



The American Society of  
Mechanical Engineers

VOL 5 No. 1 February 1999

# The Bay Connection

## Newsletter of the San Francisco Section of the American Society of Mechanical Engineers

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### Joint San Francisco/Mt. Diablo February Dinner Meeting

#### Applications of Advanced Composites in Mechanical Engineering

Dr. Carl Zweben

ASME International Distinguished Lecturer

Wednesday, February 17, 1999 • 6:30 - 9:00 PM  
Oakland Marriott City Center

We have entered a revolutionary era in Mechanical Engineering, based on the unique and tailororable properties of composite materials: exceptional strength and stiffness, fatigue and corrosion resistance, and low density and coefficient of thermal expansion. Composite technology provides us with the ability to create new multifunctional materials with unique combinations of mechanical and physical properties (e.g., high thermal conductivity and low coefficient of thermal expansion). These characteristics, combined with low cost, near net-shape manufacturing processes, provide a limitless potential for new materials and applications.

In this presentation, we survey the four key classes of composites: polymer matrix composites (PMCs), metal matrix composites (MMCs), ceramic matrix composites (CMCs) and carbon/carbon composites (CCCs). We will present videos and slides of important commercial production applications such as Honda MMC engine blocks; MMC automobile brake rotors; high temperature CMC and CCC process industries equipment; PMC, MMC and CMC high speed, precision and

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**Location:** Oakland Marriott City Center  
1001 Broadway, (510)451-4000

**Time:** 6:30 PM Registration/No-Host Social Hour  
7:00 PM Dinner  
8:00 PM Presentation

**Entrees:** Grilled Chicken Special served with bakery rolls, salad, and dessert. (A Vegetarian Meal is available upon request.)

**Cost::** \$25 Members  
\$28 Non-Members  
\$10 Students

**RSVP by Noon, Friday, February 12 to  
Farrell Nicholes at (925) 228-1220, ext. 2589  
or e-mail nicholesf@asme.org**

Include your name, San Francisco Section and  
meal selection for each member of your party.

### Chair's Greeting

by Brandon Muramatsu

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We're back! After a hiatus of six months, we're pleased to present another year of activities for the San Francisco Professional Section of ASME. We've planned a full slate of events over the next few months.

In the August 1997 issue of our award winning newsletter, *The Bay Connection*, I set out three themes for our 1997-1998 activities. I'd like to report on the status of reaching our goals of: (1) using information technologies to transform our communications processes; (2) examining section operations to better serve our membership; and (3) leveraging outside resources to provide you, our membership, with quality programs.

I'm pleased to say we're succeeding in all three areas. In September 1997 we initiated an e-mail listserv that currently reaches nearly 50% of San Francisco section members. We also created a listserv for the Mt. Diablo Section in February 1998, reaching approximately 40% of their membership. These listservs have allowed us to re-examine section operations and reduce our reliance on paper newsletters. This month's joint dinner meeting with the Mt. Diablo Section is one example of how we're leveraging "outside" resources. By trying to hold joint dinner meetings with other Bay Area ASME sections or professional societies, we are able to expand our reach and make our volunteers' time go farther.

One area still requires significant effort — we **MUST** attract new section volunteers. As I mentioned in my April 1998 Chair's Greeting, "You have a small, dedicated group of members devising these programs and trying to evolve our section. However, . . . just like everyone else, these 'long-time' volunteers have other concerns that are drawing our time away — our jobs and private life." Last Fall, you probably noticed the lack of newsletters and activities. Unfortunately your entire Executive Committee was swamped with their careers — without an influx of 'new-blood' I'm afraid that this may be the norm not the exception. Volunteering with SFASME is very rewarding and doesn't take a lot of time. The Executive Committee is a fun group of individuals that are dedicated to the Section. Contact me at mura@needs.org or (510) 643-1817.

