



# AICHE Orange County

NEWSLETTER OF THE ORANGE COUNTY SECTION, AMERICAN INSTITUTE OF CHEMICAL ENGINEERS

No. 139

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

September 2005

## Orange County Meeting SEPTEMBER DINNER MEETING

### ISSUES FACING THE GLOBAL PETROLEUM INDUSTRY

Michael Sarna & Eric Wei

**Tuesday, September 27, 2005**  
**5:30 PM**

As Asian demand for petroleum has risen sharply over the last 5 years, concerns have mounted over the outlook for crude oil supplies and global refining capacity. While crude oil prices have reached record levels, the future of the global oil markets remains uncertain. Purvin & Gertz will provide a 40 minute discussion regarding the following questions:

- \* Has the world's supply of oil peaked?
- \* Will Asian demand continue to grow?
- \* What adjustments should we expect?

Purvin & Gertz, Inc. is a private consulting firm, which has served the energy industry since 1947. It operates seven offices worldwide and provides assistance in the areas of strategic planning, valuation and project development. Both Michael Sarna and Eric Wei are consultants at the Long Beach office, which was established in 1982 and serves the Western U.S. region.

#### Meeting Schedule:

5:30 p.m.	Social Hour
6:30 p.m.	Dinner
7:20 p.m.	Break
7:30 p.m.	After-Dinner Program

#### Place: Wyndham Garden Hotel, Costa Mesa

**Directions:** From Interstate 405, go north on Bristol Ave., right on Anton, left on Avenue of the Arts. The Wyndham is on the right at 3350 Avenue of the Arts, Costa Mesa.

**Reservations:** *Please make a reservation at (714) 343-3412 by voice by Friday, **September 23, 2005.** Or, you may email your reservation to [janicewest@dslextrême.com](mailto:janicewest@dslextrême.com).*

**Cost:** Members, \$20 with a reservation, \$25 at the door; Non-Members, \$25 with reservation, \$30 at the door; Students **Free** with reservation, \$5 at the door, Unemployed/Retired, \$5 with reservation, and \$10 at the door.

**Starting with the month of January 2005, every third meeting a member attends is FREE with reservation**



### KEEPUS" Committee Status (Newsletter FY06-02)

Bob Katin

Fellow ChE's

We have one last chance to correct the State Engineers' Act. Have you gotten involved?

Senate Bill 246 (SB 246) will be heard in the Assembly Business and Professions (B&P) Committee sometime in AUG 2005, on a Tuesday, probably 23 AUG, but possibly 9 or 16 AUG.

This bill ends the monopoly that civil engineers (CE) hold. They are in charge of any facility that is fixed in its geographical location (including chemical plants, refineries, biopharm, environmental, food, power plants, utility companies). If SB 246 does not pass the B&P, CELSOC and PEGC will claim that every engineering activity is considered by the Legislature as subject to CE review and approval.

**For Industry**, that overrides the industrial exemption; you can't do work at your own site anymore, without a civil engineer's approval. Send a letter to Assemblywoman McLeod telling her that the Marketplace is intelligent enough to know whom they want to hire, and does not want to hire a CE to subcontract the engineer of industry's choice, adding markup without adding value! See the sample letter.

**For Government**, that includes every public project and utility; you can't do work without a civil engineer's approval. PEGC members may want to reconsider their careers if the position of PEGC prevails. Sign the petition!

SB 246 will:

- recognize ChE's;
- allow ChE's to overlap and conduct activities that are currently defined in State law to be the exclusive area of expertise of CE's;
- allow ChE's to be Principal in Charge of groups and projects; and
- prevent any government agency from excluding ChE's from bidding on RFP's or conducting work.

#### **Passing SB 246 is most significant in that it prevents CE's from expanding their control.**

Speaking from years of experience with the Legislature and seeing how the trend is for the civil engineering dominated Engineering Board to make rules that only support themselves, WE HAVE ONE LAST CHANCE TO TAKE ACTION.

To win in AUG, we need in order of priority

- Lobbyists of companies that hire ChE's who can speak in support of SB 246 as amended 20 JUN 05 to ATTEND ASSEMBLY B&P HEARING IN AUG 2005.
- Industry needs to write a letter; see <http://aiche-norcal.org/advocacy.php> for sample letter and list of support letters already submitted.
- Individuals who can speak for their company, ATTEND THE HEARING
- Individuals who can speak passionately on why this bill is important/affects your life
- Write AND call all Assembly B&P Committee members (see KeepUs Newsletter FY05-08 <http://aiche-norcal.org/Government/keepusFY05-08.pdf>)
- If you have promised to write a letter, you have no time to waste!

