



JANUARY MEETING NOTICE

Joint Meeting with the *Air & Waste Management Association, Allegheny Mountain Section*

Topic: Maglev's "The Pennsylvania Project"

Where: The Penn Brewery
Troy Hill and Vinial Street (Northside)
Pittsburgh, PA

When: Wednesday, January 15, 2002

Time: 4:00 PM Registration and Networking
4:30 PM Program Introduction
4:45 PM Maglev Presentation
5:45 PM Brewery Tour
6:00 PM Dinner and Social
8:00 PM Adjournment

Menu: A buffet dinner of German specialties; freshly made at the Penn Brewery

Cost: \$35.00 Members
\$25.00 Students / Unemployed Members
\$45.00 Non-members

**FOR JANUARY MEETING,
RSVP NO LATER THAN
FRIDAY JAN 10TH, 2003**

To: Mr. Ed Moretti, AIChE / A&WMA
Tel 412-269-6055
Fax 412-269-6057
Email: emoretti@mbakercorp.com
PLEASE PAY AT DOOR

Name _____

Email _____

Phone _____

CANCELLATIONS: If you must cancel your meeting reservation, please do so no later than 24 hours prior to the meeting. If you do not provide a cancellation notice, you will be invoiced for the cost of your meal.

~ About the Presentation ~

Maglev's "The Pennsylvania Project" The Competitive EIS Project and the Future

Speakers: Suzanne Thomas, Maglev, Inc.; Gary R. Antonella, Port Authority of Allegheny County; Stephen E. Gould, GAI Consultants, Inc.

The Pennsylvania Project, a public-private partnership between MAGLEV, Inc., the Port Authority of Allegheny County and PENNDOT, is vying to build the first high-speed Maglev system in the United States under the federal Maglev Deployment Program. High-speed Maglev will bring immediate relief to the congestion in the Pittsburgh east-west traffic corridor. As a transportation system for the 21st Century, Maglev will bring an exciting attraction to Pittsburgh and the cities that it serves. Its technology will revitalize the transportation and manufacturing industry in the United States.

During this phase of the project, an Environmental Impact Statement (EIS), preliminary engineering and technology development tasks were performed to support and position the project competitively within the National Maglev Deployment Program. The speakers will discuss how they realized project efficiencies to shorten the EIS process by half without compromising the NEPA Process. A project status update will also be presented as well as how so many public and private organizations work together to bring high-speed Maglev to Southwestern Pennsylvania.

DIRECTIONS TO THE BREWERY ARE ON PAGE 2.

**REMINDER - THIS IS THE LAST PAPER
NEWSLETTER !**

➡ Please see page 2 for e-newsletter details!!



LETTER FROM THE CHAIR

Welcome back everyone!

I hope everybody's holidays were as fun as mine. As we come into this new year we have some exciting things planned for the local section.

First, starting next month, we will be switching over to the electronic newsletter format. This will help our section save a lot of money, and will make it easier for you to access 'The Catalyst'. Don't worry; those of you who requested paper copies will continue to receive them.

Second, our meeting this month is our annual joint meeting with the AWMA at the Penn Brewery. This is a perennial favorite of many of our members (including myself). This year we will hear about the proposed Maglev.

Third, we will be having the second of our series of "Career Pathways" workshops. This one will be on "Image Enhancing Strategies" (details are in the newsletter).

And finally, this is a McAfee Award year. By honoring one of Pittsburgh's finest chemical engineers, we bring honor and distinction not just to our section, but to our city and our profession as well! Please read about the history and importance of the McAfee Award in this, and upcoming, newsletters.

I look forward to seeing all of you at the Penn Brewery on the 15th!

JoAnn Truchan
AIChE Pittsburgh Section- Chair

JANUARY MEETING NOTICE (FROM PAGE 1)

~Directions to the Penn Brewery~

From the East:

Take I-376 /US-22 heading West. Take exit 1A toward I-279 N/Northside. Stay straight to go onto Fort Pitt Blvd. Merge onto I-279 N. Merge onto PA-28 N via exit

number 7C toward Chestnut St/East Ohio St/Etna. Take the Chestnut Street exit. Turn left onto Chestnut Street. Turn right onto Phineas Street, which becomes Troy Hill Road.

From the West:

Follow US-22/30 heading East to I- 279 N. Take the 279 N exit on the left toward Fort Duquesne Blvd /Convention Center/Strip District. Merge onto I-279 N via the ramp on the left. Merge onto PA-28 N via exit number 7C toward Chestnut St/East Ohio St/Etna. Take the Chestnut Street exit. Turn left onto Chestnut Street. Turn right onto Phineas Street, which becomes Troy Hill Road.

