



The South Texan

VOLUME 103 NUMBER 1

September, 2002

MONTHLY MEETING • SEPTEMBER 5, 2002



Monthly meeting

Recent Advances in Biology,
Biotechnology, and
Biochemical Engineering

Presented by

Richard Willson
Professor of Chemical Engineering
University of Houston

The tremendous scientific revolution in biology has begun to affect both industry and society in many ways. This talk will summarize where we are now, review a little bit of how we got here, and will attempt to guess where we might be going. The perspective will be general, with emphasis on the changing, growing role of chemical engineering in realizing the promise of the new biological technologies.

Richard Willson is Associate Professor of Chemical Engineering at the University of Houston. Born in Philadelphia, Dr. Willson grew up in Littleton, Colorado, with brief sojourns in France and Iran. He did his B.S. and M.S. in Chemical Engineering at Caltech, and his Ph.D. at MIT. After postdoctoral work in biochemistry at MIT, he joined UH in 1988. He is a former Presidential Young Investigator and chair of the ACS Division of Biochemical Technology, recipient of the 2001 ACS van Lanen Award, and Fellow of the American Institute of Medical and Biological Engineering. Dr. Willson's research interests center on the detection, separation and purification of biological molecules, and he just completed a sabbatical at the Baylor College of Medicine Human Genome Sequencing Center.

How to Stay in Touch with South Texas Section

Website:

<http://www.sts-aiche.org>

STS Hotline:

713-335-3376

Touchpad #1 - Dinner Meeting Reservations

Touchpad #2 - Website, Newsletter, Advertising Comments

Touchpad #3 - Messages for the Chair (Aziz Siddiqi)

Touchpad #4 - Messages for the Chair-Elect (Dave Mitchell)

Touchpad #5 - Messages for the Treasurer (Matt Kolodney)

Newsletter Access:

1) Snail Mail to all registered STS members - one week before meeting +/- one week.

2) Website at sts-aiche.org - click on Newsletter or Newsletter Archives - accessible mid-month, before meeting.

3) E-Mail - enroll at the Topica prompt at the bottom of the STS home page - includes URL to current Newsletter, accessible mid-month before meeting.

Workshops and Dinner Meeting Topics, Speakers, Synopses, and Bios:

About a week after meeting, speakers and topics appear on the website home page for the next month's meeting. Navigation keys home on detailed synopses and bios for each workshop or dinner meeting presentations.

Workshop Announcements

Refer to pages 3 and 4 for detailed workshop topic and speaker information. Check the room assignments in the Hotel Lobby to join the group that interests you.

Process Engineering / Plant Operations

Topic "What Happens to All that Sulfur?"
Speaker Mr. Stephen N. Massie
Technical Sales Manager
Gas Treating Catalysts
Criterion Catalysts & Technologies

Process Safety Workshop

Topic "Another ISO Management System Standard! (One Source Safety and Environmental)"
Speaker Jack McVaugh
Environmental Technology
& Management

CAST

Topic "Process Simulators - Are They Technical Data Friendly?"
Speaker Dr. Cal Spencer,
Senior Process Manager
Technical Data Group at KBR

Government Interaction Committee

Topic Annual Priorities Meeting

Meeting Location RADISSON ASTRODOME HOTEL (Kirby at South Loop)

WORKSHOPS (NO FEES - NO RSVP) 5:30-6:30 p.m.
EXECUTIVE COMMITTEE 4:30-5:30 p.m.
SOCIAL PERIOD 6:00-7:00 p.m.
DINNER 7:00-7:45 p.m.
PRICE .. \$ 22.00 with reservation • 24.00 without reservation
..... Students and Unemployed 1/2 price
MEETING / SPEAKER 7:30-8:30 p.m.
AUTO - R.S.V.P. By 4:00 p.m., Tuesday, September 3rd
Call (713) 335-3376 - Touchpad #1
Make reservation using the STS web site: www.sts-aiche.org

2002 South Texas Section Officers

From the Chairman

Aziz Siddiqi



Welcome back from the summer break. I hope all of you had an enjoyable summer. Though we did not have our usual STS monthly meetings during the summer, several of the officers, directors and committees were busy with various section activities.

Dennis Griffith, Bob Goodmark and I attended the 2002 AIChE Leadership Development Conference in the first week of June in Chicago. The goals of this annual event are:

- 1) To develop basic leadership skills in the areas of management, communications, membership recruitment and volunteerism
- 2) To exchange ideas about section activities through workshops with other section officers
- 3) To become more informed about AIChE resources and programs available to all volunteer leaders and
- 4) To develop rapport and exchange ideas with AIChE National Officers, Directors and staff.

