Princeton Imaging Analysis Center

by Dr. Nan Yao

The state-of-the-art electron microscopy technique is the single, most powerful method for studying the full range of advanced materials. It starts at the overview level of the optical microscope and proceeds down to the Ångstrom level of the atomic structure, generating a multitude of signals.

This presentation will describe the applications of this technique in studies of a variety of the structure-composition-processing-property relationships in nanostructured materials from the oldest nanoparticles to the latest nanotubes and nanophase thin films.

Nan Yao is the Director for the Imaging and Analysis Center, at Princeton Materials Institute, Princeton University. After receiving a 1990 Ph.D. in condensed matter physics and electron microscopy from Arizona State University, Yao went to work in the field of industry, and soon after joined Princeton University to help build an imaging and analysis program, which now is one of the preeminent imaging and analysis centers in the country.

Date: Tuesday, October 16, 2001

Dinner menu:

Carrot Ginger Soup
Honey Roast Duck
Crème Brulee

Dinner reservations must be confirmed w/ David Parsons at (609) 258-4572 or dparsons@princeton.edu by
October 9th

The North Jersey Section of the American Institute of Chemical Engineers presents the year 2001 Fall Lecture Series: -

Reliability, Maintainability and Availability

Four Thursday Evening Sessions from

October 4, 2001 Through October 25, 2001

Networking and Light Dinner 6:00 PM – 6:50 PM

Lectures 7:00 PM – 9:00 PM

All sessions will be conducted on the third-floor of the William S. Guttenberg Information Technologies Center (GITC)
Room 3710
New Jersey Institute of Technology Campus
University Heights
218 Central Avenue (corner of Lock Street)
Newark, New Jersey 07102

Visitor parking available in the NJIT Parking Deck near the corner of Warren and Summit streets with access from Colden Street

Directions may be obtained by contacting the North Jersey Section Fall Lecture Series Committee Members listed on Page 5 or by accessing the NJIT website at www.njit.edu/ and clicking on Directions

Session 1A: October 4, 2001

"Computerized Maintenance Management Systems - Fundamentals, Cost Estimation and Justification"
W. L. Christy, Jr., PE – Law Gibb Asset Reliability Group

Mr. Christy will present an overview of computerized maintenance management systems (CMMS) with emphasis on pharmaceutical applications. He will focus on the need to comply to 21CFR Part 11 (Electronic Signatures) with respect to integration with CMMS.

Mr. Christy is the senior mechanical engineering consultant with the Law Gibb Asset Reliability Group in Atlanta. He holds a BSME from the Georgia Institute of Technology and published in journals such as, Energy Matters, a bimonthly energy publication prepared by the U.S. Department of Energy.

Session 1B: October 4, 2001

"Programmable Logic Controllers – Pharmaceutical"
Vere Otto – Merck and Co.

Mr. Otto will present pharmaceutical industry applications where PLC's have been used in factory operations, formulations, packaging & labeling including unique miscellaneous applications.

Mr. Otto is a chemical engineering graduate of NJIT. He has over 15 years of experience with Merck's Quality Operations group at the Rahway, NJ site.

Session 2A: October 11, 2001

"Biohazards in the Workplace and the Home"
Stuart (Stu) Cooper, PE – Enviro-Assist, Inc.

Mr. Cooper will discuss biohazards risks associated with the development of new and evolving processes as they proceed from the laboratory to pilot and commercial plant levels. Additionally, Mr. Stuart will discuss issues related to biohazards in the home, i.e., fungal accumulation, viruses, etc.

Mr. Cooper is a graduate of NJIT, an active participant in the AIChE North Jersey Section Government Interaction Committee and the President of Enviro-Assist, Inc.

Session 2B: October 11, 2001

"Energize Your HAZOP"
Glenn E. Mahnken – Factory Mutual Global

Mr. Mahnken will present key issues related to process hazard analyses where testing and maintenance should have been considered. Mr. Mahnken will review a number of actual case studies in the presentation.

Mr. Mahnken has been with Factory Mutual for 15 years, holds a BS in chemical engineering from The National Technical University of Athens, Greece and is a member of the AIChE.

Session 3A: October 18, 2001

"Programmable Logic Controllers"
Eric Alter – Primary Systems, Inc.

Mr. Alter will present key issues related to safety and communications integration of PLCs including associated control components of process systems. Mr. Alter, President of Primary Systems, Inc. holds a BSEE from Lehigh University and an MBA from the University of Chicago.

Session 3B: October 18, 2001

"Multi-Plant Maintenance Operations"
Robert Goelz – BASF, Inc.

Mr. Goelz will present an overview of the BASF CMMS system and processes, which has been in operation for a number of years. He will also present Maintenance Process Improvements (MPI) initiatives which are currently at the pilot stage but will be rolled out over the next couple of years. It should be noted that these initiatives include but are not limited to consideration for industry standards, KPI, reliability and Maintenance Best Practices.

Mr. Goelz holds a BSME from Auburn University. He has worked for BASF, Inc. for over 30 years in the areas of Maintenance, Engineering, Manufacturing and Management.

Sessions 4A and 4B: October 25, 2001

"Reliability, Maintainability and Availability (RAM)"
Dr. Abdul Malek – Industrial Engineering, NJIT
Gary Prager – Wyeth-Ayerst

Mr. Prager will introduce and discuss the fundamentals of RAM and states its importance to industrial operations. Mr. Prager is a quality assurance engineer with Wyeth-Ayerst and a graduate of the University of New Mexico with a BSChE and an MSNE and additional training in RAM from UCLA.

Dr. Malek will present inter-relationship issues associated with how reliability and maintainability are used to determine availability of critical plant operational equipment, i.e., pumps, valves, columns, etc.

