

Wednesday, October 10

Thin Film Materials Science at Stanford

W.D. Nix (FASM) and B.M. Clemens
Department of Materials Science and Engineering, Stanford University

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: London Broil, Chef's Salmon, or Vegetarian

RESERVATIONS REQUIRED:
Janine Kardokus at (408) 986-7568 or janine_kardokus@amat.com
\$2 late fee after noon on Monday, Oct 8

October Meeting Sponsor:  **Bess Testlab, Inc.**



**The Materials
Information Society**
Santa Clara Valley Chapter
P.O. Box 60487
Sunnyvale, CA 94089-0487

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
SUNNYVALE, CA
PERMIT NO. 770

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 Moffet 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

<i>Inside this Issue...</i>	
<i>About the Talk</i>	2
<i>Fall Picnic</i>	2
<i>Yearbook Advertising</i>	2
<i>MEI Classes</i>	4
<i>Upcoming Events</i>	7
<i>2001-2002 Program</i>	8

Have You Moved Recently?

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

Thin Film Materials Science at Stanford

Since the mid-1980's, the primary research focus of the Department of Materials Science and Engineering at Stanford has been on thin film materials science. The move to emphasize thin films was driven partly by the needs of the semiconductor and information storage industries that dominate Silicon Valley and by the needs of students preparing to work in these areas of materials technology. All of these areas of materials technology depend critically on the behavior of materials in thin film form. But it was also driven by the realization the classical concepts and methods of physical metallurgy and materials science could be used to bring new insights into the behavior of thin films.

Thin film research activities in the MSE department at Stanford parallel the basic paradigm of materials science and engineering. They include efforts on the synthesis and processing of thin films (using chemical vapor deposition, electron beam evaporation and magnetron sputter deposition), chemical and microstructural characterization (using x-ray diffraction, electron microscopy, scanning probe microscopy and surface sensitive microchemical analysis) and studies of the electrical, optical, magnetic and mechanical properties of thin films. In this presentation we describe some of the department's current research programs in these areas by showing selected highlights of recent research accomplishments.

About the Speakers

Professors W.D. Nix (FASM) and B.M. Clemens, Stanford University

Prof. W.D. Nix received his B.S. degree in Metallurgical Engineering from San Jose State College (the first graduate of that program) and his Ph.D. degree in Materials Science from Stanford University. He has served on the faculty at Stanford for almost 40 years, currently as the Lee Otterson Professor of Engineering. He served as Chair of the MSE department in the early 1990's. Prof. Nix is the recipient of several awards from ASM International, including the ASM Gold Medal and, significantly, an ASM Scholarship from the Santa Clara Valley Chapter, in 1957! He is also a Fellow of ASM International (FASM). He and his students have authored hundreds of papers on the mechanical properties of materials in both bulk and thin film form.

Prof. B.M. Clemens received his B.S. degree in Physics from the Colorado School of Mines (the top School of Mines student in his graduating class) and his Ph.D. in Applied Physics from the California Institute of Technology. After serving as a Research Scientist at the General Motors Research Laboratory for several years he joined the faculty at Stanford in the late 1980's and quickly rose to the rank of Professor. He is currently the Chair of the MSE department at Stanford. Prof. Clemens is the recipient of numerous awards, including the ASM Research Silver Medal. He and his students have authored hundreds of papers on the synthesis, characterization and both magnetic and mechanical properties of thin films and multilayers.

October Meeting Sponsor

ASMI-SCV would like to thank **Bess Testlab** for sponsoring our October meeting. Bess Testlab provides a broad range of metallurgical laboratory services to local industry. We appreciate Bess Testlab's support, which enables us to provide quality technical programming to our membership at a reasonable cost.

- Physical Test
- Chemical Analysis
- Metallography
- Microhardness
- SEM/EDS analysis
- Failure Analysis
- Non Destructive Insp.
- Welding Engineering



Bess Testlab, Inc.

991 George Street
Santa Clara, CA 95054
PH(408) 988-0101
FX(408) 988-0103
jose@besstestlab.com

Jose Bohorquez
President & CEO

Sign up for the Oct 6 Fall Picnic!

The Fall picnic plans have been finalized! This year we will be holding our picnic on Oct. 6 at De Anza Park, located at 1150 Lime Drive in Sunnyvale. Food selection will be the usual marinated tri-tip (an ASMI-SCV tradition), barbecued chicken, and secret recipe baked beans. Vegetarian selections will be available upon request. The yummys will be available at approximately 1pm, but feel free to come an hour or so early to socialize. The cost will be \$10 per person, and kids under 12 are free.

You must sign up by Oct 4! Contact Paul Flowers at (408)756-0564 or paul.flowers@lmco.com.

