



The South Texan

2003 Marx Isaacs Award for Outstanding Large Section Newsletter

VOLUME 104 NUMBER 1

SEPTEMBER 2003

MONTHLY MEETING • SEPTEMBER 4, 2003



Speaker: Dr. A. T. Capitano, University of Houston, Houston, Texas

Subject: *"Building A New You: The Chemical Engineering Of Tissues"*

The dream of tissue engineering is to be able to grow any desired organ at will. Potential benefits to humanity will be substantial. Organ donor lists will become problems of the past. Burn victims will be able to receive new skins, and the deaf will be able to enjoy Mozart with new ears. Yet, many technical hurdles need to be overcome for this future to be realized.

From a chemical engineering perspective, an organ can be viewed as an extremely complex chemical plant. Several critical biochemical reactions govern organ function and health. Issues pertaining to the molecular transport of nutrients, proteins, and biological waste need to be addressed. Stringent environmental control of factors such as pH and temperature need to be achieved. Many clever strategies have been developed in attempt to address these issues. Through the course of this talk, the successes and shortcomings of these strategies will be discussed by examining the state-of-the art in the replication of bone, liver, and skin.

Dr. Capitano's education includes a B.S. in chemistry from the University of Iowa followed by a Ph.D in surface science from the university of Michigan with professor John L. Gland. After gaining expertise in surface analytics, he had an extended post-doc at M.I.T. in the division of bioengineering and environmental health with Professor Linda G. Griffith. Currently, his group works on developing tissue-based toxin sensors and methods of rapid prototyping organs.

ANNUAL TECHNICAL MEETING
UNIVERSITY OF HOUSTON - SEPT. 20, 2003
See page 4 for details

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

Computing And Systems Technology (CAST)

Topic: *"Desulfurization Of Natural Gas And LPG For Fuel Cells"*

Speaker: Mr. David Artrip, Catalysts Marketing, BASF Corporation, Houston, Texas

Process Engineering / Plant Operations (PEPO)

Topic: *"Monitoring And Mitigation Of Corrosion And Fouling In Refinery And Petrochemical Processes"*

Speakers: Mr. David Delve and Mr. Bruce Wright, Consultants, Technical Support Department, GE Betz / GE Water Technologies, The Woodlands, Texas

DUES INCREASE

Like nearly everyone else in the world, the STS needs more money. We have not had a dues increase since about 1996. Postage rates have increased several times since then. We used to receive extra income from the biannual Process Plant Safety Symposium, but National AIChE runs that and we get less revenue. We reduced expenses where we could including a \$4000 reduction in scholarships. Our cash reserves have declined by 15% over the past three years. (Note we had to raise dinner meal prices separately.) Local dues increase from \$12 to \$15 for the year 2004.

Meeting Location

RADISSON HOTEL ASTRODOME
(Kirby at South Loop)

WORKSHOP (NO FEES - NO RSVP)	5:30-6:30 p.m.
EXECUTIVE COMMITTEE	5:00-6:00 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 2, 2003
Call (713) 295-4847

Make reservation using the STS web site: www.sts-aiche.org

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From the Chairman

Dave Mitchell



For most kids returning to school after a summer vacation brought mixed emotions. It was good to see friends again, but it was now time for homework again too. Of course for us engineers homework was so easy through high school we did not mind that part much.

Returning to the STS is better. You still get to meet your friends, but you can attend our FREE seminars where you can learn without homework or even tests! We at the STS have been and will be busy. We won the Marx Isaacs award for the STS newsletter. Many of us made it to the ship channel tour. Matt Kolodney begins supplying us with new speakers. We have started using a new printer for the STS newsletter. Charlie Waligura has the ATM planned for later this month. We have a golf tournament in October. In December we will have Couples Night for the first time in years. In February we will have College Student Night at St Arnold's Brewery.

We hope to see more of you this fall. We do not want to alert the truant officer.

From the Editor

Jim Morris

The leadership and paid management of AIChE have considered their options and distilled the Essential AIChE from the financial disaster that occurred over the past four to six years. A vote of confidence by the $\pm 50,000$ members is to continue our membership in the National organization. While draconian measures are now being taken, and dues are being raised, how will we guarantee that our recent disaster won't happen again?

The paid management still resides in New York City, one of the more expensive places to do business in the world, while our employers moved out two or three decades ago. What financial strings will be attached to any expenditure to ensure our dues are being spent wisely? Is there an audit process for expenditures? Are chemical engineers being employed in key positions in National to prevent this from happening again? We are typically well trained in managing complex businesses, so why aren't more of us employed at the gates and key positions of our professional organization to make sure our dues are being spent wisely? Audits need to occur annually, and an accountability (instead of profit) center concept needs to be applied to all new and existing programs.