One of the goals of AIChE this year is to increase the membership. We are planning a special meeting sometime this fall with National Leadership in Houston to help achieve this goal.

In June, the section arranged a cruise on the Houston Ship Channel on the M/V Sam Houston which was totally packed. We had to disappoint several late registrants as the cruise was sold out a month in advance. One of the special features of the cruise was that it was attended by several young members as well as some of our senior members. Click on the Photo Gallery on our website at <http://www.sts-aiche.org> to see scenes from the cruise, the May executive committee meeting, and the PEPO workshop.

In July, the executive committee held its summer planning meeting, where the section leadership and key planning committee volunteers discussed a course of action for the upcoming year.

The Purpose of the Section, a nonprofit scientific, educational and charitable organization, is the furtherance of the aims and purposes of the American Institute of Chemical Engineers, and the advancement of the science of chemical engineering and of related sciences through (i) the education of members and non-members in the sciences (ii) career guidance and financial assistance to students of the sciences and (iii) encouragement of research in the sciences.

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The South Texan is published monthly, except June, July and August, by the American Institute of Chemical Engineers, South Texas Section. Opinions expressed are those of the authors and not of AIChE.

Workshops Announcements – detailed information

Process Engineering / Plant Operations

Topic:
What Happens to
All that Sulfur?

Speaker:
Steve Massie
Criterion Catalysts
& Technologies

Petroleum and natural gas sulfur removal processes yield clean liquid and gaseous hydrocarbon fuels that drive our economy. These hydroprocessing and separation processes generate thousands of tons of hydrogen sulfide (H_2S) per day. The venerable Claus process converts this foul-smelling, toxic gas to innocuous sulfur at 94 to 97% recovery. The tail gas with remaining toxic, noxious gaseous sulfur compounds and diluents nitrogen and steam are hydroprocessed to recover 99.9% sulfur, reducing atmospheric pollution. This workshop will cover variants of the Claus process, with focus on tail gas hydroprocessing and catalysts.

Mr. Massie has Chemistry degrees from MacMurray College and Loyola (Chicago) University in Illinois. His career started at UOP

Inc., in catalytic systems research for organic synthesis and sulfur conversion. At Shell Oil Company, he provided technical support and research for tail gas and catalytic incineration customers. Mr. Massie developed Criterion's 234 tail gas treating catalyst. At Criterion, he is global business manager for gas treating catalysts, including customer technical support. Mr. Massie has authored many papers and is the inventor on fifty U.S. Patents

Contact:
Jim Morris
281-358-7986
ejmorris@vonl.com

Government Interaction Committee

Topic:
Annual Priorities Meeting

The Government Interaction Committee will meet to discuss priorities for the coming year, which includes fall elections and the biannual session of the Texas Legislature next spring.

One major issue that will be addressed by the Texas Legislature next year will be the sunset review of the Texas Board of Professional Engineers. As with other state agencies, this is a periodic legislative review of the board and its functions that could end up abolishing the PE Board or totally rewriting the Texas Engineering Practice Act. Even though these possibilities are remote, there are several issues for which

chemical engineers may be interested in developing a position, including firm registration, continuing education, and the use of the job title "engineer" on business cards. (See the article "Are You a Chemical Engineer in Texas?" in *The South Texan* on page 5.)

Contact: Dennis
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Process Safety Workshop

Topic:
Another ISO Management
System Standard! (One Source
Safety and Environmental)

Speaker:
Jack McVaugh
Environmental Technology &
Management

The International Organization for Standardization (ISO) failed to adopt a New Work Item Proposal for creation of an occupational health and safety (OH&S) management system standard in 1997. After 5 years, an ISO standard has been written. Companies are beginning to subscribe and even third party auditors have certified compliance of their management systems. TNRCC is encouraging environmental compliance management systems and this will probably be reflected in coming regulations. How and why did it come about, what do companies want for another management system standard, what are the costs and benefits, is it difficult to implement, how does it relate to Process Safety Management and Risk Management Program regulatory requirements, what about other EH&S-related management system standards, like Responsible Care-14000 and the National Biosolids Partnership standard? These and other issues are covered in the workshop.

Jack McVaugh, P.E., R.E.M., EMS-LA, is a consultant, trainer and auditor for management system standards implementation and related

areas such as pollution prevention and regulatory compliance management. He focuses on building effective environmental, business and quality management systems that can be integrated for greater efficiency. He has over 21 years of environmental, business, and operations management experience gained at the corporate, business unit and plant levels in industry. He is a member of ISO Technical Committee 207, an adjunct lecturer at the University of Houston - Clear Lake, a lead EMS certification auditor and is current Chairman of the National Association of Environmental Professionals' ISO 14000 Working Group.

