



# The South Texan

VOLUME 103 NUMBER 6

FEBRUARY 2003

## MONTHLY MEETING • FEBRUARY 6, 2003



**Speaker: Dr. Mal Johnson, Vice President of International Marketing and Director of Commercial Technology, Dixie Chemical Company**

**Subject: "Preserving Carbon: A Novel Way of Evaluating Chemical Synthesis"**

The talk will center on new ways of evaluating chemical batch processes with an emphasis on the environmental friendliness of the reactions. Examples of commercial environmentally friendly and

unfriendly chemical synthesis will be discussed. A joint project between Dixie Chemical Company and a major pharmaceutical company, which led to a presidential Green Chemistry Award for the improved synthesis of an antiviral drug, will also be discussed.

Mal Johnson received his BA in chemistry from Amherst College and a Ph.D. in inorganic chemistry from Northwestern University. He began his industrial career as a research chemist with Union Carbide working on homogeneous catalysts and oxidation reactions. He moved to Texas with Humphrey Chemical Company and was involved in the design and construction of a specialty chemical facility. He joined Southwest Specialty Chemicals as Business Director Proprietary Products, when Thiokol purchased Southwest Specialty Chemicals he decided to remain in Houston rather than move to Trenton, NJ. He then joined Dixie Chemical Company as Marketing Manager in 1980. He now holds the titles of Vice President of International Marketing and Director of Commercial Technology. Today his responsibilities include marketing, international business, research and development and quality assurance.

## MARCH MEETING WILL BE HELD AT BRADY'S LANDING!

### How to Stay in Touch with South Texas Section

#### Website:

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

#### Newsletter Access:

- 1) Snail Mail to all registered STS members - one week before meeting +/- one week.
- 2) Website at [sts-aiche.org](http://www.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: 3 "Selecting Solvents for Extractive Distillation"

Speaker: Mr. Alan Erickson  
Vice President, Koch Modular Process Systems, LLC, Paramus, NJ

#### CAST 1

Topic: "Trouble-Shooting Distillation/ Separation Columns with Gamma Scans"

Speaker: Mr. Lowell Pless  
Operations Manager, Tru-Tec

#### Government Interaction Committee

Topic: 4 "Bills Affecting Chemical Engineers"

Chair: Dennis Griffith, Granherne Inc.

#### Process Safety Management

Topic: "Layers of Protection Analysis (LOPA)- Another Tool in the PSM Arsenal"

Speaker: Mr. Art Dowell  
Senior Technical Fellow Hazard Analysis, Rohm and Haas Company

### Meeting Location RADISSON HOTEL ASTRODOME (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, February 4, 2003  
Call (713) 295 -4847  
Make reservation using the STS web site: [www.sts-aiche.org](http://www.sts-aiche.org)

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## From the Chairman

Dave Mitchell



Is education is so important? Do you know what you need to know for your next assignment? For your next job? For your next career? What does continuing education cost? Or worse what is the cost of not having the education you need? The solution to the problem will NOT be to ignore it.

For most of us returning to college full time would be a severe financial blow. I salute those of you who earn college credits with evening courses. However, we do not need to train for the Olympics to have good health. We can do modest, regular exercises we enjoy. (PS Everyone recommends this and they are probably right). We also do not have to do attend college classes in order to keep current.

We have solutions here at the South Texas Section. At our monthly dinner meeting, for zero down, zero interest, and zero future payments, we offer 3-4 free technical workshops and a main speaker. We also have periodic regional seminars including those for the young at heart. These workshops used to count for an hour of voluntary Professional Development Credit with the Texas PE Board, and may count for future mandatory PE educational credits. For the same zero cost we can really READ the technical journals. Note that I am advocating education, not merely obtaining a data byte from the technical libraries at the local colleges or from internet searches.

For little more cost there are seminars. The Texas Technology Showcase meetings are coming soon. The STS hopes to have a Technical Meeting later this year. The Offshore Technology Conference is excellent also. The AIChE offers quarterly meetings around the country with both vendor information and attached seminars. Although they might not emphasize it, most companies have a training budget. Ask them. It might get you some critical knowledge. The consolation prize would be "brownie points." Do not overlook the value of a good technical book. They are often reviewed to guide you.