Yearbook Advertising

The Yearbook Committee is presently developing a list of potential advertisers for the upcoming edition. If you have a business and might be interested in advertising or know of a company that might be interested, please contact Stacy Ewert at stacy.s.ewert@lmco.com or (408)756-4360. Advertisement in the Chapter yearbook is one of the best ways for companies to target an audience directly involved in the selection and use of materials, processes and testing. Proceeds from the yearbook help towards funding our Chapter's activities that are focused on advancing the knowledge and education of our members.

Buehler full page ad

S M

Shipp Metallurgical

Robert L. Shipp P.E.
Consultant

METALLURGY • WELDING ENGINEERING
PROCESS DEVELOPMENT • FAILURE ANALYSIS

2050 Jefferson Drive (408) 842-3344
Gilroy, California 95020 FAX (408) 847-1707

LECO[®]
Corporation

ROBERT PRISTERA
bob_pristera@leco.com (Email)

LECO Corporation Colorado: 303-770-8198
3000 Lakeview Avenue Fax: 303-770-8442
St. Joseph, MI 49085-2396 Nevada: 702-614-1190
Voice Mail: 877-877-4377 ext. 5520 Fax: 702-263-6579
Fax: 616-982-8987 Toll Free: 800-292-6141

MEI Class Kickoff Meeting

ASMI-SCV is going to start offering classes! If you'd like to help kick-off the initiative, come share your input on Tuesday night, October 9, at 6:00 pm at the Round Table Pizza at 157 E. El Camino Real in Mountain View. We are looking for volunteer instructors and ideas on companies to target as sponsors for full or short versions of MEI courses. RSVP to Janine Kardokus at (408)986-0568 or e-mail to janine_kardokus@amat.com.

What are MEI courses? MEI is the Materials Engineering Institute of ASM International, which offers a variety of classes in many subjects, such as heat treating, materials selection, metallography & characterization, metallurgy & processes, testing & failure analysis, and welding.

Although ASMI offers these classes at the Materials Park facility in Ohio, *they can also be offered through the local chapters*, usually with volunteer instructors & class coordinators. Locally-given classes offer many benefits over the national classes, such as custom tailoring of the classes to local industry needs, lower class costs, and dissemination of materials information to people who would not ordinarily have access to the national courses.

The MEI class experience is a fun & rewarding experience for the chapter members involved. You have a chance to meet a lot of new people, share your materials knowledge, and contribute to the chapter and to the community. Sign up today!

Serving Advanced Technology

And providing your instrumentation needs.

SEM TEM SPM EPMA
Auger NMR ESR
Mass Spectrometry

JEOL USA, Inc.
11 Dearborn Rd. 300-10 3rd St.
Peabody, MA 01960 Los Altos, CA 94022
978-535-5900 650-947-7940
www.jeol.com - eod@jeol.com



JEOL

Struers full page ad

Foothills Analytical Laboratory

A complete materials analysis and consulting service



Auger EDX ESCA FTIR GC/MS SEM SIMS

We do provide a broad range of analytical services and techniques but, more importantly, we share our years of industry experience to work with you, to help solve problems, not just sell data. Give us a call to see how we may be able to help you.

Evaluation of Electropolished Stainless Steel Failure Analyses In-House Seminars

Laboratory:	780 Montague Expressway, Suite 407, San Jose, CA, 95131	(408) 456-0370
Business Office:	3661 Mace Court, San Jose, CA, 95127	FAX (408) 923-5536
	and now on the web at www.foothills-analytical.com	

BILL BYINGTON
President



**BYINGTON
STEEL
TREATING
INC.**

1225 MEMOREX DRIVE
SANTA CLARA, CALIFORNIA 95050
TELEPHONE (408) 727-6630



EVERYTHING IN HEAT TREATING

- GENERAL HEAT TREATING
 - ALUMINUM HEAT TREATING
 - INDUCTION HARDENING
 - STRESS RELIEVING
 - FLAME HARDENING
 - CARBURIZING
 - CYANIDING
 - NORMALIZING
 - VACUUM HEAT TREATING
- BRIGHT HARDENING
 - BRIGHT ANNEALING
 - DEEP FREEZING
 - STRAIGHTENING
 - SANDBLASTING
 - BEAD BLASTING
 - ROTOBLASTING
 - DEGREASING

GOVERNMENT CERTIFIED



Laser Kinetics

406 WEST DANA STREET • MOUNTAIN VIEW, CA 94041

Consulting in Laser Materials Processing

- Cutting
- Heat treating
- Feasibility
- Market studies
- Welding
- Development
- System design
- Documentation

LEONARD MIGLIORE
PRESIDENT
LM@LASERK.COM

TEL 650 967-0977
FAX 650 967-1517
HTTP://WWW.LASERK.COM

Metallurgical Solutions

*Metallic Materials, Components, and Consulting
Specializing in Nitinol Alloys*

James L. Proft

2 Williams Lane, Foster City, CA 94404
Phone: (650) 358-4076 • Fax: (650) 357-8140
email: jimnitinol@aol.com

Upcoming Events

Oct 10: IEEE, "Photovoltaics - Industry Review and Case Study of a Residential PV ". Visit infoserv.infoserv.com/grid/grid10.01/10e.htm