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Workshops Announcements – detailed information

CAST Workshop

Topic:
“Process Simulators - Are
They Technical Data
Friendly?”

Speaker:
Dr. Cal Spencer
Senior Process Manager
Technical Data Group at
KBR

Over the last ten to fifteen years there have been substantial improvements in the quality of the Technical Data, namely pure component properties and the phase equilibrium/thermophysical property models, offered in a commercial process modeling, simulation environment. In spite of these appreciable upgrades, many challenges remain. This presentation will highlight, from the perspective of the practitioner, some of the common pitfalls encountered in meeting current as well as emerging industrial needs. Emphasis will be given to KBR's long term experience with the pure component databanks, the numerous equations of state, activity coefficient models, thermal property methods as well as petroleum fraction methodologies available in the major process simulation programs. Suggestions will be given for additional tuning and revisions in many of these areas. The value of a highly customized, proprietary Technical Data package will likewise be illustrated.

Cal Spencer, a PhD Chemical Engineering graduate from Pennsylvania State University, has 34 years of experience in thermodynamic and transport data evaluation and correlation. He is currently a Senior Process Manager of the Technical Data Group at KBR. His involvements in the field outside of KBR include the GPA Technical Section F - Subgroup #1 Thermodynamic Research Steering Committee (corporate representative), DIPPR 801 - Technical and Administrative Committees (member) and API Technical Data Committee (chairman).

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From the Editors

The summer's almost over and it's time to resume our regular meetings. Before us lay many challenges which our South Texas Section need to address. These are challenges which every organization faces and it is hoped that we will work together to resolve them so that at this time next year we can tackle a new set of issues or concerns.

Our first challenge is to improve our Section's communications. You will receive the Newsletter on time this year, and it will be informative. With our web site development and earlier copy deadlines, we will meet this challenge.

Our second challenge is to actively participate in Section meetings and Sectional or National

events. We have numerous opportunities during the year to take on this challenge including the Science Fair, Symposiums, and the National Meeting. Most of all, your attendance at our monthly meeting and workshops each month would go a long way in meeting this challenge.

Our third challenge is to bring in new members. The life blood of our Section is its membership. Without a substantial membership base, we die. Several organizations have what is called EMGAM—Every Member Get A Member. And that's what we need to do—go out and bring in new members.

Let's roll! The challenges are waiting.

ADVERTISING SPACE AVAILABLE

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Are You a Chemical Engineer in Texas?

As a member of the South Texas Section of the American Institute of Chemical Engineers, you may think that this is an absurd question. However, on July 9, 2002, Texas Attorney General John Cornyn's office issued an Attorney General's opinion that only licensed professional engineers could use the word "engineer" or any of its variants as a job title in such documents as business cards, letters, and forms that may be made available to the public. The summary of opinion, JC-525, states:

The Texas Engineering Practice Act, article 3271a of the Revised Civil Statutes, does not allow an in-house employee of a private corporation, though classified internally as an "engineer" or under another engineering title, to use the title of "engineer" on business cards, cover letters, or other forms of correspondence that are made available to the public.

For a full text of the opinion, go to:

<http://www.oag.state.tx.us/opinopen/opinions/op49cornyn/indexpdf.htm>

and use the 2002 selection buttons to find opinion JC-525 for downloading an Adobe Acrobat file.

This opinion was the result of the Texas Professional Engineers Board fining a company for filing a report with the Texas Natural Resource Conservation Commission in which the individual who signed the report used his job title, "environmental engineer," though he was not a licensed professional engineer. It is my understanding that this is not an isolated case, and several other companies have been fined for this violation of the Texas Engineering Practice Act.

Texas is not alone in this. Scott Love, a registered professional engineer in Oklahoma and the Chair of AIChE's Career and Education Operating Council, tells me that Oklahoma's Attorney General made a similar ruling in January 1984. Many other states have the same requirement that only licensed professional engineers can be called engineers on business cards or other such documents.

What should the STS-AIChE do about this issue? If you are interested about this or any other governmental issue that affects chemical engineers, consider attending the Government Interaction Committee workshop being held at 5:30 PM before the September 5 STS-AIChE dinner meeting. Check for the room assignment in the lobby of the Radisson Hotel Astrodomo.

