

Wednesday, January 15

Procedures and Use of Tribo-Metrology

Dr. Norm Gitis
Center for Tribology, Inc.

Please remember to indicate a meal selection when you sign up!

5:30 pm Social/Networking.....6:15 pm Dinner.....7:30 pm Speaker

Meeting Location:
WYNDHAM GARDEN HOTEL
1300 Chesapeake Terrace
Sunnyvale
(408)747-0999

Dinner Cost: ASM Members \$18, Students \$8, Guests \$20
Meal Choices: Beef, Fish, or Vegetarian

RESERVATIONS REQUIRED:
Stacy Ewert at (408) 742-2521 or stacy.s.ewert@lmco.com
Reservation deadline is noon on Monday, Jan 13

Take our Education Survey on the Back Page!



**The Materials
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Santa Clara Valley Chapter
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Meeting Directions

From points south: north on Lawrence Expressway, pass over 237, make the first left (Moffett Park Drive/Baylands Park), then the first left onto Chesapeake Terrace. **From points east or west:** Caribbean Drive (Lawrence Expressway North) exit off 237, first left at Moffett Park Drive/Baylands Park, then left on Chesapeake Terrace. **In either case, once you are on Chesapeake, simply proceed to the end where you'll find The Wyndham Garden Hotel.**

RETURN SERVICE REQUESTED

Inside this Issue...

About the Talk.....	2
SCV Fellows.....	2
Member Recognized.....	3
Upcoming Events.....	3
Coherent Tour.....	3
Engineers Week.....	4
SVEC Banquet.....	5
Materials Camp.....	7
Job Opening.....	8
Upcoming Meetings.....	8
Be A Science Fair Judge.....	8
Education Survey.....	10

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If so, please remember to correct your address by logging onto the national website, www.asminternational.org, where you can review and update your membership record.

About the Topic

Procedures and Use of Tribo-Metrology

Tribology is the study and technology of surfaces rubbing against each other. Tribo-metrology is the measurement of the forces and the consequences of that rubbing. Despite continuous numerous efforts of tribologists to develop theoretically correct formulae to calculate friction and wear characteristics of materials, experimental measurements remain the only reliable way of determining these characteristics.

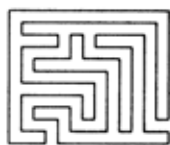
This talk will present the latest achievements in tribo-metrology, including simulation of the real-life dynamics of rubbing parts and multi-sensor monitoring of their contact. This simulation and measurement technology is based on simultaneous real-time measurements of the actual friction coefficient, contact acoustic emission and contact electrical resistance. In addition, a wide range of tribo-metrological applications will be described, including advanced testing of automotive lubricants, aerospace coatings, magnetic disks and heads, ink-jet printer cartridges, semiconductor wafers, electronic connectors, razor blades, and orthopedic devices.

About the Speaker

Dr. Norm Gitis Center for Tribology

Dr. Norm V. Gitis is the President of the Center for Tribology, Inc. in Campbell. He has been active in tribology for over 20 years, including being a Senior Scientist at the USSR Academic Tribology Center, a Visiting Professor at MIT, and holding senior positions at Maxtor and IBM. Dr. Gitis is Chair of the Society of Tribologists and Lubrication Engineers Technical Committee on Tribotesting, and is a Honorary Member of the Japanese Society of Tribologists. He is also active on other technical committees and in organizing symposia. He has published widely, lectures frequently to industry, and holds numerous patents in the areas of tribology and tribo-metrology.

Last month's sponsors: We would like to thank **Daedalus Associates** and **Memry Corporation** for sponsoring our December Meeting! Contact Gabriel Toea at gtoea@yahoo.com or (831)634-1443 to sponsor a meeting!



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ASMI-SCV Fellows to be Honored at January Meeting

Each year ASM International honors a group of distinguished materials technologists for their career achievements by awarding them the title of ASM Fellow. These are individuals who have made great scientific and engineering contributions to their companies and universities, and their advancements have been a benefit to the technological community in general. The 2002 class of Fellows did not include any SCV members, but nevertheless each January we like to acknowledge our Fellows and thank them for their contributions.

