

# AIChE<sup>SM</sup>

section

## Chicago Columns

Chicago Section

American Institute of Chemical Engineers

[www.aiche-chicago.org](http://www.aiche-chicago.org)



### March Meeting Notice

March 9th, 2005  
Greek Island Restaurant & Lounge  
300 East 22nd Street  
Lombard IL, 60148  
Phone: (630) 932-4545

#### **Agenda**

Cash Bar.....6:00pm  
Dinner.....7:00pm  
Speaker.....8:00pm

#### **Cost**

\$25 for members  
\$27 for non-members  
\$5 for AIChE student chapter members  
(see your advisor).

#### **Reservations**

*Make your reservations by calling the AIChE Reservation Hotline at 847-588-3323 or emailing [evalopez@teianalytical.com](mailto:evalopez@teianalytical.com). Or register online at [www.aiche-chicago.org](http://www.aiche-chicago.org). Deadline is noon March 5, 2004.*

We understand that as professionals, we sometimes have to make last minute adjustments to our schedules, which may prevent us from attending a meeting. However, it hardly seems reasonable to ask Chicago Section members to absorb the cost for dinners for those that make reservations and then are not able to attend. Therefore, on behalf of the AIChE Chicago Section Members, if you make a reservation for a meeting and later find that you cannot attend, we request that you reimburse the Section for the cost of the dinner. We appreciate your corporation and hope that this will resolve one issue that accounts for monthly meeting deficits.

#### **Meeting Topic**

*Improving Gas Well Drilling and Completion with High Energy Lasers*

Brian C. Gahan, Manager, E&P Technology Development  
[www.gastechnology.org](http://www.gastechnology.org)

#### **Abstract**

Industry experts in the 1960s and 1970s considered the use of photonic energy in well construction; however the technical application of lasers was dismissed as energy intensive and inefficient. Their conclusions from 40 years ago continue to influence industry misperceptions of laser applications, despite massive developments in laser systems and applications.

Gas Technology Institute (GTI) has studied several military and industrial laser systems for possible use as an alternative means to break and remove rock for well construction and completions. Initial research results held that these lasers were capable of breaking, melting, or vaporizing rock, penetrating rock more rapidly than conventional drilling, and even increasing the permeability of rock.

New breakthroughs in laser technology have addressed efficiency, portability and reliability issues required for successful commercial field applications. Fiber laser technology, first used in the 1980s and 1990s as low-power optical amplifiers for the telecom industry, is now capable of delivering multiple kilowatts of power from an efficient, compact laser source with excellent beam quality, reliability and long life.

In 2003, GTI acquired a 5.34 kilowatt fiber laser system that forms the heart of a new GTI laser applications facility, and is currently the largest fiber laser available for research in the United

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States. Experiments at GTI have proven the capability of high power lasers to efficiently tunnel into rock at standard and in-situ conditions. Depths of penetration reached at least 12 inches into sandstone and carbonate reservoir rock types while improving permeability.

This presentation will review GTI's laser applications research program for well construction and completion and discuss the advantages of high power fiber laser technology as a significant step forward in realizing a range of on-site applications, including hard rock mining, tunneling, pavement cutting and rock drilling.

For more information on improving gas well drilling and completion with high energy lasers, please visit the AIChE Chicago section website at [www.aiche-chicago.org](http://www.aiche-chicago.org).



#### Speakers

Brian C. Gahan is Senior Scientist and Manager, E&P Technology Development in the Exploration & Production Research Group at Gas Technology Institute (GTI) in Des Plaines, Illinois. Mr. Gahan is the principal investigator for GTI's laser drilling and completion research program to investigate technical feasibility and prototype design of high power laser applications for oil and natural gas well construction and completion.

Gahan, a registered professional engineer in Ohio and Illinois, earned a BS in Petroleum Engineering from Marietta College; an MBA from the Katz Graduate School of Business, University of Pittsburgh; and a Master of Chemical Engineering at Illinois Institute of Technology. He is an active member of the Society of Petroleum Engineers, the American Association of Petroleum Geologists, the American Institute of Chemical Engineers, and the Laser Institute of America.

Prior to joining GTI in 1991, Mr. Gahan served as Petroleum Engineering Officer for Pittsburgh National Bank, providing reservoir and production engineering expertise to their commercial lending division. Mr. Gahan has also worked for Conoco on offshore oil and gas production facilities in the Gulf of Mexico, and with Amerada Hess in the Williston Basin, North Dakota.

#### Menu

The meal begins with Saganaki (Flaming Cheese) and Taramosalata (Fish Spread), followed by Greek Salad and Gyros with Tzatziki. The main course is comprised of Arni Bouti Psito (Sliced Leg of Lamb), Dolmades (Stuffed Grape Leaves), Keftedes (Meatballs), and Mousaka (Baked Eggplant & Meat Casserole), all served with Rice Pilaf and Oven-Browned Potato. For dessert, Galakobouriko (Light Egg Lemon Custard Pastry in Filo Dough), and Coffee or Hot Tea.

#### Directions

Greek Island Restaurant & Lounge,  
300 East 22nd Street, Lombard IL, 60148  
Phone: (630) 932-4545

*From the North Side:* Take I-94 east and exit #37A towards Dempster West ST/IL-58. Bear right on the I-294 ramp and take I-294 South. Take the I-88 West/E-W Tollway and exit towards Aurora. Take the Highland Ave. exit towards Chiropractic College and turn right on E 22ND ST - go 0.1 mi

*From the West Side:* Take IL-83 west then take the Butterfeild/IL-56 West exit. Turn Right on Meyers Rd. and turn Left on 22ND St.