I shall brag a little on my excellent Executive Committee. Among their credits four have PhD's: Aziz Siddiqi, Tim McMinn, Richard Willson, and Richard Chu.

Final words. Consider getting your P.E. license. Join us for education (& fun).

*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.*

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## Workshops Announcements – detailed information

### Process Engineering / Plant Operations

**Speaker:**

Mr. Alan Erickson  
Vice President  
Koch Modular Process  
Systems, LLC  
Paramus, NJ

**Subject:**

“Selecting Solvents for  
Extractive Distillation”

The workshop will be an overview of the process to select solvents to be used in an extractive distillation process. Distillation is the most widely used separation technique in the chemical and petroleum industry. However, not all liquid mixtures are amenable to ordinary fractional distillation. When the components of the system have low relative volatilities ( $1.00 < \alpha < 1.05$ ) or form an azeotrope, separation becomes difficult or impossible by conventional distillation. For systems with low relative volatilities, the separation becomes difficult and expensive because a large number of trays are required and usually a high reflux ratio as well. Both equipment and utilities costs increase markedly and the operation can become uneconomical.

If the system forms an azeotrope, as in the THF-water system, a different problem arises, - the azeotropic composition limit cannot be exceeded by conventional distillation. To “break” the azeotrope, other methods such as extraction, azeotropic distillation or extractive distillation must be employed. Extraction systems typically require an extraction column and two distillation columns; azeotropic distillation usually requires three distillation columns and a decanter. On the other hand extractive distillation often only

requires two distillation columns, thereby reducing the initial installed cost.

Alan Erickson is one the founders of Koch Modular Process Systems, LLC (KMPS). He has worked in the distillation field for over twenty years beginning with Glitsch in 1980. He worked as an independent consultant after working for Glitsch, and joined Schlowsky Engineers in 1992. Schlowsky Engineers later formed Modular Process Systems, which entered into a joint venture agreement with Koch-Glitsch in 1999 and evolved into KMPS. Alan received his BS in Chemical Engineering from Rutgers University. He received his NJ PE license in 1985 and has been Member of the AIChE since 1978.

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### Process Safety Management

**Speaker:**

Mr. Art Dowell  
Senior Technical Fellow  
Hazard Analysis, Rohm and  
Haas Company

**Subject:**

Layers of Protection Analysis  
(LOPA)-Another Tool in the  
PSM Arsenal”

In order to determine if shutdown systems (Safety Instrumented Systems -- or SIS as they are called today) and other independent layers of protection provide sufficient risk reduction, several companies and industry groups developed and applied Layer of Protection Analysis (LOPA) during the 1990s. LOPA is a simplified risk assessment tool that determines the risk reduction provided by such features as the basic process control, operator response, and relief devices to determine how much protection should be provided by safety instrumented systems. LOPA offers a consistent and cost-effective approach for this analysis and it has the added benefit of resulting in enhanced system documentation. Drawing from the experience of several companies and organizations, this talk provides an overview of LOPA and presents lessons learned from the application of LOPA over the past decade. Examples are given to avoid potential pitfalls and traps.

Art Dowell is a chemical engineering graduate of Rice University. He has 35 years experience at Rohm and Haas Company and is now Senior Technical Fellow, Hazard Analysis. He has participated in writing three books for CCPS (Center for Chemical Process Safety) on incident investigation, inherently safer processes, and layer of protection analysis (LOPA). He is an instructor for the AIChE layer of protection short course. Art is a member of ISA (the Instrumentation Systems and Automation Society), a Fellow of AIChE, and has received the Bill Doyle award from AIChE and the Albert Sperry Award from ISA.