Budgetmeisters who play the game of asking for twice what is really needed and staff up to make sure the budget is spent are the ones to be eliminated at National, not core staff. And our local sections need to strengthen their positions and roles in National through a networking system and direct exchange of ideas between section leaderships, instead of sending those ideas upward to be distilled by a management and regurgitated by communicators that are not of our profession.

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.

ADDRESS CORRECTIONS

To expedite your request, all inquiries should be made through New York: xpress@aiche.org
1-800-AIChemE
1-800-242-4363
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3 Park Ave. New York, NY 10016-5991

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Workshops Announcements – detailed information

Computing and Systems Technology (CAST)

Speaker:

Mr. David J. Artrip
Catalysts Marketing,
BASF Corporation,
Houston, Texas

Subject:

***“Desulfurization Of
Natural Gas And LPG
For Fuel Cells”***

Stationary Fuel Cells for cogeneration of electricity and heat are near commercialization. They will decentralize electric power generation and improve the utilization of primary energy, especially when cogenerating heat and electricity. Natural gas and LPG are feedstocks of choice. Natural gas, widely available, has the highest hydrogen-to-carbon ratio for production of hydrogen rich gas. LPG can be easily transported to remote locations, for power generation in areas not connected to a natural gas grid.

Highly odoriferous sulfur compounds are added to gas or LPG as leak detectants. In the U. S., ethyl mercaptan and t-butyl mercaptan are the primary odorants. E. U. countries use tetrahydrothiophene (THT) as the main odorant. Sulfur impurities in LPG and natural gas are DMS, COS, and H₂S. Sulfur compounds are severe reforming catalyst poisons. Reformer and the fuel cell catalysts are irreversibly deactivated by sulfur poisoning. Cumulative sulfur exposure determines degree of poisoning. Even very low sulfur levels will lead to degradation of the fuel cell system over time.

Inexpensive activated carbons, used at ambient conditions, have a low sulfur capacity. Base metal oxides such as copper oxide or nickel oxide are dopants that increase sulfur capacity. The most advanced metal-doped carbons are inefficient traps for DMS, H₂S, or COS. Zeolites, with copper, zinc, manganese or nickel, are also used in sulfur

removal. Their cost:performance ratio is not much better than doped activated carbon.

An improved class of adsorbents has been developed to (1) remove organic and inorganic sulfur from LPG and natural gas, and (2) minimize co-adsorption of higher hydrocarbons, providing robust performance regardless of the feedstock composition. Early tests show significantly better performance compared to today's sulfur adsorbents.

David Artrip has a B.S. in Ch. E. from the University of Tennessee, and over 25 years of petrochemicals industry experience. In 1987 he joined BASF's Catalyst group where he has been responsible for catalysts for olefin purification and hydrogenation, for phthalic anhydride, and for NO_x abatement. Mr. Artrip has played a key role in BASF's global catalysts business, having developed their computer model for purification bed design, and having installed and serviced over 50 olefin purification units in North America.

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John Cheng
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E-Mail: john.cheng@basell.com

Process Engineering / Plant Operations (PEPO)

Speakers:

**Mr. David Delve
and Mr. Bruce Wright**
Consultants, Technical
Support Department,
GE Betz / GE Water
Technologies

Subject:

***“Monitoring And
Mitigation Of Corrosion
And Fouling In Refinery
And Petrochemical
Processes”***

This presentation will be an overview of the causes and possible solutions to corrosion and fouling in refining and petrochemical process systems. There will be an emphasis on techniques, both monitoring and analytical, to identify when and where corrosion and fouling problems are occurring, root cause analysis, and approaches to determine if mitigation steps are working.

Bruce E. Wright and David Delve are technical support department consultants for GE Betz, specializing in the Hydrocarbon and Petrochemical Process Industries. A 25-year employee with GE Betz, Bruce Wright is currently responsible for technical support, troubleshooting, and marketing of the refinery antifoulant product line. Bruce previously worked at GE Betz as a product development scientist in Research and Development, and also as a global product manager. He holds eight US patents and has published three technical papers. Bruce is a 1977 B. S. Ch. E. graduate of Rensselaer Polytechnic Institute in Troy, New York. In 1984, he received an MBA from the University of Houston. Bruce is a registered professional engineer in the state of

Texas, and is a member of the American Institute of Chemical Engineers.