E-NEWSLETTER (FROM PAGE 1)

Dear AIChE Pittsburgh Members,

We are in the final step in our transition to a new E-Newsletter. Over the past couple months, our officers and chairs have been contacting members by phone and/or e-mail to verify their e-mail addresses.

In order to make sure that this transition goes smoothly, we have sent you both a paper copy and an electronic copy of the Catalyst this month. If you do not receive an electronic January Catalyst, please contact our membership chair right away at hgray@mbakercorp.com, so we can make sure we have your current e-mail address.

February's newsletter will be sent out via e-mail only, unless you have requested otherwise. Please contact our membership chair if you prefer to continue receiving a paper newsletter.

Help us to make sure that you don't miss any issues of your newsletter. We'd like to keep you informed of our monthly meetings, career-development seminars, outreach events, local and national section news, member benefits, and networking opportunities.

Our e-mail list is confidential and will be used only by us.

Thank you for your help!

Marianqela Peters
AIChE Pittsburgh Section - Catalyst Editor



MEMBERSHIP CORNER

Dear Members,

We are constantly updating our local membership database. Please send all change of address notifications to our Membership Chair:

Holly Gray
Baker Environmental, Inc
Airport Office Park, Bldg 3
Coraopolis, PA 15108
hgray@mbakercorp.com

If you have not already done so, please verify your updated e-mail address with us so that you will continue to receive monthly newsletters! We will be switching to an electronic newsletter in January.

Thank you!

Please sign me up for the local Pittsburgh Section of AIChE

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

Business Phone _____

Residence Phone _____

Email _____

Annual Dues are \$16.00. Make check payable to "AIChE Pittsburgh Section" and send to our Treasurer:

Leigh Anne M. Wacker,
CFX Software & Services,
Omega Corporate Center
1260 Omega Drive
Pittsburgh, Pennsylvania 15205

NEWSLETTER DEADLINE

**THE DEADLINE FOR THE FEBRUARY NEWSLETTER IS
 JANUARY 15, 2003.**

Please submit information to:

Mariangela Peters
Sony Electronics - AG
1001 Technology Drive
Mt Pleasant, PA 15666

mariangela.peters@am.sony.com
724-696-8234

SCHOLARSHIP DEADLINE

2003-2004 AIChE Pittsburgh Scholarships

Applications are now available for two \$750 scholarships to be awarded by the Pittsburgh Section AIChE for the 2003-2004 academic school year. Sophomore and junior chemical engineering students are eligible to apply if they:

- Are enrolled in one of the following chemical engineering programs in the AIChE Pittsburgh Section area: Carnegie Mellon University, University of Pittsburgh, West Virginia University, Youngstown State University
- Are enrolled at any AIChE-accredited chemical engineering program in the United States provided that the student is the son or daughter of a member in good standing of both the AIChE and the Pittsburgh Section AIChE.

The deadline for submission of an application is **January 15, 2003**. Scholarship recipients will be notified by February 15, 2003.

For more details or to print out a copy of the application, visit www.aichepgh.org.



CAREER CORNER

Career Pathways: Your Personal Marketing Campaign

In this current economic climate, keeping up our job-hunting skills is becoming ever more important. Some of us haven't had to look for a while and our skills are bit rusty. Others want to keep sharp.

Either way, join us for an informal workshop on Saturday, February 1st as Jonna Martin of *AdvanceMe Associates* goes over some tips on how to present the right image, whether it be to an interviewer or a client.

Winning Interview Presence: Image Enhancing Strategies

Saturday, February 1, 2002
10:00 am

The Pittsburgh Oratory Newman Center
4450 Bayard Street, Oakland

Please **RSVP** by January 31st to
JoAnn Truchan at jtruchan@achd.net
or (724) 695-1945

The workshop is free of charge, and coffee and donuts will be provided.

EVERYDAY SCIENCE

UNVEILING ENGINEERING MARVELS

This month, AIChE presented the 2002 Service to Society Award to Bill Hammack, professor of chemical engineering at the University of Illinois at Urbana-Champaign, and host of the NPR radio show, "Engineering & Life." The show shares with listeners how things work, and introduces them to the engineering in their everyday lives, including coffee makers, bathtubs, Gore-Tex, and cruise control. Visit Hammack's site at <http://www.engineerguy.com>.

HEAR MUSIC, LEARN SCIENCE

New York City's Cornelia Street Café hosts a monthly series on the first Sunday of the month, called "Entertaining Science," started by Nobel Laureate chemist and poet Roald Hoffmann. The series focuses on art and

science. On January 5, Ken Jolls, a chemical engineering professor at Iowa State and AIChE member, will play with a jazz quartet. For information on the event, visit <http://corneliastreetcafe.com>.

FOOD SCIENCE WEBCAST

Over the coming months, San Francisco's Exploratorium will host a series of live Webcasts on the science and culture of cooking. Last month's topic: Champagne. Learn more at <http://www.exploratorium.com/cooking/webcasts/index.html>.