The Santa Clara Valley Chapter Fellows (along with their year of induction) are:

Edmund C. Burke	1970	Anthony T. Cape	1981	Richard E. Lewis	1991
Robert I. Jaffee	1970	Joseph C. Danko	1983	John C. Shyne	1991
Oleg D. Sherby	1970	Alfred Goldberg	1983	Elliott Willner	1991
Gerald M. Gordon	1975	Roger H. Richman	1983	Joshi Anne	1992
Walter E. Littman	1975	William C. Coons	1984	Tai-Gang Nieh	1992
Raymond W. Fenn	1976	Charles A. Rau	1985	Kenneth Challenger	1993
Claus G. Goetzel	1976	Ramaswamy Viswanathan	1986	Donald A. Shockey	1993
Thomas E. Tietz	1976	Prodyot Roy	1987	Alvin J. Jacobs	1997
Roger A. Perkins	1977	Jeffrey Wadsworth	1988	Donald R. Leseur	1997
Frank A. Crossley	1978	Elliot H. Rennhack	1988	John Stringer	1998
William D. Nix	1978	C. Sheldon Roberts	1989	Terry R. McNelley	2001
Howard G. Nelson	1980	Charles M. Packer	1980		

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ASM-SCV Member Recognized

This year the Silicon Valley Engineering Council (SVEC) has inaugurated a new award, the *Keeper of the Flame Award*. This award recognizes and honors the heroes of K-12 education who have “distinguished themselves as Keepers of the Flame of knowledge by maintaining high standards of content in mathematics and science instruction in the face of significant resistance.” The award consists of a plaque and a cash grant. The award funds are used by the winning teacher for educational purposes in the classroom.

ASM-SCV is proud to announce that one of our very own members, **Mr. Bruce Kawanami**, was the recipient of the very first Keeper of the Flame Award! Bruce is a teacher of Engineering Technology at Monta Vista High School. Bruce has held several positions in local industry, and he is also an active member of IEEE and ASM International. Bruce’s professional goal as a teacher is to expose high school students to the engineering professions and to generate interest in Engineering as a career path. He began teaching because he wanted to “give back” to the engineering field, by increasing interest and awareness of engineering among high school students.

We congratulate Bruce on the award, and we salute his dedication and focus in an area we all know is very important. We also thank SVEC for establishing this award to recognize an area of our field that is often overlooked. For more information on the award, visit www.svec.org.

Upcoming Events

Jan 8: IEEE-CPMT, “Wireless LAN Markets and Companies: Upcoming Opportunities”. Visit cpmt.org/scv/meetings/cpmt0301.html

Jan 13: PMISV, “Innovation Through Collaboration”. Visit www.pmisv.org/evening.htm

Jan 14: ASHRAE, “Nitrogen Generation for Semiconductor/Biotech Facilities”. Visit www.sanjoseashrae.org

Jan 14: INCOSE, “My 20 years of Failures at NASA - A Talk on Lessons Learned”. Visit www.incose.org/sfbac/#events

Jan 15: ASQ, “The Bottom Line benefits of ISO 9001:2000 registration presented by a Consultants panel”. Visit www.asq-silicon-valley.org/index.cfm?EventID=10573&SectionID=11

Jan 17: ACS, “The Elements of Leadership: Chemical Demonstrations with a Theme”. Visit www.scvacs.org/Local_Folder/din_mtg.html

Jan 20-24: IS&T/SPIE, “Electronic Imaging 2003”. Visit electronicimaging.org/Program/03/

Jan 21: AIChE, “Abgen Plant Tour”. Visit www.aiche-norcal.org/meetings.html

Jan 21: ASSE, “Electrical Safety”. Visit assesj.org/meetings.htm

Jan 23: ASCE, “Geotechnical Aspects of Landfill Design”. Visit www.asce-sf.org/events.html

Jan 30: SVMG, “Anatomy of Sacramento and Silicon Valley”. Visit www.svmg.org/Events/Public_Events.cfm

Coherent Tour in February

As noted last month, we are currently planning a tour of **Coherent, Inc.** in February 2003. Coherent manufactures lasers for a variety of applications. Many of these applications are in the area of material processing and range from drilling holes in cigarette paper to writing waveguides for optical devices. Coherent's application laboratories, where these processing techniques are developed, are equipped to demonstrate lasers in use for cutting, drilling and welding. For the tour, we will have a brief overview of Coherent's activities and then some laser processing demos with CO₂, diode-pumped solid state and direct diode lasers. Three different types of lasers will be shown processing samples: high power carbon dioxide lasers, finely focused ultraviolet solid-state lasers and extremely efficient direct diode lasers. Total time for the tour should be about 2 hours.

