



Santa Clara Valley Chapter

November 2000

Volume 44, Number 3

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Wednesday, November 8

**The Science and Technology of Bulk Metallic Glasses**

Dr. William L. Johnson

Professor of Materials Science, California Institute of Technology

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 Brochettes, Salmon, or Vegetarian*

**RESERVATIONS REQUIRED:**

Jim Knowles (650) 728-3786 or jim@grandkauai.com

*\$2 late fee after noon on Monday, November 6*

November Meeting Sponsor:



*See inside for more information...*



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## About the Topic

### Science and Technology of Bulk Metallic Glass

Metallic glasses were discovered over 40 years ago during early experiments on rapid solidification of metals. During the past decade, several families of glass forming metals have been developed which can be cast into bulk three dimensional shapes at conventional cooling rates. These bulk metallic glass forming alloys have opened the door to scientific studies of molten metals in the undercooled liquid state. They have also emerged as a novel engineering and structural material with unique combinations of mechanical properties not achievable in traditional crystalline metals. The talk will review scientific developments in this field and outline the unique opportunities for engineering applications using this novel class of materials.

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## About the Speaker

### Dr. William L. Johnson

#### California Institute of Technology

William L. Johnson is Ruben & Donna Mettler Professor of Materials Science at the California Institute of Technology. He received his B.A. in physics from Hamilton College and his Ph.D. in Applied Physics from Caltech. He spent two years at IBM's Thomas J. Watson Research Center (1975-77). He held a Visiting Professor appointment at the Metal Physics Institute in Göttingen, Germany (1983) and received a Von Humboldt Distinguished Scientist Fellowship in Göttingen (1988). Recently, he was named the recipient of the 1996 Hume Rothery Award of The Metals Society. Professor Johnson served on the editorial board of the Journal of Rapid Solidification, and serves currently as an associate editor for the Journal of Applied Physics, and Applied Physics Letters. He is author or co-author of over 200 publications in the scientific literature, and has contributed to chapters in seven books. He has held numerous consulting positions for Department of Energy, NASA, and several corporations.

Prof. Johnson's research includes studies of metallic glasses and other metastable metallic phases as well as the development of models for ion-induced modifications of materials based on thermodynamic concepts. Other research involves the study of crystal-to-glass transformations and melting. Most recent work involves the development of novel families of metal alloys which form metallic glasses at slow cooling rates in bulk form.

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## November Meeting Sponsor

We thank **Brush Wellman** for sponsoring our November meeting. Brush Wellman is a leading international producer and supplier of high performance engineered materials and is the only fully integrated producer of beryllium, beryllium alloys, and beryllia ceramic in the world. Brush Wellman's Alloy Products Division offers metallurgically tailored alloys to meet specific customer performance requirements. Brush Wellman's products can be found in demanding applications in computers, telecommunications, automotive electronics, aerospace, oil exploration, undersea fiber optic cables, plastic mold tooling as well as metal casting mold tooling.



### Meeting Location

As usual, the SCV meeting will be held at the Wyndham Gardens Hotel. **From points south:** travel north on Lawrence Expressway, pass over 237, and make the first left (Moffett Park Drive), and then the first left onto Chesapeake Terrace. **From points east or west:** take the Caribbean Drive (Lawrence Expressway North) exit off 237, take the first left at Moffet Park Drive, and then left on Chesapeake Terrace. Once you are on Chesapeake, simply proceed to the end where you'll find The Wyndham Gardens Hotel.