AICHE NATIONAL CHAPTER NEWS

NEW CD-ROM ON INDUSTRIAL WATER MANAGEMENT

Industrial Water Reuse & Management: A Systematic Approach is now available from AIChE/CWRT. This CD-ROM shows how to systematically incorporate the principles of water conservation, recycling and reuse into the design of new plants, retrofits of existing systems and technology development. For more information, visit the CWRT web site at: <http://www.aiche.org/cwrt/projects/waterreuse.htm>

AICHE MEMBERS CONNECT FOR FREE

AIChE Members-Only Online Community (OLC) is your direct link to other members and member resources. Exchange ideas and information, access networking possibilities and jump-start your career. Take a moment to register for this free resource at: <http://www.aiche.org/member/community.htm>

AND KEEP UP ON THE JOB MARKET

with AIChE's 2002 Salary Survey narrative, complete with tables and graphs of salary data for chemical engineers. Find it in the Career Toolkit in the Members-Only Community at <http://www.memberconnections.com/olc/pub/CHM/homepage.cgi>.

WANTED: YOUNG INNOVATORS

Technology Review, MIT's magazine of innovation, is seeking nominations for its "TR100" young innovators awards. Technology Review will profile 100 of the world's top young innovators in its October 2003 issue. The magazine is searching for individuals who will be under age 35 on Jan. 1, 2003, and whose technical work holds great promise to impact the 21st century. The deadline for nominations is Feb. 1. Nominations can be made online at: www.technologyreview.com.



VOLUNTEERS NEEDED!

Volunteers are needed for the 2003 Pittsburgh Regional Future City Competition!

The Engineers' Society of Western Pennsylvania (ESWP) is sponsoring the 4th Annual Pittsburgh Regional Future City Competition. This year's competition will be held on Saturday, January 18, 2003, at the Carnegie Music Hall in Oakland, from 8:00 AM until approximately noon. We are looking for volunteers for judges, timekeepers, model movers, and general help to work the event.

AIChE is a Special Awards sponsor and last year provided more than 20 volunteers, judges, and engineer-mentors for this fantastic project.

We need 50 - 70 persons for timekeepers, model movers, registrars, etc.

We need approximately 40 - 60 persons to volunteer as judges. You don't have to be an engineer to be a judge, but it is preferred.

As a judge, you will be to be part of a five member panel. Each panel will listen to a five to seven minute presentation by the student teams, ask the students questions, and examine their 30" X 60" model.

Each judge will individually score the presentation and the model on a preprinted score sheet. The whole judging process for one student team will take about 25 minutes. The judges will be assigned to a new panel for each student team. In this manner, each panel will be different. We will need six or seven judging "sessions", and six to eight student teams will be judged simultaneously. Therefore, we need 30 to 40 judges.

To be a judge, you will need to attend a brief (1 hour) orientation session. Judges Orientations will be held:

- * 5:30 pm on Tuesday, January 7, 2003 at The Engineers' Society of Western PA
 - * 11:00 am on Thursday, January 9, 2003 at The Engineers' Society of Western PA
 - * 9:30 am on Saturday, January 11, 2003 at The Carnegie Science Center
- (You need only attend one session.)

Timekeepers, model movers, and general helpers do not need to attend an orientation before competition day.

If you would like to volunteer or have any questions, please contact Harold Hicks at 724-327-6715 You may also email Harold at HaroldACC@aol.com

Thank you!

SPONSORSHIPS

Interested in placing your company's information in future AIChE Newsletters?

Full Page	\$300
Half Page	\$175
Quarter Page	\$95
Business Card Size	\$45
1/12 Page	\$30

Place multiple sponsorships and receive a discount!

Three consecutive ads – 10% off

Eight consecutive ads – 30% off

Please contact Mariangela Peters at mariangela.peters@am.sony.com or 724-696-8234 for more information.

COMING IN MAY... THE 2003 MCAFEE AWARD

A Short History of the McAfee Award

The Pittsburgh Section of the American Institute of Chemical Engineers established the McAfee Award in 1982 to recognize a chemical engineer who has demonstrated outstanding qualities of professionalism. The award is named for Dr. Jerry McAfee, who exemplified such attributes during his career at the Gulf Oil Company.

The McAfee Award is made to a distinguished Pittsburgh chemical engineer every two years who:

1. Is widely recognized for contributing to the profession
2. Has community appreciation where she or he lives and works, and



3. Has participated in and contributed to the AIChE and the Pittsburgh Section

The next McAfee Award will be given in May 2003 during a dinner and reception at the Fox Chapel Golf Club. Watch upcoming issues of *The Catalyst* for additional details.