ASM-SCV has offered tours of Coherent’s facilities in the past, and they have always been popular. This promises to be another fascinating event! We thank Bob Wallace and Leonard Migliore for arranging this activity! **Unfortunately, due to our early publication deadline this holiday month, we don’t have the tour date and time available. We expect it to be an afternoon in early-mid February. Look for specifics in the February newsletter and in your e-mail.**

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National Engineers Week Feb 16-22

National Engineers Week (www.eweek.org) was launched over 50 years ago as a way to showcase engineering's contributions to our quality of life. It is a time for local communities to recognize their engineers for professional and community service.

More importantly, National Engineers Week is also a time to help cultivate an interest in math, science, and engineering in our nation's youth with programs such as the *Discover "E"* (E for engineering) program. In our area, the Silicon Valley Engineering Council (www.svec.org) coordinates a number of activities related to National Engineers Week. If you would like to learn more or become involved, visit the websites noted above or contact our own ASMI-SCV Education Committee Chair, Minwei Li, at (650)966-5735 or MLi@splasers.com.

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Silicon Valley Engineers Week Banquet

As the culmination of our local celebration of National Engineering Week, the Silicon Valley Engineering Council (SVEC) will be holding their annual Silicon Valley Engineers Week Banquet on Friday, February 21 at the Santa Clara Marriott Hotel.

This year the Hall of Fame Inductees will be Roy L. Clay, Sr., (ROD-L Electronics), Kumar Malavalli (Brocade Communication Systems), and Dr. Mihir Parikh (Asyst Technologies). The keynote speaker will be Dr. Hans Mark, Professor of Aerospace Engineering and Engineering Mechanics at the University of Texas at Austin.

This event is a great way to connect with the local engineering community and support the theme of Engineers Week. If you are interested in attending the banquet, visit www.svec.org for more information (including downloadable reservation forms).

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Materials CampSM Fact Sheet

WHAT IS MATERIALS CAMP?

- Week-long, summer residential camp utilizing hands-on learning principles of applied math, physics, chemistry, and basic physics.
- A very unique team-based, intensive problem solving science experience under the direction of a distinguished world-class faculty “Materials Mentor”.
- Combination of mini-demonstrations, field trips with extensive involvement in unique laboratory facilities to actively explore materials science & engineering principles.

WHERE IS MATERIALS CAMP LOCATED?

- University of Washington (Seattle) and ASM International (Cleveland), McMaster University & University of Toronto (Canada)

WHO SHOULD ATTEND?

- Students entering their Junior or Senior year in high school.
- Highly motivated inquisitive learners with math and science aptitude.

WHAT DOES IT COST TO ATTEND?

- Absolutely nothing. Students receive free travel, housing, meals, tuition, entertainment and knowledge.

HOW DO STUDENTS APPLY?

- Applications are available online (see below), and are due by **January 31**.
- Required information includes school transcript, a maximum of two letters of recommendation, and a personal essay (200 words or more).

Note the earlier deadline this year!

HOW ARE STUDENTS SELECTED?

- This is a competitive application process. Students must have basic knowledge of algebra, chemistry, and physics and describe why they want to learn more about engineering and materials science as a possible college major and career.
- Experienced practicing engineers review each application to select the “best and brightest”, highly motivated students who have not yet made a firm decision about a college major or career.
- Students must have a strong interest in applied science.
- Prior participation in science fairs is helpful, but not required.

WHAT WILL STUDENTS ACTUALLY DO AT MATERIALS CAMP?

- **Have fun.** Our number one goal is to make applied science an exciting, fun experience. Additionally, students enjoy evening activities which may include visits to amusement parks, the Rock and Roll Hall of Fame (Cleveland) / Experience Music Project (Seattle), aviation museums, soccer, and blacksmithing.
- Solve a technical problem. Using the “failure analysis” exploration model, students work in small groups and investigate the failure of a man-made material to perform its intended function.
- Learn to use state-of-the-art research equipment in an engineering laboratory under the guidance of experts.

WHERE CAN I GET ADDITIONAL INFORMATION?

- Visit our website at: www.asminternational.org/foundation The website has more information and downloadable applications.
- Call the ASM International Foundation toll-free: 1-800-336-5152.

Chapter Information & Upcoming Activities

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Secretary:	
Jacques Matteau	(650)591-7787

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Special Positions

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Newsletter Editor:	
Scott Dickerson	(408)584-1013

Thanks to our ASMI-SCV Sustaining Members:

Evans Analytical Group	Charles Evans, Jr.	San Mateo
CSU—Fresno	Henry Madden	Fresno
R.L. Engineering	Richard Lund	Placerville
Vivid Incorporated	John H. Comeau	Santa Clara

Would your company like to support the chapter by being a sustaining member? To find out more, contact Janine Kardokus at (408)986-7568.