Contact:  
Jack Chosnek  
(281) 538-0220  
E-Mail: JC@knowledge1.net

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SOUTH TEXAS SECTION TODAY!**

## Workshops Announcements – detailed information

### CAST Workshop

**Speaker:**

Mr. Lowell Pless  
Operations Manager  
Tru-Tec

**Subject:**

“Trouble-Shooting  
Distillation/Separation  
Columns with Gamma  
Scans”

Gamma scans are traditionally applied to distillation and separation columns, to generate density profiles that can be used to diagnose operating abnormalities such as damage to internals, flooding, degree of entrainment or weeping, liquid levels on trays and distributors, liquid distribution through packed beds, etc. After a brief explanation of the “science” behind the procedure the presenter will show several case studies where scanning revealed vital process information that helped solve an operating problem, or helped make a revamp/re-design successful.

The process variables that can be directly measured with radioactive tracers include flow rates, flow distribution, residence times, mixing characteristics, etc. Several examples of the type of data that can be measured from an operating unit will be shown.

Lowell Pless, P.E. has a B.S. Chemical Engineering degree from the University of Texas at Austin, and is registered as a Professional Engineer in Texas. He is a member of A.I.Ch.E. and of our local section. Lowell has been with Tru-Tec for 15 years in Senior Engineer and Operations Manager positions. Previously Lowell worked and received invaluable process and operations experience with Celanese Chemical Company and Calumet Lubricants.

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### Government Interaction Committee

**Subject:**

Topic: “Bills Affecting  
Chemical Engineers”

**Chair:**

Dennis Griffith  
Granherne Inc.

By the time of the GIC meeting on February 6, the 78th Texas Legislature will have been in session for slightly over three weeks, and probably over 1,000 bills will have been filed. (During the last Texas Legislature in 2001, over 5,500 bills were filed.) Some of these bills will affect the profession of Chemical Engineers while others will affect our employers or other aspects of our lives.

The STS-AIChE GIC will examine subject lists of these bills to determine what action, if any, the Section needs to take on them. Copies of important bills will be available at the meeting for review by attendees.

Also to be covered at the February GIC meeting will be the Texas Legislature Online’s e-mail based Bill, House and Senate Notification systems and how to sign up for these services.

Please check the room assignments in the Radisson Hotel Astrodome’s lobby and feel free to drop in and join us.

Contact: Dennis Griffith,  
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## CALENDAR OF EVENTS

### DINNER MEETINGS

**March 6, 2003 LOCATION: BRADY'S LANDING**

*Recent Physics Learned from the Hubble Telescope*

Speaker: **Dr. Reginald J. Dufour**

Professor of Physics and Astronomy

Rice University

**April 3, 2003**

*Future of the Professional or Something Related*

Speaker: **Dr. Dianne Dorland**, AIChE National Chair

Dean, College of Engineering Rowan University Glassboro

**May 1, 2003**

*"AWARDS NIGHT"*

### WORKSHOPS

**April 3, 2003**

*Joint Process Engineering/Plant Operations and  
Cast Workshop on Distillation*

Speaker: **Henry Kister**, Fluor Corporation

### SPECIAL EVENTS

**May 5-8, 2003**

Offshore Technology Conference

Annual Technical Meeting to be Announced

## VOLUNTEERS NEEDED for STS-AIChE BOOTH at the Texas Technology Showcase

Included in this newsletter is a brochure and registration form for the Texas Technology Showcase being held at the Texas Technology Showcase, and we are looking for volunteers to help staff it. We will be covering both our South Texas Section's booth and an adjacent booth for National AIChE.

The exhibition hours on Monday, March 17, are 5:30 to 7:30 PM and the hours on Tuesday, March 18, are 9:00 AM to 12:00 PM and 2:00 PM to 7:30 PM. We will be setting up our booth before the exhibition opens on Monday, March 17, and taking down our booth after the exhibition closes on Tuesday, March 18.

If you are interested in helping out with our booth, please contact Dennis Griffith at 281-575-4582 during the day or 713-465-9347 in the evening, 713-465-6914 (fax), [Dennis.Griffith@Granherne.com](mailto:Dennis.Griffith@Granherne.com) (e-mail).