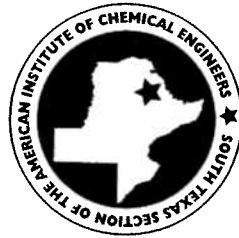
David Delve holds a Bachelor of Science Degree in Chemical Engineering from NTH Wirral College in the UK. Initial employment was with a major oil company in England and Saudi Arabia. David joined GE Betz 20 years ago, with experience in several capacities, including refining technology support, marketing and overseas assignments. David is a Member of the Chemical Engineering Society of the UK.

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**South Texas Section AIChE
2003 Annual Technical Meeting
20 September 2003
University of Houston**

ATM SCHEDULE,
On-Site Registration
First Session:
Second Session
Lunch
Third Session
Fourth Session
Reception UH Engr. Lobby
7:00 to 10:00am
8:00 to 9:30am
10:00 to 11:30am
11:30 to 1:00pm
1:00 to 2:30pm
3:00 to 4:30pm
4:30 to 6:00pm

8:00-9:30 AM	9:30-11:00 AM	1:00-2:30 PM	3:00-4:30 PM
Operations			
O-1 - Maximizing Unit Performance Through Advanced Modeling and Analysis <i>Doug Raven</i> Aspen Technology	O-2 - Understanding Cavitation, Flashing, and Noise in Flow Control Devices <i>Frank Breinholt & Jeff Lawless</i> Flowserve	O-3 - Optimizing Cooling Tower Performance <i>Paul Lindahl & Doug Cheatham</i> The Marley Cooling Tower Company	O-4 - Fundamentals of Cooling Water and Boiler Feed Water Treatment <i>Norman Wise</i> GE Betz
Refining			
R-1 - Low sulfur Fuels <i>Freeman Self</i> Bechtel	R-2 - Hydrotreating Processes; Catalysts and Design Fundamentals <i>Mr. Stanley C. Gustas, III</i> Criterion Catalyst & Technologies	R-3 - Chemistry, Kinetics and Basic Reactor Engineering of Fluid Catalytic Cracking <i>TBA</i> Grace Davison Refining Catalysts	R-4 - Workshop four <i>TBA four</i> TBA four
Design			
D-1 - Taking the Heat Off of Exchanger Selection <i>Allen C. Miller, P.E.</i> Technical Professional Manager, Exchanger Technology, Kellogg Brown & Root, Inc.	D-2 - Pumps: a ChemE's Best Friend <i>Cory Hendrick</i> Regional Sales Manager, Peerless Pump	D-3 - Fundamentals of Corrosion and Materials Selection <i>Robert Langley, P.E.</i> Process Section Manager, Jacobs	D-4 - Everything You Ever Wanted to Know About Pump Seals But Were Afraid to Ask <i>Robert Brown</i> Sales Representative, John Crane
Environmental			
E-1 - Flow Measurement in Flare lines	E-2 - Online Gas Chromatographs -Flares & Other Applications	E-3a - Update - Scientific Understanding of Houston Ozone Problem E-3b - Update - Houston Ozone SIP	E-4 - Panel Discussion - Air Pollution Topics of Interest
<i>Mark Gibson</i> GE-Panametrics	<i>Lee Swindler</i> Equistar	<i>Dale Langham</i> Emerson Daniel	<i>Karen Atkinson</i> TCEQ Regional Air Manager <i>Bob Mann</i> TCEQ Source Testing Observation <i>Plus Industry Representatives</i>
Project Management			
P-1 - Development of the Project Scope Package, WBS and Budget <i>Ray Piper MCMI, PMP</i> President of BIS Training and Consulting	P-2 - The Soft Skills of Project Management <i>Sarah Nuttall</i> Aegis Management Consultants	P-3 - Logic Diagrams and Lag Factors <i>Ray Piper MCMI, PMP</i> President of BIS Training and Consulting	P-4 - Identifying Risk and Reviewing Impact <i>Bradley Cozart</i> DNV Consulting

Please see the STS AIChE Website for additional information at: www.sts-aiche.org
Or Contact: Charlie Waligura - CWali123@aol.com and/or Larry Gammon (281) 333-0464

CALENDAR OF EVENTS

DINNER MEETINGS

October 2, 2003

Metro Topic: To be determined

Speaker: To be determined

November 6, 2003

December 4, 2003

Holiday Meeting for Spouses,
Partners, or Whatever Suits You
Speaker: : To be determined

January 8, 2004

February 5, 2004

Student Night at St. Arnolds Brewery
(Catered by Lennox Barbecue)

WORKSHOPS - NONE PLANNED

SPECIAL EVENTS

Saturday, 20 September 2003

ANNUAL TECHNICAL MEETING

Location: University of Houston,
Chemical Engineering Building

Contact: Charles Waligura, Meeting Chair
(713) 339-1550 Ext.136
E-mail: cwaligura@gemengr.com

For details and registration: www.sts-aiche.org

SPECIAL EVENTS — Continued

Saturday, October 4, 2003

OKTOBEERFEST 2003 GOLF TOURNAMENT

Location: Southwyck Golf Club, Houston, TX

Tee Time: 1:30 p.m.

