn less than the energy required for its production? Do we care enough about the indisputable negative environmental impact?

Concerning the first question, the National Corn Growers Association [NCGA] would have us believe it is "an unrealistic academic exercise with little value for public policy debate" to seek a way to produce ethanol with a sufficient net positive energy so that gasoline can be replaced.

But it behooves academicians and others who enjoy academic freedom and can engage in "academic exercises" [quoting NCGA] to think outside the relatively narrow box of corporate corn farming and continue searching for answers.

The second question has several ramifications, one of which is sustainability [a word that implies circularity and giving back what has been taken]. Soil erosion as well as depletion and the dead zone in the Gulf of Mexico belie any semblance of a sustainable corn-growing industry.

The title of Jeff Johnson's article, "Ethanol–Is It Worth It?" asks a serious but more general question, one worthy of a straight answer. It is a good piece of writing generally, but the title's question is only rhetorical. The best approach to an answer comes in the last paragraph: "What's clear is that corn-based feedstock is likely to be the start of a biofuels market, not its end."

R.A.D. Wentworth
Bloomington, Ind.
William M. Wentworth
Clemson, S.C.

[This letter appeared in the 03/12/07 issue of C&E News. It is reprinted by permission of the authors.]

One Hates To Be considered a curmudgeon, but I will chance it. I am a retired biochemical engineer, my undergraduate years were 1952-56. I can recall reading about cellulose-to-ethanol conversion attempts then with the view that the conversion would be become reality in "the next four to six years." If memory serves, a pilot plant was built at Natick [or perhaps it was Massachusetts Institute of Technology] to prove this concept. The current hope for success is worthy, but this curmudgeon wouldn't bet on it.

Harold B. Reisman
Carlsbad, Calif..

[This letter appeared in the 03/12/07 issue of C&E News. It is reprinted by permission of the author.]

In his letter, Gerald J. Mantell asserts that the energy balance for the production of ethanol from corn is "negative," and this needs to be examined [C&EN, Jan.8, page 4]. I am not sure what is meant by "energy

balance" here, but a more helpful index is energy return on energy invested [EROEI]. This index cannot be negative, but a value of less than 1 for production of a particular fuel usually means that fuel is nonviable.

In the Oct. 2, 2006 *Energy Bulletin*, Milton Maciel gives an EOREI value for corn ethanol of 1.3 [www.energybulletin.net/21064.html]. Of course, this is not a hard number and precautions such as reduction of heat losses from the production plant can improve the EROEI of a fuel-making process.

The *Energy Bulletin* information should be taken to mean values of 1.3 are currently being realized.

J. C. Jones
University of Aberdeen, U.K.

[This letter appeared in the 03/12/07 issue of C&E News. It is reprinted by permission of the author.]

Bioethanol Runs Into NIMBY !

Nuclear plants, waste disposal sites and oil refineries have long faced opposition from cities, towns and concerned citizens. Bioethanol should have been different: it was good for the farmers, the environment and rural economies. Ethanol, which already receives a 51-cents-a-gallon federal subsidy, figures prominently in President Bush's goal of reducing gasoline consumption by 20% over 10 years.

Opposition to new bioethanol plants has occurred in Indiana, Illinois, Missouri, Nebraska and Wisconsin. At the end of 2006, there were about 114 ethanol plants in operation, 80 under construction and others in the planning stages.

The largest number of ethanol plants is in the Minnesota-South Dakota-Nebraska-Iowa "four corners" area. There are plants in the Texas Panhandle, parts of Kansas, Oregon and even S-E Wyoming. In Oklahoma, ethanol plants have been announced for Burns Flat and Enid.

Opponents complain that ethanol plants deplete aquifers, draw heavy truck traffic, pose safety concerns, contribute to air pollution and produce a sickly-sweet smell. Opponents in S-W Missouri claim a proposed 80-million-gallon-a-year plant would use more water than the rest of the 33,000 residents of the county. In some communities, law suits have been filed by protestors as well as counter suits by the proposed ethanol facility. Protestors often cite EPA violations of existing corn processing facilities. The corn processors counter with EPA granted "exemptions or modifications" for certain operations.

One mid-western activist group said small mid western towns were being asked to accept new chemical plants in the national drive to clean up big-city auto emissions and reduce dependence on foreign oil. Another group said it was a "take one for the Gipper mentality" by the big city vs the small mid western town. Some firms avoided small town opposition by building the ethanol facility outside the town limits.

Ethanol plants have brought jobs and dramatically raised corn prices and farmland values. Many ethanol plants have paid rich dividends to investors, who often include local farmers and other residents.

Small town residents generally fight ethanol plants on water and air quality fears. In some towns, the local farmers then boycotted the small town stores and businesses.

The NIMBY syndrome is alive and well re siting new ethanol plants in small mid western towns.

Future 2007 Meeting Dates/Locations:

September 15 or 22, 2007	OBU	Sherry Marshall
October 8, 2007	SEOSU	Eugene Stevens
November xx, 2007	OSU	Oklahoma Chemist of the Year Award

May 2007 Section Meeting

Tuesday 15 May, 2007

Coach's Restaurant and Brewery
102 West Main Street
Norman OK 73069
405.360.5726

[1] Annual Awards Banquet Presentations

[2] Speaker: Professor Charles Rice – University of Oklahoma

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