#### Last Call For The Ernest W. Thiele Award Nominations

The Ernest W. Thiele award is sponsored by BP and recognizes the outstanding contributions to our profession by a Midwest region chemical engineer. This award was established by the AIChE Chicago Section and is presented annually to a Midwest region AIChE member. This internationally recognized award consists of an engraved plaque and \$1000 honorarium presented at our sectional meeting.

Nomination forms and additional information can be obtained from the Thiele Committee Chair. Completed nominations are due to the committee chair no later than March 1, 2005.

One of the highest honors a distinguished chemical engineer can receive is our Chicago Section Thiele award. Please consider nominating a deserving engineer for this prestigious award.

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## Chair's Corner

Becky Wietting  
Chair 2004-05  
Chicago Section AIChE

### Topic: Goal Setting

I have a neat picture frame on my desk with a quote from Maya Angelou: "It may take years to realize a dream, but dreaming itself is an elevating experience." The picture I put in this frame is a picture of me standing next to a baby grand piano. When I was a kid, I took piano lessons for 5 years. In eleventh grade, my homework and after school jobs became too time consuming for me to keep up with piano practice. I had to stop taking lessons. It is amazing how quickly the skill is lost. I went to college and then started a career. About 5 years ago, I was determined to re-learn the piano. I had forgotten so much that it has been a real struggle to learn to play again. It was very hard work, but it has been such a joy to be able to play well again. I bought myself a baby grand piano and continue taking weekly piano lessons.

Many goals take years and enormous effort to attain. I agree with Maya Angelou that it is an elevating experience both to dream and to make those dreams a reality. The main thing is that we hold out hope that we will accomplish our dreams and stick it out through the drudgery and hard work.

One of my recent goals was to make the quota club for the sales people. All year long, it seemed that I was falling short. I kept working hard and am very thankful that I finally made it in December. Whew! What a great feeling it is.

Another goal of mine was to become Chair of a local AIChE section. The process requires that the volunteer serve in every position as an officer prior to becoming the Chair. This means you have to stay put for a while too. I served in two officer positions in the South East Texas section. Then, I moved and served as an officer in the South Texas Section. I moved again and have served in the Chicago section for the past five years. I am thrilled to have finally stayed in a section long enough to have the honor of being Chair. You too could make this a goal and volunteer your services to the Chicago section. We are always looking for new volunteers.

We all have to work hard and stick with our goals in order to finally reach that feeling of pride and satisfaction. I hope you will set some meaningful goals for yourself and endure the work so that you can follow Maya Angelou's advice.

## Symposium Participation and Promotion

You won't want to miss the "Chemical Engineering - At the Crossroads of Technology" symposium to be held on April 19th and April 20th this year. Participation is limited, so sign up today. Registration forms can be obtained on the AIChE Chicago section website at [www.aiche-chicago.org](http://www.aiche-chicago.org).

The symposium heavily echoes the themes of the recent National meeting and the editorial in CEP, December 2004. Here John Sofranko, AIChE Executive Director writes and I selectively quote, "AIChE's recent initiatives in biotechnology, nanotechnology and sustainability are meeting with considerable success....We're gratified by the ways in which we're improving our services to the emerging areas of Chemical Engineering ....We are leading a collaborative innovation process to reinvent the basic processes that form the foundation of the chemical enterprise."

This is quite a unique educational and business opportunity for our members. The committee is eager that this unique symposium is a success; technologically and financially. The Symposium Committee has worked methodically and tirelessly to initiate this effort and will continue to do so in the days ahead.

While we are confident that the symposium will be a technological success, we are asking your support to assure that it is a financial success as well. Therefore, please show your support by:

- Enrolling and participating in the symposium; it is a unique opportunity to update yourself and your company in emerging technology areas
- Publicizing your company's achievements in the poster sessions
- Assisting the Symposium Committee in receiving a commitment from your company to become a financial sponsor. All financial contributions will be accepted. Please contact Narayanan Sankaran, Secretary, at [Narayanan.Sankaran@uop.com](mailto:Narayanan.Sankaran@uop.com) (tel 847-375-7893) or any member of the Symposium Committee and identify yourself and/or the person that would be responsible for approving financial sponsorship for the symposium. We will send a letter of sponsorship appeal to the designated person in your company and do all the necessary follow up work needed, with your broad guidance. We appreciate your assistance in getting the ball rolling.

The symposium fees have been kept low this year to promote wider participation. However, we will need the financial sponsorship of companies like yours to maintain the low symposium fees in the future.

We look forward to seeing you at the symposium. The Symposium Committee



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## Dated Mail

THIS MAY BE ONE OF THE LAST PAPER NEWSLETTERS YOU WILL RECEIVE.

By September 2005, the AIChE Chicago Section newsletter will be available electronically. Paper copies of the newsletter will be mailed to a limited number of members. This is being done to get the most effective use out of your dues dollars. All of the Chicago Section News will be found at [www.aiche-chicago.org](http://www.aiche-chicago.org). Do we have your email address? If not, please send it to [annette.johnston@abbott.com](mailto:annette.johnston@abbott.com) so that we may contact you with updates to the website monthly.

To see the officer contact list, please go to [www.aiche-chicago.org](http://www.aiche-chicago.org).