Cost: w/Lunch and Drinks \$48.00

Contacts: Daniel Bell

(281) 538-8005

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Bob Bradley

(936) 447-2453

E-mail: rbradley@txucom.net

Darin Cunningham

(281) 586-0079

E-mail: darinc52@aol.com

Details on website at: www.sts-aiche.org

Thursday, November 6, 2003

ENERGY MANAGEMENT FORUM

As a continuation of last March's Texas Technology Showcase, the South Texas Section will be hosting an Energy Management Forum prior to the monthly meeting. The focus of the forum will be "How to Cope with \$6/MMBtu Energy." This will be a high level presentation aimed principally at Plant Managers, Engineering Managers, and senior staff. While the program has not been developed, it will include the case histories with bottom line results and an interactive panel discussion.

2003 Science Engineering Fair of Houston: The following students were chosen for having prepared the best science fair projects related to Chemical Engineering. For their achievement, these students were presented engraved certificates and student editions of the CRC Handbook of Chemistry and Physics at the May 1, South Texas Section meeting. The students displayed their projects during the social hour preceding the meeting. The winners's parents and science teachers also attended the meeting. See photos on page 6.

Junior Division:

Name: **Roshini Ramwani**
Title: Electrochemical Cells
Generating Electricity
Category: Junior Chemistry
School: Fondren Middle School,
Houston ISD
Parents: Deepa and Jagdish Ramwani
Teacher: Vernon Bleeker

Ninth Grade Division:

Name: **Andrea Gibbons**
Title: Balance from the Dark Side, Fudging
Formulation Chemistry
Category: Ninth Grade Chemistry
School: Clear Creek High School Ninth Grade Center,
Clear Creek ISD
Parents: Randy and Holly Gibbons
Teacher: Taresa Moore

Senior Division (two awards)

Name: **Jingjing Tian**
Title: Bioremediation
Category: Senior Environmental
School: The Academy of Science and
Health Professions, Conroe ISD
Parents: Fu Tian and Guo Tao
Teacher: Dr. Charles Mooney

Name: **Bryce Kittinger Campbell**
Title: New Approach for Suppressing
Vortex-induced Vibrations
Category: Senior Engineering
School: The Academy of Science and Technology,
Conroe ISD
Parents: Robert Campbell, Ph.D. and Kerry Campbell
Teacher: Mr. Scott Rippetoe

Awards Meeting

May 1, 2003

2003 Science Engineering Fair of Houston



Roshini Ramwani, Vernon Bleeker, and Deepa and Jagdish Ramwani



South Texas Section Chairman David Mitchell.



Guo Tao and Fu Tian, Jingjing Tian, Taresa Moore, Andrea Gibbons, Holly Gibbons, Robert Campbell, Bryce Campbell, Kerry Campbell, Roshini Ramwani, Vernon Bleeker, Deepa and Jagdish Ramwani, and Ernie Althaus.



Andrea Gibbons, Roshini Ramwani, Ernie Althaus (head judge), Jingjing Tian, Bryce Campbell.

JOIN AICHE AND TH

Dinner Meeting and 2003 STS Awards



Chairman David Mitchell with May dinner speaker, Dr. Carter J. White.



Tom Menn, awards committee chairman, Ernie Althaus, distinguished service award, and section chairman, David Mitchell.



Tom Menn, awards committee chairman, Wendy Young, outstanding young member, and section chairman, David Mitchell.



Section Chairman, David Mitchell, Service Award Recognition for Jack Chosnek, Shane Tierling, Jim Murphy, Dave Silarski, and David Karesh.

SOUTH TEXAS SECTION TODAY!



Ship Channel Cruise

JUNE 5, 2003



Emenem! Murphy and Morris, Aziz Siddiqi, Charles Waligura, Unidentified.



This year we found Leonardo. Where's Kate?



Shane and Linda Tierling, Dennis Griffith



Lennox did it right this year!

