



# Santa Clara Valley Chapter

December 2000

Volume 44, Number 4

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## Wednesday, December 13

### Recovery of NASA Space Shuttle Challenger Tapes

Dr. Richard Bradshaw  
Distinguished Engineer, IBM

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, December 11*

**December Meeting Sponsor:**



*See inside for more information...*



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## About the Topic

### **Recovery of NASA Space Shuttle Challenger Tapes**

In January 1986 the NASA Space Shuttle Challenger broke up just after launch. All seven members of the shuttle crew were lost, including the first two civilians ever to fly in the history of the Space Shuttle program. Months later, the in-flight recorders were recovered from the Atlantic Ocean. These tapes were the only source of data vital to the reconstruction of the events leading up to the disaster, as well as data regarding the condition of the crewmembers. Damage from the impact and subsequent corrosion and degradation of the tapes made recovery of the data (let alone the simple task of unwinding the tapes) appear to be impossible. Quite by accident and some improbable circumstances, IBM was asked almost as a last resort to attempt the recovery of the data from these tapes. A small team of people from a variety of disciplines and skills were able to successfully unwind the tapes and transfer the data for NASA to decipher. All of the data was recovered. The events and the steps used to accomplish this "impossible" feat are described with the overall message that a dedicated team that works together can do even the impossible.

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## About the Speaker

**Dr. Richard Bradshaw**  
**Distinguished Engineer, IBM**

Richard Bradshaw received his BS in Chemistry at the New Mexico Institute of Mining and Technology and his Ph.D. in Organic/Polymer Chemistry at Arizona State University. He joined IBM in Boulder with the Media Development Group in the General Products Division in 1978. In 1979 he moved with the Tape mission to Tucson. He has been involved with flexible magnetic media (tape) formulation development and characterization as well as data recovery. The most public tape recovery effort involved the data recovery for the flight recorders from the final mission of the NASA space shuttle Challenger which exploded shortly after lift off in January of 1986.

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## December Meeting Sponsor

We thank **Byington Steel Treating** for sponsoring our December meeting. Byington Steel Treating provides a broad range of heat treating services to local industry, and has been a faithful ASMI-SCV Chapter supporter for many years. We appreciate Byington's support, which enables us to bring high-quality technical programming to the ASMI-SCV membership at a reasonable cost.



## 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 Moffett 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.

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

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### Other Local Events

**Dec 13** - ASM Golden Gate Chapter - USS Posco Plant Tour, *Contact Lisa Thomas at (510) 549-3300 ext. 6 or lisathomas@bearinc.com for details.*

**Dec 13** - IEEE Short Course - Materials Issues in Semiconductor Packaging, noon to 5pm, UCSC Extension, 1180 Bordeaux Drive, Sunnyvale. *Contact Dr. Bob Dubin 650)592-0315 or Dr. John Newman (408)978-1069 or visit [www.cpmt.org/scv/](http://www.cpmt.org/scv/)*

**Jan 9** - American Electroplaters and Surface Finishers Society - "Open Discussion on Waste Reduction", Carol Eden, United Airlines. 7:00 pm, Spin-a-Yarn Restaurant, 45915 Warm Springs Blvd., Fremont. *Contact Dave Wiley at (510) 708-3318*

*Also, visit the following website for a listing of other Bay Area science events:*  
<http://www.supercalendar.com/view.php?a=813>

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

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### Sign Up a New Member, Get Free Stuff!

As an incentive for you to sign up your colleagues, ASM is offering gift certificates for each new member you sign up. The value of these gift certificates varies with the number of new members you sign up. For more information and membership applications, contact ASM International at 1-800-336-5152 or [www.asminternational.org](http://www.asminternational.org). **Additionally, we at ASMI-SCV are offering our own incentive program for new members: bring yourself and your member-to-be to one of our monthly meetings, and the new member will get a free meal!**

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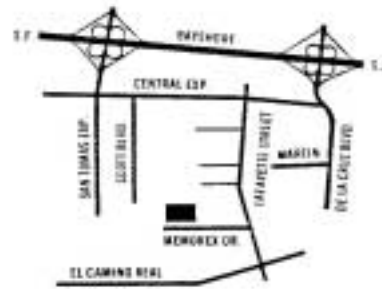
Sustaining Member companies get a free individual membership for their representative, acknowledgement in this Newsletter, a chance to share in the Chapter's networking and leadership opportunities, and a multitude of ASM discounts. Contact **Bob Elliott** at (408) 984-1146

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Bob Petrusha	Consultant	(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@prodigy.net
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### Special Thanks to our ASMI-SCV Sustaining Members:

Charles Evans & Associates	Charles Evans, Jr.	San Mateo
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Ontario Technologies	Robert Andrews	San Carlos
R. L. Engineering	Richard Lund	Placerville

*Should your company be an ASMI-SCV Sustaining Member? Call Bob Elliott at (408)984-1146*

### 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>Richard Bradshaw, IBM</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