



Santa Clara Valley Chapter

September 2000
Volume 44, Number 1

Wednesday, September 13

MAGNETIC RECORDING TECHNOLOGY: TRENDS AND CHALLENGES

Thomas R. Albrecht
IBM Almaden Research Center
Technical Chair: Wendy Chung, IBM, San Jose

5:30 pm Social/Networking

6:15 pm Dinner

7:30 pm Speaker

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:

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

\$2 late fee if reservations made after noon on Monday, September 12

See inside for more information about the talk and speaker...

About the Topic

Magnetic Recording Technology: Trends and Challenges

Among the technologies in the information processing industry, magnetic recording stands out as one of the most prominent examples of rapid performance improvement and cost reduction. Although various technologies have been predicted to replace magnetic recording (e.g., optical recording, solid-state storage, and holography), continuing rapid advances have maintained magnetic recording's advantages over competing technologies. Hard disk drives, which are the most commonly used form of magnetic data storage, contain an advanced mix of mechanical and electronic technologies, and exploit advanced materials. The head-disk interface requires surfaces with nanometer-scale roughness and flatness, advanced air bearings, and durable lubricants and overcoats to prevent interface degradation even in harsh environments. Read/write transducers employ esoteric magnetic thin-film fabrication techniques coupled with highly accurate bulk machining and polishing methods. Low-noise disk media for high density recording require finely controlled grain size and coupling.

To continue the rapid pace of improvement, the disk drive industry must meet challenges and adopt major technical changes during the next several years. These transitions include the possible transition to perpendicular recording, adoption of dual-stage actuators with microfabricated actuator elements, improved start/stop technologies such as load/unload or stiction-free sliders, fluid bearing spindle motors, and new classes of disk materials to avoid spontaneous thermal decay of written data patterns. In addition, the industry is taking on the challenge of applying magnetic data storage to new markets, such as consumer electronics and handheld/portable systems.

This talk will provide an overview of the trends and challenges in this rapidly changing technology.

About the Speaker

Thomas R. Albrecht
IBM Almaden Research Center

Tom Albrecht received a B.A. in physics from Carleton College (Northfield, MN) in 1985 and a Ph.D. in applied physics from Stanford University in 1989. His thesis research at Stanford focused on Atomic Force Microscopy (AFM) and included the development of microfabricated force-sensing cantilever probes, which are used routinely in AFM today.

Since late 1989, Tom has been a research staff member and manager at the IBM Almaden Research Center in San Jose, CA. At IBM, his work has centered primarily on technologies for tape and disk drives. Tom has 38 issued U.S. patents and 33 publications. He served on the LTO tape standards committee and worked with the CompactFlash Association to modify the CompactFlash standard to accommodate IBM's microdrive. He is a member of the IBM Academy of Technology.

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 Our Website! www.asm-scv.org

Other ASMI-SCV Events Coming Soon!



Fall Picnic October 7

This year we will be having the fall social event at the **Byington Winery** in the beautiful Santa Cruz Mountains. There will be a barbeque, winery tour, wine tasting, and socializing/networking with the valley's most friendly materials professionals!

The barbeque will be a gourmet affair (no canned beans and weenies here, folks!). Master chef Pablo Flores will prepare his traditional and oft-requested marinated tri-tip, dutch-oven baked beans, and garlic bread. Exotic cheeses, traditional snack food, and beverages (wine, juice, and water) will also be provided. (Of course, vegetarian is also available upon request.) The festivities will open around 11am, with the main attraction being served shortly thereafter. The cost is \$10 for adults, \$5 for kids age 10-17, and free for kids 9 and under. The optional winery tour is an additional \$5 per person.

Sound interesting? If so, sign up now! Do so by contacting one of the following people:

Scott Dickerson at (408) 584-1013 or scott_dickerson@AMAT.com
Paul Flowers at (408) 756-0564 or paul.flowers@lmco.com
Bob Elliott at (408) 984-1146

Directions to Byington Winery:

From all points in the greater Bay Area, simply take 880/17 south. After passing through Los Gatos, take the Bear Creek Road exit. Proceed approximately 6 miles on Bear Creek Road, and look for the Byington Winery signs. The winery is at 21850 Bear Creek Road, which is on the left side of the road as you come up from highway 17.