Dr. Abdul- Malek is a professor with NJIT and completed his Ph.D. at Polytechnic University. Previously, he has held positions at both Rutgers and Columbia Universities.

Email: pragerg@labs.wyeth.com

REGISTRATION FORM

Year 2001 Fall Lecture Series

Name _____

Title _____

Company _____

Address _____

City _____

State and Zip _____

Phone _____

FAX _____

E-mail _____

Using a check mark please indicate, which session(s) you plan to attend:

1A____1B____2A____2B____
3A____3B____4AB___

REGISTRATION FEES:

Entire Series (AIChE Member)	$ 80.00
Entire Series (Non-Member)	$100.00
Single Session	$ 25.00
Full-Time Students, Retired, Unemployed (Per Session)	$ 10.00
Full-Time Students: Pre-Registered (Before September 15, 2001)	Free
Corporate / University Sponsor	$300.00

Includes light dinner each evening

Make Checks Payable To:
AIChE Lecture Series

Please Mail Registrations* and Checks To:

Gary Prager
42 Edgemere Road
Livingston, NJ 07039-2807

Tel : 845-732-2347
Fax : 845-732-5512

* In order to allow us to be properly prepared, we request that anyone who is attending under a Corporate or University sponsorship still send in a completed registration form. Simply note on the form that the registration was paid by a corporate sponsor and the sponsor's name.

The Fall Lecture Series is presented annually by the North Jersey Section, American Institute of Chemical Engineers.

Each Lecture in the series will be followed by a discussion period.

CORPORATE / UNIVERSITY SPONSORSHIP

The corporate / university sponsorship allows the sponsoring company or university to send an unlimited number of employees, faculty members, and/or students to the Fall Lecture Series at a cost to the company or university of $300.00. **To become a corporate sponsor, please contact:**

Jeff Duncan, PE	973-361-3600
George Stanton, PE	973-226-0092

2001 FALL LECTURE SERIES COMMITTEE

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What's the Future for Chemical Engineers?

In September I normally like to write something that is up beat. With the current economic outlook I find 'up beat' a challenge. All the major companies in our area are letting workers go. The two employment safe havens for the technologically literate, the Internet and Pharmaceuticals, are not looking as safe as they have been. With the tech bubble bursting, Internet employment has been clobbered. Now the government is beginning to squeeze Pharmaceutical companies with attempts to limit drug prices.

My non-engineering friends are surprised at my concern. They correctly point out that even in bad economic times, chemical engineers enjoy a better rate of employment than the labor force as a whole. While the statistic is valid; what is less apparent is that chemical engineers often have periods where they are out of work. This unemployment can be due to a process becoming obsolete or a project ending.

The good employment statistics for chemical engineers exist because a chemical engineer typically finds the next job quickly. When the economy tightens, it takes more time and effort to find that next job.
So what is an engineer to do?

The two steps for survival are:

1) Keep your general skills sharp. General skills include: Leadership, Communication, Analysis, Problem Solving, Budgeting, and Scheduling.

2) Become an expert at something with narrow focus. It should be something you are passionate enough about to really immerse yourself to the point that you become a recognized expert at that one thing. It may be a software package, a unit operation, a specific piece of equipment, a type of chemical reaction, a regulatory issue, or a safety concern. What is important is the topic excites you enough so it seems as much play, as it is work.

These two steps will help you find your next job faster. The general skills help you fit into more organizations. The expert skill will define your target job market and give you that extra something that your next employer will be looking for in an employee.

Until Next Month……

Mark DeLuca P.E.

Hello Central Jersey AICHE members,

I hope you have all had a relaxed summer and we look forward to seeing our local AICHE members come back. Last spring the local section completed its meetings with past AICHE President Vern Weekman telling us of the lobbying activities of the AICHE in Washington. Vern would love to hear from any of our local members who have questions or suggestions about the governmental activities of AICHE. You can contact Vern at Vweekman@aol.com.

The Central Jersey section sponsored three awards to Princeton University students last spring. The Outstanding Senior Award went to the graduating senior with the highest academic standing. The winner in 2001 was Michael Peija. Michael had an overall GPA of 4.16 and was previously the recipient of the Outstanding Junior Award from the Central Jersey section of the AIChE, and the recipient of the Donald Othmer Award for Outstanding Sophomore from the AIChE. Michael also received the James Hayes-Edgar Palmer Prize from the School of Engineering and Applied Science for excellence in scholarship, leadership and creative achievement.

The Ernest Johnson Award goes to the graduating senior, elected by his or her classmates, who exemplifies outstanding character and service. This year the Ernest Johnson award went to Jessica Jarvis. Jessica served as vice president of the Student Chapter of the AIChE. In that capacity she was instrumental in introducing a new program of inviting companies to sponsor dinners for graduating seniors to discuss career opportunities. Jessica also led the effort to bring forth an on-line resume book for the graduating seniors.

The Outstanding Junior Award goes to the junior majoring in Chemical Engineering with the highest departmental GPA. This award went to Christopher Loose. Chris has spent the summer working with Merck and is interested in a career in the field of bioengineering.

This fall we have a variety of different speakers lined up for our monthly meetings. In September we will have a panel forum of young chemical engineers discussing what they perceive for the direction of the profession. Dr. Nan Yao, Director of the Imaging Analysis Center at Princeton University, will be addressing us in October about the use of electron microscopy to study nano materials. Steve Hall will tell us of a case study in web based management in November. Our December meeting will be jointly held with the Trenton Section of the American Chemical Society and will feature James Wei, Dean of Engineering at Princeton University and former President of the American Institute of Chemical Engineers. ***We hope you will be able to join us for these activities.***

Jay Benziger