**1999 Engineers' Week  
Banquet Info On Page 2**



## Small Business Report: February 1999

by Eric E. Worrell, P.E., Small Business Committee Chair  
ASME Region IX and San Francisco Section

This column, past editions, upcoming small business events, The Small Business and Consultants Referral List and more are on the web at <http://www.ccnet.com/~eew/asmesfsb/>. For ASME International's Small Business page and Engineering Solutions Directory, go to <http://www.asme.org/smallbiz/>.

Editor's Note: The Small Business Report is on temporary hiatus while Eric Worrell completes several consulting contracts!

Please forward your comments and suggestions to *Eric E. Worrell, P.E., The Ergonomic Energy Works, P.O. Box 271923, Concord, CA 94527-1923, Phone/Fax (925) 689-4579, eew@eew.com*.

## 1999 Bay Area Engineers' Council Engineers' Week Banquet

**Thursday, February 25, 1999**  
**Oakland Marriott City Center**

### The National Ignition Facility (NIF) Opportunities, Promise and Challenges

Dr. E. Michael Campbell  
Associate Director, Laser Programs  
Lawrence Livermore National Labs

The National Ignition Facility (NIF) will contain the world's largest laser, a research tool allowing scientists to recreate on earth the equivalent of the center of the Sun. The conditions it creates will be unique on Earth, and experiments that achieve fusion ignition and energy gain, for the first time in the laboratory, will have far-reaching implications for national security, fusion energy, industrial competitiveness and a host of scientific fields.

The 1999 Tau Beta Pi Eminent Engineer Award and SFBAEC Scholarships to Bay Area High School seniors will also be presented.

**Location:** Oakland Marriott City Center  
1001 Broadway, (510)451-4000

**Time:** 6:30 PM No Host Cocktails  
7:00 PM Dinner

**Cost::** \$45 Members  
\$50 Non-Members

Reservations requested; all tickets will be held for pickup at the banquet. Donations accepted for students' dinners or the General fund.

Contact Ralph Johnson at 510-670-5562 (phone), 510-670-5541 (fax), or e-mail [ralph@acpwa.mail.co.alameda.ca.us](mailto:ralph@acpwa.mail.co.alameda.ca.us) for more information and registration. Visit [www.baec.org](http://www.baec.org) for additional information on the BAEC E-Week Banquet program.

## College Corner

### U.C. Berkeley



Cal ASME kicked off the new year with strong attendance (60+) at our first General Meeting. The directors of the Career Center, Co-op Program, and Mechanical Engineering Graduate Office spoke and fielded questions. The success of the meeting helped spark new interest by our members in ASME.

We are gearing up for a very busy semester. One of the bigger events is the Annual Crab Feed on March 17th. This joint meeting with SFASME incorporates a speaker from industry (we need help finding one!) to address a topic of interest towards students and professionals. All-you-can-eat Crab and dessert are included. Also this year, several companies will be present during the social hour to answer questions and help students with their job search.

Also to come this semester:

- |        |  |
|--------|--|
| 2/5    | Applied Materials Tour   |
| 2/16   | Student-Professional Awareness Conference (SPAC) - Bridging the gap between academic life and life in industry |
| 2/17   | General Meeting  |
| 3/6    | Engineering Futures Leadership Development Program   |
| 3/9    | General Meeting  |
| 3/17   | Crab Feed  |
| 4/12   | Technical Opportunities in the Film Industry   |
| 4/13   | General Meeting  |
| 4/17   | HPV Competition  |
| Weekly | EIT Review sessions  |

For more information, contact Erick Byrd, Chair, UC Berkeley Section, at [asme@newton.berkeley.edu](mailto:asme@newton.berkeley.edu) or by calling (510) 642-5549.

