

JANUARY 2006 MEETING
PAST CHAIRPERSONS' NIGHT
(a.k.a. CHEAP NIGHT)

WHEN:

Thursday, January 19, 2006

SCHEDULE:

5:00 p.m. **Social Hour**

6:00 p.m. **Dinner**

All you can eat pizza, salad and soda
(other beverages available)

6:30 p.m. **Speaker Presentation:**
Dr. Ron DiMelfi

WHERE:

Giovanni's
9353 Clairmont Mesa Blvd.
San Diego, CA
(858) 279-6700

COST:

ASM Members - \$5

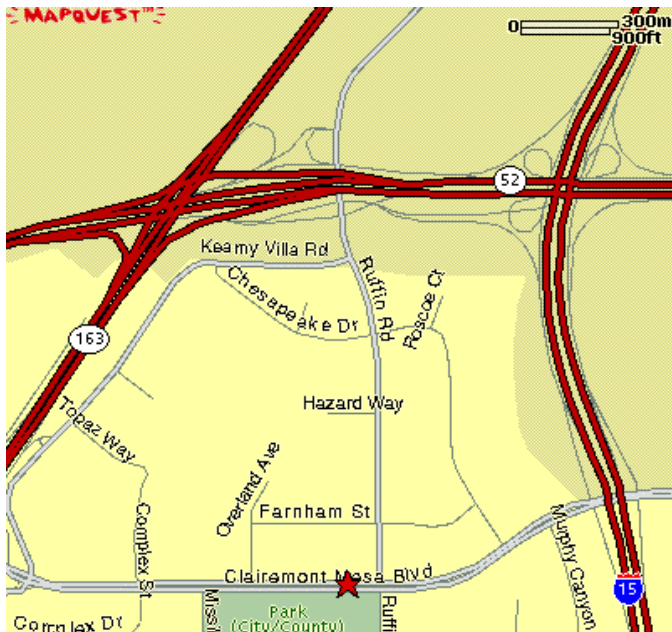
Students - \$3

Non-members - \$10

Past Chairpersons - FREE

TO REGISTER:

Call the ASM Info Line at (619) 685-8848,
or send an e-mail by January 16th to
sandiego@asmchapters.org



Dr. Ron DiMelfi

Materials Research and Development

PRESENTS:

**Laser Glazing Railroad Rails to
Reduce Friction and Wear**

Abstract

Railroad companies estimate that reducing rail/wheel friction can save \$40 million per year in fuel costs and \$16 million in rail replacements, while lowering the risk of train derailments. Friction is necessary for traction on rail tops, but friction between wheel flanges and sides of rails increases fuel consumption, causes rails to wear and crack, and can even force wheels to climb over rails, leading to derailments. Lubricants such as oil and grease are currently used to reduce this friction, but they can migrate to the top of the rail causing a loss in needed traction, wash away in the rain thereby becoming ineffective, and sink into the rail bed causing environmental problems. In this talk, the use of laser glazing to produce a more permanent solid-state lubricant that stays in place and is environmentally sound will be discussed. Laser glazing involves passing a laser beam over the rail surface, resulting in the rapid solidification of a thin melt layer. The results of experiments and analyses that are leading to the development of this technology will be presented.

Biography

Dr. DiMelfi earned a Ph.D. in materials science and engineering from Stanford University. He has worked as an Associate Professor at the University of New Mexico, and as a researcher and manager of research at Argonne National Laboratory. His technical interests include understanding the relationship between microstructure and the deformation and fracture of structural materials, developing advanced materials and coatings, and predicting the failure of critical components at high temperatures in harsh environments. He has also served as a university research administrator, helping faculty obtain research grants and overseeing research budgets. He is currently operating as a licensed independent consultant at his company, *Materials Research and Development*, in San Diego.

**The February chapter meeting will be in held
conjunction with the NATIONAL ENGINEER'S
WEEK BANQUET (see reverse for details)**

NATIONAL ENGINEER'S WEEK BANQUET

Sponsored by the San Diego County
Engineering Council

(in lieu of the February Chapter Meeting)

Friday, February 24, 2006, 6:00-9:15 pm
Joan Kroc Institute for Peace and Justice,
University of San Diego (USD)

Speaker: **Dr. David T. Hayhurst (Dean of
the College of Engineering, SDSU)**

Topic: **Dr. Hayhurst will speak on efforts,
both nationally and locally, to make
engineering more fun and appealing in
order to reverse the current crisis of
declining engineering enrollment.**

ASM has reserved a table.

**Cost: \$30/person. Please mail your check
to the chapter PO Box (see reverse) by
January 27th for this subsidized price.**

**For checks postmarked after January 27th,
the cost is \$37.50. The full cost of \$40
applies after February 11th.**

**Please indicate dinner selection:
Salmon, chicken or vegetarian**

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Abe Hurlich Award

Applications are currently being accepted for the 2005-2006 Abe Hurlich San Diego Chapter Student Award. This annual award is given to a local materials science student who exhibits outstanding merit in scholarship, leadership, and service. The award was established in memory of Abe Hurlich, a past-chair of our chapter (1960), and past-president of ASM International (1977). The award consists of a \$1200 scholarship, one-year ASM membership, and medallion. For applications, visit at the chapter website or call the ASM Info Line at (619) 685-8848

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