Executive Committee Meetings: ASM-SCV Executive Committee meetings are held in September, October, January, March and May. Any member can attend! Call Janine Kardokus at (408)986-7568 for meeting times and locations, and to reserve a seat at the table.

Job Opening!

Northrup Grumman Marine Systems in Sunnyvale needs a Materials/Metallurgical Engineer for product support. Northrup Grumman Marine Systems provides steam turbines, gearboxes and missile launching systems to the US Navy. The ideal candidate will have a BS in Materials Engineering and 10 years experience in fabrication of machinery. Advanced degrees would be a bonus. Experience with high temperature materials, non-destructive testing, corrosion, casting, welding, failure analysis, military materials and process specifications, and laboratory analysis equipment would be expected. US citizenship required. Please submit your resumes to: ngms_jobs@northropgrumman.com.

Upcoming Technical Meetings

Jan 15	Procedure and Use of Tribo-metrology <i>Dr. Norm Gitis, Center for Tribology</i>	<i>SCV Fellow's Night</i>
Feb 12	Ceramics: Aluminum Oxide and Anodizing <i>Dr. Frank Anderson, CoorsTek</i>	<i>Joint with ACerS</i>
Mar 12	Nanotechnology and Space Science <i>Meyya Meyyappan, NASA-Ames Research Center</i>	<i>Joint with SAMPE & Scholarship Awards</i>
Apr 9	Microfluidics <i>Dr. Nghia Chiem, Teragenics</i>	<i>Student Posters</i>
May 14	Laser Shock Peening <i>Dr. Lloyd Hackel, Lawrence Livermore National Laboratory</i>	<i>Awards & Elections Night</i>

Be A Science Fair Judge!

The Synopsys Silicon Valley Science and Technology Championship is an annual event where local students (grades 6-12) present the results of their science projects to judges from local educational institutions and industry. It's a great opportunity for the students to further their science education, and we at ASM-SCV are happy to support the event by providing (together with the local SAMPE chapter) a team of Special Judges. The Special Judges review projects in particular areas (material science, in our case), and present Special Awards for the best projects in these areas. ASM-SCV has been involved in this event for years, and our volunteer judges always report that it is a fun and rewarding experience. If you would like to judge for the event, please contact one of our Science Fair Coordinators: Bob Elliott at (916)408-2370, or Al Kwong at (408)935-5805 (or AlfredKwong@ca.slr.com). The judging for this year's event will take place on Thursday, March 13, 2003, from 10am until 5pm. More information on the event itself can be found at www.science-fair.org.

(Fold here)



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ASM International - Santa Clara Valley Chapter

Survey for Materials Education Courses

Santa Clara Valley Chapter of ASM International is planning a series of short courses on the materials technology and business development in local industries. Please take a moment to answer this simple survey of course topics so that we can choose the courses that best suit your interests. **Thanks for your help!**

Note: The Chapter will charge course participants a fee to cover the costs. The amount of the fees will depend on the class size and will be announced with the course announcement.

Not Interested	Somewhat Interested	Interested	Very Interested	Extremely Interested	<p>Directions: Use the columns at the left to indicate your interest in courses in the followings topic areas. Additionally, please circle and/or write in the specific areas within each topic that are of the greatest interest to you. Then simply remove this page from your newsletter, fold in half, staple or tape shut, stamp, and mail! (Better yet, attend the next dinner meeting and turn in your completed survey there!)</p>
<p>A. Technology related classes (1 session each topic) - short course series on materials trends & new technology development in the following areas:</p>					
					<p>Aerospace vehicles Specific interest areas? (circle): space shuttle, aircraft engine, other _____</p>
					<p>Bio-medical devices Specific interest areas? (circle): implant, stent, MEMS, other _____</p>
					<p>Disk drives Specific interest areas? (circle): head, disk, other _____</p>
					<p>Display devices Specific interest areas? (circle): flat panel, plasma display, OLED, other _____</p>
					<p>Nanotechnology Specific interest areas? (circle): microelectronics, MEMS, other _____</p>
					<p>Photonic devices Specific interest areas? (circle): fiber optics, laser, MEMS, other _____</p>
					<p>Semiconductor manufacturing Specific interest areas? (circle): interconnect, wafer, lithography, etch, gas, other _____</p>
<p>B. Business related classes (1-2 sessions each topic) in the following areas:</p>					
					<p>Internet search for materials information</p>
					<p>Supply chain management in microelectronics industry</p>
<p>Are there any other specific topics interesting to you but not listed above?</p>					
<p>Any additional comments?</p>					