## JOIN AIChE

### 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?***

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National Member of AIChE? YES ☐ NO ☐

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The Process engineering department consists of 50 engineers, with an average of 20 years experience with E&C and operating companies. Process engineering activities include:

- Heat and material balance
- PFD generation
- Major equipment specification
- Process simulation, including SimSci Provision, Hysys, and Aspen.
- Unit debottlenecking and optimization studies
- Tower and vessel design
- Heat exchanger design
- Process troubleshooting
- Flare/relief system analysis, including DIERS sizing
- System hydraulics
- Environmental consulting, including NOx reduction.
- Process hazards analysis (HAZOP, etc.)

For information, please contact

**Mike Najarian, P.E.**, process engineering manager

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email: [mike.najarian@gdseng.com](mailto:mike.najarian@gdseng.com)

The GDS website is: [www.gdseng.com](http://www.gdseng.com)

# You're on the Awards Nominating Committee!

## Nominations Needed!!!

It's nearly **Annual Awards** Time again!

Please use this form or any reasonable facsimile to submit your nominations **before May 1, 2003** to

Tom Menn

or

Sada Iyer, Ph. D.

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Pearland, Texas 77588-0458

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Fax: 281 - 544 - 8826

E-Mail: [sdiyer@shellus.co](mailto:sdiyer@shellus.co)

Nominations are now being solicited for the following:

- ☐ 2002's Distinguished Service Award (STS Member over 35 years of age)
- ☐ 2002's Outstanding Young Member (STS Member under 35 years of age)
- ☐ 2002's Best Fundamental Paper (STS Members Only)\*\*\*
- ☐ 2002's Best Applied Paper (STS Members Only)\*\*\*

Nominee's Address & Phone No.

Your Address & Phone No.

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Please: Only **ONE** Nomination per form! Thanks!!!!

**\*\*\* - A legible copy of the nominated paper must accompany the nomination and the nominated paper must have been published in a recognized periodical.**

A copy of this form can also be e-mailed from: <http://www.sts-aiche.org/#ANNOUNCEMENTS>

## From the Editor

### STS Dinner Meeting Speaker Now Skywalker

Dr. Donald Pettit, who spoke to STS in September 1999 about Mars Exploration and Payload/Fuel Issues, was recently in the news as the first chemical engineer on the space station and to space walk:

The two Americans on the International Space Station finished their first spacewalk Wednesday with a sense of humor despite glitches, including a stuck hatch that gave them a late start. Commander Ken Bowersox and NASA science officer Don Pettit were stuck in the airlock for several minutes while they tried to free the door that leads outside. It took persistence and some rocking by Pettit to get it open. "I'm glad Don's got an old truck, because he knew how to jiggle the door," Bowersox said. It turns out a fabric loop on the hatch cover was interfering with the latch, so Bowersox snipped off the loop at the end of the spacewalk. In between, the men removed launch locks on the recently installed port girder and unfurled its central 75-foot radiator panel.- In *Florida Today*, 16 Jan 2003.

Submitted by Richard Chu, Edited by Jim Morris

## VOLUNTEERS NEEDED

### 2003 Offshore Technology Conference May 5, 6, 7, & 8, 2003

The South Texas Section, A.I.Ch.E., has again been selected to staff one of the OTC "Conduct" Committees. We have been asked to provide personnel for the Proceedings Distribution Committee. Volunteer are also needed to help out with the Registration Committee and National AIChE's booth in the lobby.

For agreeing to serve as a member of the "Conduct" Committee by attending an orientation session on Friday, April 28 (time & location to be announced) and serving as either a Proceedings Distribution or Registration Conduct Committee member for one-half (1/2) day; each volunteer will receive:

1. A complimentary OTC Registration
2. A complimentary Parking Pass for the OTC
3. A Reserved Parking Place the day of your Conduct Committee assignment.

#### For Additional Information; please contact:

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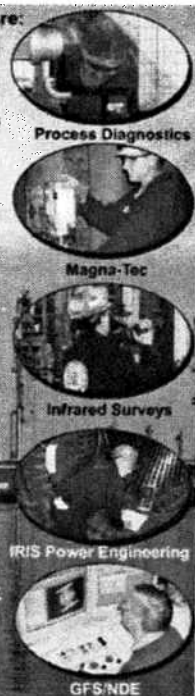
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