(Struers)

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### **Fall Picnic Acknowledgments**

Although it almost goes without saying, the ASMI-SCV Fall Picnic at Byington Winery went off without a hitch, and a great time was had by all! We'd like to thank those responsible for making this happen: **Pat Pizzo** stepped in at the last minute and turned the BBQ into a truly gourmet affair with his amazing marinades and basting techniques. (He's not giving details on these secret family recipes, but rumor has it that Pat may be talked into helping again next year!) **Alison Olver** also stepped in at the very last minute to help with the set-up, clean-up, and various other logistical tasks. **Paul Flowers**, though not available the day of the event, helped with the shopping and planning, and provided the secret family recipe baked beans (he's not giving details either). **Scott Dickerson** dabbled in all the above (except the secret recipes, of course) while keeping Social Committee Chairman **Bob Elliott** in line and on his best behavior. Thanks to all! If you missed the picnic, attend our monthly dinner meetings and you just might win one of the bottles of Byington wines that will be offered as raffle prizes!

### **Thanks Morris!**

As you may know, Morris Hosoda of Hosoda Duplicating has been faithfully printing this newsletter every month for more than a quarter century. What you may not know is that he has also been maintaining our enormous mailing list all these years as well!

Well, Morris is now officially retired and clearing his plate for more rewarding activities, such as softball, and square dancing (who can blame him?). As a result, last month's newsletter was the last one to be produced by the skilled hands of Morris Hosoda. Truly a collector's item!

We at ASMI-SCV would like to thank Morris for his years of tireless service and for the outstanding job he did with the newsletter and mailing list. Although we are planning a very special recognition for Morris (TBA at an upcoming dinner meeting), we would like to take this opportunity to formally recognize his contribution to the entire chapter:

**THANKS MORRIS!**

Visit the ASMI-SCV website: [www.asm-scv.org](http://www.asm-scv.org)

(Leco)

## We're Looking for Meeting Sponsors and Sustaining Members!

**Meeting Sponsorship:** This is a one-time deal in which your company sponsors a particular technical talk or event. You get your company name in front of the valley's top engineering professionals, and you can give a brief "pitch" for your company at the meeting. *Contact Bob Petrusha at (408)732-1356 or bppetrusha@jps.net*

**Sustaining Member:** This is a special classification of corporate membership. Each Sustaining Member company gets a free individual membership for its representative, acknowledgement in this Newsletter, a chance to share in the Chapter's networking and leadership opportunities, and a multitude of ASM discounts. *Contact Bob Elliott, at (408) 984-1146*

## Other Local Events

**Nov 14** - American Ceramic Society - "Combustion Synthesis for the Production of Ceramic Composites", Speaker TBA. 6:30 pm - 8:30 pm, National Hispanic University, 14271 Story Rd. San Jose. *Contact Dan Day at (925) 294-7530 or dday@nrmc.com*

**Nov 14** - American Electroplaters and Surface Finishers Society - "Plating Industry in Vietnam", Gary Patigler, Electroforming. 7:00 pm, Spin-a-Yarn Restaurant, 45915 Warm Springs Blvd., Fremont. *Contact Dave Wiley at (510) 708-3318*

*Know of an event that should be listed here?  
Contact Scott Dickerson at (408) 584-1013 or  
scott\_dickerson@AMAT.com*

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## The Rewards of Signing up a New Member

ASM International has initiated an aggressive recruitment program, aiming to increase our ranks by 2000 members before the end of 2001. The numerous benefits of ASM membership are well known: exposure to new technology, materials information, networking, education, leadership opportunities, and finding problem solutions. As an incentive, ASM will offer gift certificates for each new member you sign up. Membership is \$68 per year, with a \$10 initiation fee. For more information and membership applications, contact ASM International at 1-800-336-5152. Better yet, bring yourself and your member-to-be to one of our monthly meetings - you can pick up the membership forms in person, and the new member will get a free meal!