### San Francisco State University



Welcome Back to another great semester at SFSU. The student chapter of ASME has some great events coming up this semester. We will be competing in the Human Powered Vehicle contest being held at Treasure Island; your help is greatly needed to finish construction of the bike and to do some testing. We also will be touring the NASA AMES Research Center and possibly the NUMMI plant. Don't forget to participate in the EIT review sessions being sponsored by ASME. We are looking forward to Engineering Week when we will host an Egg Drop Competition and a Balloon Racer competition. In addition to these activities we have some great speakers planned and of course some pizza parties! We hope to see you all at one of our upcoming meetings. That's all for now. Greg King II, Chair SFSU ASME, [gkingii@sfsu.edu](mailto:gkingii@sfsu.edu).

### California Maritime Academy



Hello from the California Maritime Academy! To provide for the financial aspects of our activities, we are fundraising as much as possible. If you would like to make a donation or would like more information the student section at the California Maritime Academy, please contact Gene Ellis, Chair, California Maritime Academy, at [gellis@csum.edu](mailto:gellis@csum.edu).



## Calendar of Events

Upcoming Events in the Greater Bay Area

- February 17** Joint SF/Mt. Diablo February Dinner Meeting  
Oakland Marriott City Center
- Februry 21-27** National Engineers' Week  
See [www.eweek.org](http://www.eweek.org) for more information
- February 25** 1999 Engineers' Week Banquet  
San Francisco Bay Area Engineers Council  
Oakland Marriott City Center
- March 17** Fifteenth Annual Crab Feed with the  
U.C. Berkeley Student Section  
U.C. Berkeley Campus 
- April** Sixth Annual Dinner Meeting with the  
San Francisco State University Student Section  
San Francisco State University Campus
- TBA** ASME Distinguished Lecturer Prof. Elishakoff on  
"Why and How to Deal with Uncertainties"

## ASME Student Scholarships

### ASME Auxiliary Rothermel Scholarship by Joe Van Overveen

The Marjorie Roy Rothermel Scholarships, one or more annual awards of \$1,500 each, are granted to students in Mechanical Engineering who are working toward a Master's Degree in Engineering. The Rothermel Scholarship may be applied for in the senior year in Mechanical Engineering curriculum or by a graduate student. Students must be a citizen of the United States and enrolled in a college or university which has an accredited Department of Mechanical Engineering. The candidate must also hold some grade of membership in ASME. Selection is based upon scholastic achievement, financial need and qualities of leadership. Contact Mrs. Elizabeth Prochaska, 332 Valencia Street, Gulf Breeze, FL 32561, (850) 932-3698. Application deadline extended to March 1, 1999.

### 1999 Farbar Award

by Brandon Muramatsu

Each year the Executive Committee of the San Francisco Section of ASME presents a number of undergraduate awards to honor the memory of Dr. Leonard Farbar. Dr. Farbar was a Professor of Mechanical Engineering at UC Berkeley, he was noted for his superior teaching skills, dedication to students, and commitment to the ASME Student Section. These undergraduate awards are intended to recognize the recipient's commitment to enhancing our profession, developing leadership skills, and academic achievement. The awards are open to all undergraduate, Mechanical Engineering Students at UC Berkeley, San Francisco State, and the California Maritime Academy who are student members of ASME. Applications are available from your local student sections or contact Brandon Muramatsu at [mura@needs.org](mailto:mura@needs.org). U.C.Berkeley & Cal Maritime Applications Due Fri., February 26, 1999 and SFSU Applications Due Wednesday, March 31, 1999.

## ASME International San Francisco Section

[comment@sf.asme.org](mailto:comment@sf.asme.org)  
<http://sf.asme.org/>

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Phone: (510) 643-1817  
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### S.F. Executive Committee for 1998-1999

#### Chair

Brandon Muramatsu U.C. Berkeley  
(510) 643-1817 [mura@needs.org](mailto:mura@needs.org)

#### Vice-Chair, Programs Chair

Your Name Here! We're looking for a Vice-Chair and/or Programs Chair! Contact us!