Robert A. Katin, PE

Chair, California AIChE Government Relations Committee

#### **IN REPLY PLEASE ADDRESS:**

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### **Chemical & Materials Engineering** **California State Polytechnic University, Pomona**

Professors Max Epps and Robert Feeney were hired in the mid 1960's to champion the development of the Chemical Engineering (ChE) major program at Cal Poly Pomona (CPP). Both of these engineers had a broad range of industrial experience and undertook building a ChE program that incorporated the traditional CPP "learning by doing" philosophy. This resulted in the establishment of a unit operations laboratory which included pilot scale equipment. In subsequent years both a transport and process control lab were developed. The efforts of Epps and Feeney resulted in the ChE degree program being established in 1968. Since that beginning the Cal Poly Pomona chemical and materials engineering faculty has continued to improve its undergraduate degree program. As of June 2005, 1100 students have completed their baccalaureate degrees from this ChE program which was ABET accredited in 1971.

The CPP ChE program currently has three full time chemical engineering faculty (Thuan Nguyen, Lloyd Le and Chris Caenepeel) and three part time faculty (Hing Pang, Yam Lee, and A.G. Stoll). Thuan Nguyen is a process modeling/computer simulation specialist. Lloyd Lee recently joined the CPP ChE faculty and is a nanotechnology specialist. Chris Caenepeel's areas of interest includes convective mass transport, nonlinear optimization and strategies for interdisciplinary project management. Hing Pang has been a full time ChE faculty and now teaches two quarters each academic year. Hing is a process design expert with extensive industrial experience and has been responsible for the development of the fourth year design sequence. Yam Lee has been teaching at least two quarters each academic year and is an energy & environmental systems specialist with extensive international experience. George Stoll also has been a full time ChE faculty and now teaches one quarter per academic year. George has been responsible for the development and maintenance of the process control portion of the CME labs.

In the late 1960s chemical engineering was blended with welding engineering. A welding course, which was required of all CPP engineering majors between the 1950s and the early 1970s, served as the foundation for materials science/engineering. Materials engineering has become a strong component of the current CPP department of Chemical & Materials Engineering (CME). Two full time faculty, Vilupanur Ravi (a materials corrosion and properties of materials specialist) and Winny Dong (an aerogel and biomaterials specialist) teach required materials engineering service courses (materials science & engineering and introduction to electronic materials and properties), materials engineering graduate courses and courses for the materials engineering minor.. There are three other part time MTE faculty (Misri Lal, Greg Snyder and Sharon Havercroft) who periodically teach lower division MTE electronic materials and properties courses and materials laboratories. The CPP materials engineering faculty develop and maintain a property of materials lab. They also supervise research in corrosion, materials testing, drug delivery and materials development.

The CPP ChE BS program is offered on an academic quarter basis and includes 52 units of humanities and social science general education courses, 84 units of support courses and 62 units of ChE courses,. The general education requirements are consistent with the requirements for all the universities in the CSU system. The support courses include general, organic and biochemistry, calculus, physics, biology, electrical engineering, vector statics, three engineering materials courses and an engineering materials lab). The core curriculum includes three 100 level courses (Intro to ChE, Engineering Statistics, and a Process Instrumentation and Measurement of the Properties of Materials lab), two 200 level courses ( Stoichiometry and Applied Math in ChE), seven 300 level courses (Thermodynamics I & II, Kinetics & Reactor Design, Momentum, Heat & Mass Transport & Transport Labs I&II) and ten 400 level courses (Unit Operations, Unit Operations Lab, Process Control Lab, Pollution Abatement and a 3 quarter Engineering Design/Lab sequence).

The CPP materials engineering faculty also support a strong engineering materials minor by teaching a broad range of engineering materials courses which include polymer engineering, mechanical metallurgy, thermodynamics of solids, kinetic processes in materials, corrosion and materials degradation, physical metallurgy, ceramic materials, composite materials, materials selection and design, materials characterization & testing, and fracture & failure analysis. To complete the materials engineering minor students are required to complete 24 quarter units in the materials engineering emphasis area.

The CPP ChE degree has two capstone experiences. All CHE students are required to complete a preliminary plant



design with economic analysis in the 400 level design course sequence. Also, all ChE majors are required to complete a project which typically requires one academic year. These projects are team based and sometimes are industry or research center supported. Project topics vary depending on the requirements of the sponsors or the faculty advisors. During the last two academic years CPP CME teams projects have involved youth from the Pomona Boys and Girls Club and IPOLY high school. This service learning experience has demonstrated that CPP ChE students can proactively motivate youth by introducing them to technology.