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## Get Involved with Your Chapter

**Yearbook/Member Directory:** We've started planning for our updated Yearbook (Member Directory), and the Yearbook Committee is exploring several possible format changes. If you have some neat ideas for improving this unique networking tool, or just want to help with the logistics, please let us know. *Call Lou Wirtz at (408)756-0621 or Wendy Chung at (408)256-8614.*

**Help Out For a Few Minutes at a Monthly Meeting:** We are looking for people to take signs at our monthly dinner meetings. It just takes a few minutes of your time, but you get to expand your professional and personal network by meeting and greeting all the attendees! *Call Jim Knowles at (650)728-3786*

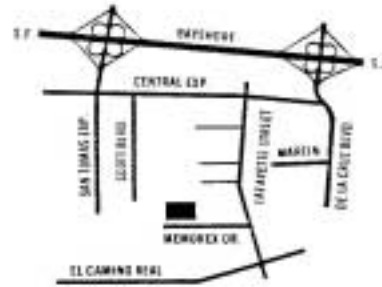
*Many other opportunities abound! Get in touch with an Executive Committee member for more ideas how you might get involved with your chapter. It's a great networking opportunity!*

**DEAN BYINGTON**  
Vice-President



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## 2000-2001 Santa Clara Valley Executive Committee

### Officers

<b>Chair:</b>	Lou Wirtz	Lockheed Martin	(408) 756-0621	lou.wirtz@lmco.com
<b>Vice-Chair:</b>	Wendy Chung	IBM	(408) 256-8614	wchung@us.ibm.com
<b>Treasurer:</b>	Jim Knowles	Grand Kauai Consulting	(650) 728-3786	jim@grandkauai.com
<b>Secretary:</b>	Catherine Weathersby	Lockheed Martin	(408) 742-3896	catherine@tranceform.com

### Executive Committee

Richard Chung	San Jose State University	(408) 924-3927	sjwrc@aol.com
Scott Dickerson	Applied Materials	(408) 584-1013	scott_dickerson@amat.com
Robert Elliott	Retired	(408) 984-1146	-
John Ferrante	Seagate	(408) 941-5702	john_a_ferrante@notes.seagate.com
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Alison Olver	Lockheed Martin	(408) 756-8187	alison.olver@lmco.com
Bob Petrusha	Retired	(408) 732-1356	bppetrusha@jps.net
John Stringer	EPRI	(650) 855-2472	jstringe@epri.com

### Special Appointment - Silicon Valley Engineering Council (SVEC) Representative

Ed Kaminski	Retired	(408) 241-4842	kipski@prodi.gy.net
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### Special Thanks to our ASMI-SCV Sustaining Members:

Charles Evans & Associates	Charles Evans, Jr.	San Mateo	<i>Should your company be an ASMI-SCV Sustaining Member? Call Bob Elliott at (408)984-1146</i>
CSU - Fresno	Henry Madden	Fresno	
Ontario Technologies	Robert Andrews	San Carlos	
R. L. Engineering	Richard Lund	Placerville	

### 2000-2001 Technical Program

Sept. 13	Magnetic Recording Technology: Trends and Challenges <i>Tom Albrecht, IBM Research</i>	Past Chair's Night
Oct. 11	Optimization of Processing and Properties of Medical Grade Nitinol Wire <i>Alan Pelton, NDC-Cordis</i>	
Nov. 8	The Science and Technology of Bulk Metallic Glasses <i>Bill Johnson, California Institute of Technology</i>	
Dec. 13	Recovery of the Challenger Shuttle Data Tapes <i>Rick Brackshaw</i>	Companion's Night
Jan. 10	Beyond Silicon: Microfabrication with Metals, Plastics, and Ceramics <i>John Hachman &amp; Alfredo Morales, Sandia National Laboratories</i>	SCV Fellow's Night Joint ACerS
Feb. 21	Advances in Metallography <i>George Vander Voort, Buehler</i>	Joint AWS
Mar. 14	Process Induced Failures and Modelling <i>Speaker TBD</i>	Joint SME
Apr. 18	Jet Engine Fragment Barrier Materials <i>Don Shockey, SRI</i>	Joint SAMPE
May 9	The Wright Stuff: Materials Considerations in Building the Wright Flyer <i>Walter M. Griffith, FASM</i>	Awards Night