JOIN THE AIChE
SOUTH TEXAS SECTION
Form on page 6

Calendar Dinner Meeting, Workshops and Special Events

DINNER MEETINGS

October 3, 2002

Professional Engineer Registration
Speaker: Ms. Brenda Badley-Smith
Texas Professional Engineers Board

November 7, 2002

Terrorism Threat Ranking for Houston
Speaker: **Ms. J.P. Riorden**
Federal Bureau of Investigation

December 5, 2002

AIChE President's Address
Speaker: **Mr. Sid Sapalie**
National AIChE President

WORKSHOPS

PROCESS ENGINEERING / PLANT OPERATIONS

October 3, 2002

Value Management for Chemical Engineers
Speaker: **Mr. Jerry Kaufman**
J.J. Kaufman Associates

November 7, 2002

Six Sigma Applied to Plant Operations
Speaker: To be Announced

SPECIAL EVENTS

Saturday, 12 October 2002

OKTOBEERFEST 2002 GOLF TOURNAMENT
Location: Southwyck Golf Club, Houston, Texas

Contact: **Dr. Richard Chu**
Tel.: 281-333-6833
E-mail: rrchu@aol.com

Saturday, 9 November 2002

ANNUAL TECHNICAL MEETING
Location: To be announced
Contact: **Charles Waligura**, Meeting Chair
Tel.: 713-339-1550x136
E-mail: cwaligura@gemengr.com

Chemical Engineering Experts Wanted

Frequently, government officials and media personnel have technical questions that they want answered by a chemical engineer. A suggestion was made at the June AIChE's Leadership Conference in Chicago that local sections put together lists of chemical engineering experts who can be called upon by government officials and media personnel. If you wanted to be included in the STS-AIChE's Chemical Engineer Experts List, please complete the information below and either mail it to Dennis Griffith, 8444 Winningham, Houston, Texas 77055-7532 or fax it to 713-465-6914, or you may e-mail the information to dennisgriffith@pdq.net. You may also enter the required information on the STS-AIChE Web site at <http://www.sts-aiche.org/>.

The STS-AIChE will provide this information only to appropriate government officials and media personnel. Prior to registering on this list, members should contact their employers for permission, constraints, and averting possible conflicts of interest.

First and Last Name: _____

Main Contact Address: _____

City, State Zip Code: _____

Daytime Phone Number: _____

Daytime Fax Number: _____

Daytime E-Mail Address: _____

Evening/Weekend Phone Number: _____

Evening/Weekend Fax Number: _____

Evening/Weekend E-Mail Address: _____

Area(s) of Chemical Engineering Expertise: _____

AIChE Membership Number: _____

MEMBERSHIP FORM

AIChE's South Texas Section

What have you done today as a professional chemical engineer to aid your fellow citizen or yourself? Join us and you'll be working with topflight, dedicated people with an unprecedented opportunity to exchange ideas and information in one of the fastest-growing fields of engineering. ***Can you afford not to participate?***

Fill out the form below and mail to:

Jerry Gresham • Gresham & Gresham
P. O. Box 820888 • Houston, Texas 77282
Ph.(713) 780-1000

I wish to join the South Texas Section of AIChE.

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Name: _____

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Engineering shortcuts
Chris Tagoe

Instead of a shortcut this month, an interesting bit of trivia I picked up.

My son was recently assigned to read a book by John Emsley titled 'Molecules at an exhibition', as part of his high school freshman chemistry class. One of the chapters in the book is devoted to ethylene. Having been in the ethylene business for several years, I was drawn immediately to that chapter.

The chapter is entitled 'Bend me, shape me, any way you want me - ethylene', an obvious reference to polyethylene. However, quite a bit of it is devoted to a discussion on ethylene as a naturally occurring ripening agent. I have known for years, thanks to an old mentor Joe Updegrove (Hi Joe!), that plants produce ethylene and it is this compound that triggers the ripening of fruits. As Joe tells it, for years, fruits were picked unripe and then sprayed with ethylene just before display on the supermarket shelf. This way the ripening could be precisely controlled. What I

did not know was how much ethylene was produced and how it was produced.

Well, according to the book, the concentration of ethylene can be as much as 2000ppm in some ripe fruit. It only takes about 1ppm to trigger the ripening process. Hence, one can cause an unripe fruit to ripen by placing it with a ripe fruit. Think globally about all the ripening fruit out there and the amount of ethylene that is naturally generated.

Plants produce ethylene from methionine, an amino acid. This amino acid converts to a cyclopropane derivative which releases ethylene as a by-product on contact with oxygen.

If you have a shortcut you would like to share or if you would like to comment on my submissions, please contact me. My email address is chris.tagoe@equistarchem.com. You will be recognized in the column.

STS Budget Crunch

The South Texas Section is undergoing a budget crunch. We have had an operating deficit for several years. This has been offset with profits from the Process Plant Safety Symposium, which no longer provides section income.

The price of dinner meals will increase this month to \$22 per person with reservations and \$24 without reservations. Students, unemployed, and retired will continue at half price. Next year, we will probably have to raise section dues as well.

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