ChE students have several opportunities to present their research and design project work at both on campus & off campus conferences. In November 2004 a CPP ChE senior student tied for first at Orange County/Southern California AIChE student paper presentation. In March, 2005 the CPP ChE ChemECar team placed second (car competition) and first (poster competition) at the AIChE Western Regional Conference at UC Berkeley. There were five CME poster presentations at the February, 2005 CPP Office of Research & Sponsored Programs competition and one of these posters placed first in their division. During the Fall of 2004 CME student teams placed second and third at the LA ASM International Meeting. In April 2005 the CME department sent four project teams to the CSU research conference at CSU Sacramento. One CME student team placed first in their division and another CME student team placed third in their division. On May 20, 2005 two senior design teams and 12 project presentations were presented by CME students at the CPP CoE Project Symposium.

Cal Poly Pomona CME faculty and students are involved in supported research. During 2004/2005 the total research dollars exceeded \$210,000 and were used to support research of waste minimization, drug delivery and development of insulation materials.

The CPP ChE program currently has about 200 majors. Typical class sizes range between 15 and 40. Because of an active Industry Advisory Council and a network of involved alumni the CME department has been effective in placing students in both summer internships and part time work throughout the academic year. The CPP CME department maintains good contact with its alumni by publishing an alumni newsletters twice per year and also coordinates an annual all class reunion.

About 20 CPP students received their BS degrees in ChE in June 2005. Sixteen of the recent graduates had ChE positions by August, 2005. Areas of employment include utility, petroleum, environmental, engineering design, technical sales, beverage and other manufacturing companies. One graduate is enrolled in graduate school in Sweden.

The CME department awards five \$1000 Chevron/Texaco scholarships each year. In 2004/2005 the ChE valedictorian was the recipient of a CPP university presidential scholarship. Additional scholarships were awarded to ChE students by M.J.Schiff (\$500) and LA Nace International (\$1000).

The CPP CME student clubs include the America Institute of Chemical Engineers (AIChE), American Society of Metals (ASM), Society for the Advancement of Materials & Process Engineering (SAMPE) and a recently established International Society of Pharmaceutical Engineers (ISPE). We encourage our students to attend professional society meetings on the local, regional and national levels. We have had student participation at nearly all of the AIChE Western Regional Student Conferences since the early 1980's. We also hosted two of these conferences during that same period. The department also includes an active chapter of Omega Chi Epsilon, the chemical engineering honor society. CPP CME students may also be elected to the Tau Beta Pi engineering honor society.

For more specific details about the Cal Poly Pomona Chemical & Materials Engineering Program please contact

Christopher L. Caenepeel, Chair (clcaenepeel@csupomona.edu)  
Chemical & Materials Engineering Materials Department  
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California State Polytechnic University  
Pomona, CA 91768

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Please contact the newsletter editor if you would like to publish any AIChE student chapter meeting summary or contribute any articles related to science/engineering.



## Newsletter Contributors Wanted

The newsletter editor would like to hear from you if you have one or more brief articles to contribute, especially a review or brief discussion of a good website, technical book, etc.

## Professional Engineering Employment Update

### Senior Staff Chemical Process Engineer

Our client, a prominent global technology leader and driving force in the changing dynamics of the life science marketplace, is currently seeking a Senior Staff Chemical Process Engineer to join its engineering team.

In this position, the selected leader will lead technology feasibility studies to assess application engineering problems, develop and recommend new process systems and technologies, design prototype bench-top chemical work process workstations. Reporting to the VP of Process Engineering, the selected individual will have the exciting opportunity to lead project meetings for cross-functional team of engineers and scientists and lead engineering design and data/validation test reviews.

Candidates must have a BS in Chemical, Biochemical, or Process Engineering with leadership experience in Laboratory or Industrial Automation Development. Mechanical CAD experience (ProE, Solidworks) is desirable with familiarity in SPC and IQOQPC practices; CFD packages knowledge is a plus.

Our client offers a competitive base salary and relocation assistance. A comprehensive benefits package is also included. If you are interested in this position, please forward your resume in MSWord format to [dstowell@towerhunter.com](mailto:dstowell@towerhunter.com).

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### Staff Environmental Engineer

An opening exists for a Staff Environmental Engineer at Davenport Engineering, Inc., an environmental consulting firm located in Torrance, California. Davenport Engineering, Inc.'s business focus is environmental compliance reporting and project management for the petroleum and chemical manufacturing industries.