CHEMISTRY FOR THE BREWERY TOUR

Just how cold you can you get your "coldest" beer before it freezes? We're about to show you! It's actually just a matter of a pretty simple chemistry problem. Let's make the following good assumptions:

- (1) Beer contains 6% ethyl alcohol by volume
- (2) The density of ethyl alcohol is 0.79 g/ml and doesn't change much over a small temperature range
- (3) The freezing point depression constant of water is $K_f=1.86\text{ }^\circ\text{C/mole}$.

The freezing point depression will be found using the equation: $\Delta T_f = (K_f)(\text{Molality})$

Now, the standard 12 oz can of beer is 355 ml. We need to find out how many moles of alcohol are in the can.

Start by finding the grams of alcohol:

Grams of Alcohol = (total volume) (% alcohol)
(density of alcohol) = (355 ml) (0.06) (0.79 g/mol) = 16.8 grams

Now find the number of moles:

Moles of Alcohol = (grams of alcohol) / (molecular weight of alcohol)

Since the molecular weight of ethyl alcohol is 46.07 g/mol, Moles of Alcohol = (16.8 grams) / (46.07 grams/mol) = 0.36 moles of alcohol.

Calculating the molality of the beer:

Molality = (Moles of alcohol) / (kilograms of water)

To find the weight of the water, simply use the density just like we did for the alcohol. The density of water is about 1.0 gram/ml. Since the can contains 6% alcohol by volume, we assume the remaining 94% is mostly water by volume. That gives you (355 ml)(0.96) = 340.8 ml of water in the can of beer. The weight of the water is then: Grams of Water = (1.0 grams/ml) (340.8 ml) = 340.8 grams of water, or 0.348 kg of water.

So the molality is now: (0.36 moles of alcohol) / (0.348 kg of water) = 1.05633 moles/kg

Since we now have the molality and the freezing point depression constant, we calculate:

$$\Delta T_f = (1.86\text{ }^\circ\text{C/mol/kg}) (1.05633\text{ moles/kg}) = 2\text{ }^\circ\text{C}$$

This is a freezing point **depression**, so the actual freezing point is $0\text{ }^\circ\text{C} - 2\text{ }^\circ\text{C}$, or $-2\text{ }^\circ\text{C}$, which is equivalent to 28.4 F.

Be careful, as your freezer is easily capable of that! If you happen to have some 100 proof (50% alcohol by volume) whiskey, it won't freeze until $-27\text{ }^\circ\text{F}$...

Source: <http://www.cheresources.com>

NATIONAL ENGINEERS WEEK

Once again, AIChE will be sponsoring a booth at the Carnegie Science Center for National Engineers Week.

Please consider volunteering for this worthwhile event! Contact Nancy Hirko at nhirko@air-comp.com or (412) 826-3636 for more information.

Details will follow in the February Newsletter...

Join the Celebration!
National Engineers Week
CARNEGIE SCIENCE CENTER
February 14 - 15, 2003
10 am to 5 pm

NATIONAL ENGINEERS WEEK
FEBRUARY 14-15, 2003
For Information 412.237.3400
CarnegieScienceCenter.org
\$2 OFF general admission to
CARNEGIE SCIENCE CENTER
Receive \$2.00 off General Admission.
Includes Exhibits, Planetarium, Submarine & LPAC SportsWorks.
(Limit four (4) per coupon. Tickets subject to availability.
Coupon must be redeemed to receive discount. Valid February 14-15, 2003.
One of the four Carnegie Museums of Pittsburgh



AICHE PITTSBURGH SECTION 2002-2003 OFFICERS

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2002-2003 Tentative Monthly Meeting Schedule

Date	Topic	Location
January 15, 2003	Maglev (Joint Meeting with AWMA)	Penn Brewery
February 19, 2003	Student Night	University of Pittsburgh
March	Technical Presentation	TBA
April	Plant Tour	TBA
May	The McAfee Award	TBA

Mark your calendars!

For AIChE's Upcoming Events:

Jan 15, 2003	Monthly Meeting	Joint Meeting with AWMA at the Penn Brewery Presentation on "Maglev" and Tour of the Brewery
Jan 18, 2003	Outreach Event	Annual Future City Competition at Carnegie Music Hall in Oakland
Feb 1, 2003	Saturday Seminar	Career Pathways Workshop "Winning Interview Presence"
Feb 14-15, 2003	Outreach Event	National Engineers Week at the Carnegie Science Center

**DON'T MISS OUT ON UPCOMING ISSUES OF *'The Catalyst'*...
SEND US YOUR E-MAIL ADDRESS TODAY!!**

Starting this month, we will be implementing a new electronic newsletter. This will REPLACE the paper newsletter that you currently receive. Details are inside...

**The Catalyst**

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Visit us on-line at www.aichepgh.org



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