Oct 17: IEEE-CPMT, "Innovative Connectors and Sockets". Visit www.cpmt.org/scv/meetings/cpmt0110.html

Oct 18: ACS, "The Fizziks of Beer Bubbles". Visit: www.scvacs.org/Local_Folder/din_mtg.html

Oct 21-25: SPIE, Micromachining and Microfabrication Conference in San Francisco. Visit spie.org/Conferences/programs/01/mf/

Oct 23: AIChE, "California's Energy Crisis - Gone but not Forgotten?". Visit www.aiche-norcal.org/Meetings/oct01_north.htm

Nov 14: ASQ, "ISO 9001:2000 Got Questions? We Got Answers!" Visit www.asq-svc.org/nov-14-01-dinner-mtg.html

Nov 14: IEEE-CPMT, "Plating Processes for IC and Microelectronic Interconnect Applications" Visit www.cpmt.org/scv/meetings/cpmt0111.html

Visit our updated website:

www.ASM-SCV-org

MILESTONE TECHNOLOGY

Scanning Electron Microscope Analysis

- Failure Analysis
- Fracture Analysis
- Steels
- Thin Films
- Recording Media & Heads
- Semiconducting Materials

EDX and Light Element Analysis

High Quality • Economical Rates • Overnight Service

(408) 243-TEST (8378)

1122-A Aster Avenue, Sunnyvale, CA 94086

2001-2002 ASMI Santa Clara Valley Chapter Information

Officers

Chair:	Wendy Chung	IBM	(408)256-8614	wchung@us.ibm.com
Vice-Chair:	Jim Knowles	Grand Kauai Consulting	(650)728-3786	jim@grandkauai.com
Treasurer:	Janine Kardokus	AKT/Applied Materials	(408)986-7568	janine_kardokus@amat.com
Secretary:	Catherine Weathersby	Lockheed Martin	(408)742-6204	catherine@tranceform.com

Executive Committee

Richard Chung	San Jose State University	(408)924-3927	wrchung@email.sjsu.edu
Stacy Ewert	Lockheed Martin	(408)756-4360	stacy.s.ewert@lmco.com
John Ferrante	Consultant	(408)578-8819	irenaFerr@aol.com
Matt Henneberg	SRI Consulting	(650)859-2701	mhenneberg@srlic.sri.com
Francis Honey	International Technical Associates	(408)748-9955	honeyff@aol.com
Alfred Kwong	Solectron	(408)935-5805	alfredkwong@ca.slr.com
Jen Lee	Space Systems/Loral	(650)852-6371	lee.jen@ssd.loral.com
HuiHui Lin	IBM	(408)256-1072	huilin@us.ibm.com
Jacques Matteau	Lam Research	(510)572-3309	jacques.matteau@lamrc.com
Leonard Migliore	Laser Kinetics, Inc.	(650)967-0977	lm@laserk.com
Alison Olver	Lockheed Martin	(408)756-8187	alison.olver@lmco.com
Bob Petrusha	RLP Associates	(408)732-1356	bppetrusha@jps.net
John Stringer	EPRI	(650)855-2472	jstringe@epri.com
Lou Wirtz	Lockheed Martin	(408)756-0621	lou.wirtz@lmco.com

Special Positions

SVEC Representative:	Ed Kaminski	Retired	(408)241-4842	kipski@prodigy.net
Newsletter Editor:	Scott Dickerson	Applied Materials	(408)584-1013	scott_dickerson@amat.com

Special Thanks to our ASMI-SCV Sustaining Members:

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

Executive Committee Meetings: 4th Wednesday of Sep, Nov, Jan, Mar, and May at 6:30 pm, Round Table Pizza at El Camino & 237. Any member can attend! Call Wendy Chung at (408) 256-8614 to confirm the schedule and reserve a seat at the table.

2001-2002 Technical Program

Sept. 12	Materials Issues for Electricity Generation in the Near Future <i>Dr. John Stringer, EPRI, Palo Alto</i>	<i>Past Chair's Night</i>
Oct. 10	Thin Film Materials Science at Stanford <i>Professors W.D. Nix and B.M. Clemens, Stanford University</i>	
Nov. 14	Electronic Packaging <i>Luu Nguyen, National Semiconductor</i>	
Dec. 12	TBD	<i>Companion's Night</i>
Jan. 9	The Metallurgy of Sputtering Targets <i>Daniel Marx, Materials Research Corporation (Division of Praxair)</i>	<i>SCV Fellow's Night</i>
Feb. 13	TBD - Ceramics Topic	<i>Joint with ACerS</i>
Mar. 13	Nanotechnology Overview <i>Barbara Jones, IBM Almaden Research</i>	
Apr. 10	TBD	<i>Joint with SAMPE</i>
May 8	Update on Battery Technology <i>Fritz Kalhammer, Consultant</i>	<i>Awards Night</i>