JOIN AICHE AND THE



John Middleton, Marc Fellows, and Wendy Young
Persons Chair



Dave Silarski and Friend



Officers Ward Room



Shane and Linda Tierling

SOUTH TEXAS SECTION TODAY!



Chemstations, Inc., makers of the CHEMCAD Suite of Chemical Process Simulation software, offers free use of its products to unemployed members of the American Institute of Chemical Engineers. Qualified members will have full access to the software for a 30-day period in which to build or 'brush up' their skills with process simulation. An online discussion forum at Chemstations' website, www.chemstations.net, is available to help users learn the software and discuss applications.

The offer is made in conjunction with the **Career Services** department of the **AIChE** and is open to members who have registered as unemployed with the organization. Unemployed chemical engineers should contact Herb Scheftel, of the AIChE, at herbs@aiche.org to learn more about and sign up for the program. To join the AIChE, visit <http://www.aiche.org> or call (800) 242-4636.



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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.

☐ My \$15.00 is enclosed.

Name: _____

Address: _____

City: _____

State: _____ Zip: _____

Phone: _____

National Member of AIChE? YES ☐ NO ☐

AIChE Member Number _____

GDS Engineers

Petrochemical • Refining • Industrial

GDS is a 500 person engineering and construction management firm, with offices in Houston, Baytown, and Texas City. We perform front end and detailed design on projects up to \$100 MM TIC for refineries, petrochemical, polymers, and gas processing units.

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:

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- 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
ph: 713-667-9162 • fax: 713-667-9241
email: mike.najarian@gdseng.com
The GDS website is: www.gdseng.com



DIXIE CHEMICAL COMPANY, INC. a leader in specialty chemical manufacturing located in the Bayport Industrial District in Pasadena, TX has an immediate opening for the following:

RISK MANAGER

This position, reporting directly to the VP Process Technology/Commercial Development requires a BS Engineering Degree and a minimum of 5 years of PSM and related experience in a batch/specialty chemicals business. Texas P.E. preferred. The successful candidate will manage the Process Safety Management Program, loss prevention studies, document control and production audits. This manager will also actively participate as a working professional. If you are interested in joining our team please send your resume and salary requirements to:
hr@dixiechemical.com. EOE M/F/D/V

We're #1, We're #1, We're #1

The STS has again won first place in competition for the Marx Isaacs Award for the best newsletter in the large division of AIChE. Marx Isaacs was a STS member who was so successful in making the STS the best that the AIChE changed the rules. First, they named the award after him. Second, they now require us to wait 3 years between our wins in order to give other sections a chance.

There are many people to recognize for this award – those who submit articles and especially those who edit and continue Marx Isaacs' tradition. In the recent past this has been Jim Morris, Gary Congram, and Tim Lowery. Thanks to all of them.

New Printer

You may notice some changes in the newsletter this month because we have a new printer. We wish to give thanks to Holly Pro Graphics, who were our printers for at least 25 years until they began getting out of this part of their business. Our business address has also changed. We thank those who helped in the various parts of the selection. Our new publisher is Kwik Kopy Business Center #117, located in Klein at 17126 Steubner Airline Road. STS will share the same address, with a Postal Mail Box Number 4101.

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A Few of the Services Provided Are:

- Gamma Scanning
- Radioactive Tracing
- Neutron Backscatter
- Helium Leak Testing
- FCC & Reactor Diagnostics
- Cat-Scans
- Laser Coke Drum Scans
- Global Piping & Vessel Inspections (EMAT)
- Infrared Thermography
- Steam Air Decoke Monitor & Control
- Partial Discharge Testing of Motors and Generators
- Mechanical Integrity Inspection and Analysis



Process Diagnostics



Magna-Tec



Infrared Surveys



IRIS Power Engineering



GFS/NDE

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**2003 South Texas Section, AIChE, Annual Technical Meeting
September 20, 2003 at University of Houston**

CALL FOR VOLUNTEERS

Conference Planning and Administration

- Communications • Programs
- Facilities • Registration
- Sponsorships • Proceedings
- Vendor Expo • Budgeting & Finance
- Administration • Conference Evaluation

Conference Marketing

- Conference Evaluation Planning
- Conference Evaluation Production of Materials

On-site volunteers during the ATM

Be a part of the Conference Team and join your fellow Section members in making the 2003 Annual Technical Meeting a success!

**Expand your Network! Exercise your skills!
Gain new skills by volunteering in new areas!**

**FOR MORE INFORMATION AND TO VOLUNTEER
FOR ONE OF THE POSITIONS ABOVE CONTACT**

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