#### Treasurer, Region IX

Bill Nott, P.E. Lockheed-Martin  
(408) 742-3632 [nottw@asme.org](mailto:nottw@asme.org)

#### Secretary

Wesley Chang U.C. Berkeley  
[wcchang@newton.berkeley.edu](mailto:wcchang@newton.berkeley.edu)

#### Honors & Awards, Region IX Trainer

Rich Myhre, P.E. Bevilacqua-Knight, Inc.  
(510) 444-8707 [rmyhre@bki.com](mailto:rmyhre@bki.com)

#### Membership Development, Bay Area Engineering Council Delegate

Charlie Howard, P.E. (415) 924-9548 [76330.1302@compuserve.com](mailto:76330.1302@compuserve.com)

#### Small Business, Region IX Small Business

Eric Worrell, P.E. Ergonomic Energy Works  
(510) 689-4579 [eew@eew.com](mailto:eew@eew.com)

#### Executive Committee Member-At-Large

Brian Rulifson Cognex  
(510) 865-9882x180 [brulifso@cognex.com](mailto:brulifso@cognex.com)

#### Public Information, Region IX Public Info

Don Moseman, P.E. Jacobs-Sirrine  
(408) 965-1273 [dwmoseman@aol.com](mailto:dwmoseman@aol.com)

#### Ethics (IEEE Liaison)

Joe Wujek U.C. Berkeley  
(510) 642-8485 [wuj@eecs.berkeley.edu](mailto:wuj@eecs.berkeley.edu)

#### History & Heritage

Joe Van Overveen, P.E. (510) 283-3650 [jvanover@aol.com](mailto:jvanover@aol.com)

#### Government Relations

Fay Brown  
(916) 432-9215

## February Dinner Meeting, Continued From Front Cover

other machine components. We will also consider revolutionary new PMC, MMC and CCC material developed for electronic packaging and thermal control which have thermal conductivities as high as five times those of copper combined with low coefficients of thermal expansion. We will consider key manufacturing processes, and present a remarkable video showing how Honda makes MMC engine blocks. Finally, we will look at important future trends, including low cost materials, and Mechanical Engineering and infrastructure applications.

### About the Speaker:

Dr. Carl Zweben was formerly the Advanced Technology Manager and Division Fellow at Lockheed Martin Missiles and Space, Valley Forge Operation (formerly General Electric Astro Space), where he was responsible for the development of advanced composites applications and technology. Dr. Zweben has over 25 years of commercial and aerospace experience in polymer matrix, metal matrix, ceramic matrix and carbon/carbon composite materials technology. Dr. Zweben pioneered a wide range of composite applications, including spacecraft and aircraft structures, thermal control components, machine components, electronic packaging, marine structures, Civil Engineering structures, automobiles, rapid transit vehicles, robots, wind turbines, and antennas and pressure vessels.



Map from: <http://marriothotels.com/OAKDT/>  
Driving Directions Available directly from the Marriott Website

### From the East Bay:

- Take Highway 24 Westbound to I-980. Follow the signs to Downtown Oakland.
- Take the 11th/12th street Exit.
- Drive one block and turn left at 11th Street.
- Drive on 11th Street for four blocks to the self-parking entrance.

### BART Alternative:

- As an alternative, use the 12th Street/City Center BART station that comes up less than a block away from the hotel.

### From San Jose or Hayward:

- Take I 880 north.
- Take the Broadway Exit and turn right on Broadway.
- The hotel is at 1001 Broadway between 10th and 11th Streets.
- For parking, turn left onto 10th Street, right on Clay Street and right on 11th Street. The self-parking entrance is on 11th Street.

The Bay Connection can be found on the Internet!! Use your favorite web browser to access <http://sf.asme.org/>

Oustanding Newsletter Award!  
Winner of the ASME Region IX

# San Francisco Section Newsletter

S.F. Section, c/o Western Regional Office  
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The American Society of Mechanical Engineers  
S.F. Section, c/o Western Regional Office