This position will support a variety of environmental compliance, permitting, and emission inventory projects ongoing within the western United States. Project work includes potential involvement with air permitting, Title V management systems, annual emissions reporting, compliance monitoring and reporting, database development, environmental recordkeeping, remediation engineering, auditing, health risk assessment modeling, EPCRA SARA 313 toxic release inventory reporting (multi-media), and process engineering.

Qualified candidates should have a B.S. in Chemical Engineering, B.S. in Environmental Engineering, or related engineering discipline; and 2-8 years of related work experience. Individuals who are entrepreneurial, self-motivated, detail oriented, well organized, effective at meeting deadlines, can foster strong relationships with co-workers, and who thrive in a fast paced team environment are well suited for this position.

Individuals who meet these specific qualifications should submit an interest letter and resume via e-mail to [jobs@davenport-co.com](mailto:jobs@davenport-co.com). No phone calls. Identify pertinent work experience and include a current list of references.

Potential candidates should be wary of recruiting firms that might reword this job description and post it separately. Davenport Engineering, Inc. has not retained the services of a professional recruiting firm to fill this position and prefers that interested candidates respond to this job opening directly.

### Equipment Technician

The Chemical & Materials Engineering (CME) Department in Cal State Pomona is seeking applicants for an Electro-Mechanical Equipment Technician III.

Position Title, Salary, and Description: The Electro-Mechanical Equipment Tech III position anticipates starting in September, 2005. The starting monthly salary range is \$3,750 - \$4,167 per month. The benefit package is broad and attractive. The position requires extensive experience in the design, repair and maintenance of a wide variety of equipment and systems.

Purpose of the Position: The CME equipment technician provides highly skilled technical support for the full breadth of the Chemical and Materials Engineering curriculum. The department is responsible for four rather diverse laboratories. These laboratories include a chemical engineering lab with process control, heat exchangers, calorimeters, distillation column, and other unit operations and power engineering units, computer controlled and analysis instrumentation; and a materials lab with ovens, microscopes, mechanical test



equipment, sample preparation equipment; a projects lab for specialized student and faculty experiments, and a computer design lab. The technician's responsibilities include: designing and constructing specialized equipment for research and instruction from general descriptions of function and purpose; developing and implementing strategies for setting up, maintaining, calibrating, troubleshooting and repairing experiments, computers, and other laboratory equipment; providing operational instructions for both custom and standard equipment; purchasing supplies and equipment; providing an inventory control database for supplies, tools and equipment; ensuring the safe operation of laboratory equipment; and providing assistance to the faculty by helping students with class and project work. Laboratory operations involve the handling of chemicals such as acids and solvents in a safe manner.

List of Tools and Equipment Used in Performance of Duties: This Tech III position requires familiarity with miscellaneous hand tools; power hand tools; welding equipment including MIG and TG welding and OXY-Acetylene welding and brazing; measurement tools including calipers, micrometers, thermocouples, and gauging tools; oscilloscopes, digital voltmeters, frequency meters, chemical analysis equipment and computer analysis programs

Minimum Qualifications: Comprehensive knowledge of the methods, materials and tools used in the construction, operation, maintenance, installation and repair of ovens and heat sources, temperature measurements instrumentation, mechanical test equipment, pumps, motors, and flow instrumentation, glass, copper, steel and plastic piping. Able to perform complex trouble shooting of unique laboratory systems. Thorough knowledge of equipment design theory and able to design new systems to meet research and educational needs. Ability to prepare and review equipment specifications and to coordinate the work of other specialists. Familiarity with Windows networked computer environments, Microsoft Office, computer hardware and software.

Preferred Qualifications: B.S. degree in engineering or engineering technology is strongly preferred. Extensive experience in the repair and maintenance of a wide variety of equipment. Experience in equipment and system design. Experience working with others in a team environment.

Closing Date and How to Apply: A review of completed applications will begin on **September 6, 2005** and will continue until the position is filled. To be considered for the position, applicants are required to submit the following: 1) a completed and signed

University Application Form (refer to <http://www.csupomona.edu/~dhrsrp/employment> and Recruitment No. 046-AC-05), 2) Resume and 3) Supplemental Questionnaire (also on website).

The above complete documents should be mailed to the attention of

Therese Turner

Employment Coordinator

Human Resources Services

California State Polytechnic University, Pomona

3801 W. Temple, Pomona, CA 91768

Job Seeking Members can receive a list of web sites of area companies that sometimes hire ChEs. Contact the Senior Member Everett Knell at [EWKnell@aol.com](mailto:EWKnell@aol.com) to receive this list by e-mail. Put "OCAICHE Company List" in the subject line of your email request.

- ① If you have an employment opportunity in Southern California for a chemical engineer, the newsletter will advertise it for free.

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## 2005 Orange County AIChE Officers

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