NUMMI Auto Plant Tour October 16

ASMI-SCV is pleased to offer what promises to be an exciting and fascinating tour of the NUMMI auto plant in Fremont. This is the plant that manufactures the Toyota Corolla, Geo Prizm, and Toyota Tacoma compact pickup truck. It will be a special tour arranged just for ASMI-SCV, and is limited to 24 people, so sign up soon! Best of all, we will be offering this at no cost to you! Snacks will be served at 7:15pm, and the tour will begin at 7:30pm. The tour is expected to last about 90 minutes. You are encouraged to bring your own safety glasses for clearer viewing.

The plant is located in Fremont just off of 880 at the Fremont Blvd. exit. Specific directions will be provided upon sign-up.

To sign up contact Al Kwong at (408)248-1916 or alfkwong@altavista.com. (As with all limited-attendance events, we ask that you do not sign up unless you truly intend to be there.)



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2000-2001 Technical Program

The ASMI-SCV Program Committee has been working diligently this summer to line up a fascinating set of talks for next year's meetings. Take a look at the tentative schedule they've come up with so far:

Sept. 13	Magnetic Recording Technology: Trends and Challenges <i>Tom Albrecht, IBM Research</i>	Past Chair's Night
Oct. 11	Nitinol Processing Optimization <i>Alan Pelton</i>	
Nov. 8	Metallic Glasses <i>Bill Johnson</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>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	ASMI Trustee Talk, Topic & Speaker TBD	Awards Night

Other Local Events

Role of the AFM in Failure and Yield Analysis

September 11 in Sunnyvale
Sponsored by ASM-EDFAS
www.asm-intl.org/mei/courses/atomic.htm

Acoustic Micro Imaging (using Sonoscan equipment)

September 20 or 21 in San Jose
www.sonoscan.com

Assembly West

October 30-31 in Long Beach
www.atexpo.com

Wah Chang Corrosion Solutions Use of Titanium and Zirconium Alloys

November 2 - 3 in San Francisco
www.corrosionsolutions.com

Know of an event that should be listed here?

*Contact Scott Dickerson at (408) 584-1013
or scott_dickerson@AMAT.com*

ASMI New Member Recruitment

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. These range from \$25 for each of 1-6 members, \$50 for 7-12 members, \$75 for 13-18 members. Sponsor 15 or more members, and you are eligible for a drawing for a \$1000 cash prize! ASM 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!

SCV Members Advising SJSU Materials Engineering

The Materials Engineering faculty at San Jose State University has requested industry assistance in enhancing the attractiveness, and thus the enrollment, of their structural materials program. SCV members who responded to the call are John Stringer, John Ferrante, Leonard Migliore, Frank Crossman, Dave Himmelblau, Wendy Chung, Al Kwong, Pat Pizzo, and Bob Caligiuri. The Advisory Board will contribute ideas to help the faculty attract students from the incoming SJSU engineering classes and from regional high schools and community colleges. The Board is also commenting on the Materials Engineering curriculum and searching for ways to provide additional resources and assistance to the program. The advisors met with the faculty twice over the summer and will continue to interact on various tasks to accomplish the goal of establishing a thriving program.

We're Looking for Meeting Sponsors and Sustaining Members!

What are they? A *Meeting Sponsorship* 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. Best of all, you're helping us put on these meetings at a reasonable cost to our membership. A *Sustaining Member* 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. And of course, they get the satisfaction of knowing that they're giving something back to the local materials community by supporting their local ASM Chapter. If you're interested in either of these opportunities, please contact our Sponsorship Coordinator, Bob Elliott, at (408) 984-1146.

Visit the ASMI-Santa Clara Valley Chapter
Web Site:

www.asm-scv.org

There you'll find everything that's in this
newsletter, plus much more...

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Thanks Dave!

As some of you may know, this bulletin has been edited for the past 20 or so years by our very own Dave Himmelblau. Well, Dave decided that the time had come to pass the bulletin-editing torch to a new "volunteer". We thank Dave for his many years of tireless service, and look forward to seeing this same commitment in his other contributions to ASMI-SCV. In the meantime, we'll be trying some new things with the bulletin (aka "newsletter") format, hoping only to improve upon the excellent precedent set by Dave. Feel free to contact me if you have feedback on any of these changes, on the newsletter in general, or with any submissions for publication. -Scott Dickerson, ASMI-SCV Bulletin Editor

Job Posting

We are always happy to use this newsletter as a medium for posting materials-related job openings. This month we have one item:

UNITED TECHNOLOGIES PRATT & WHITNEY, SPACE PROPULSION, CHEMICAL SYSTEMS

JOB TITLE: Process Development Engineer


DUTIES: Under the direction of Head, Process Development Engineering, conducts processing and tooling tests and development studies; compiles and analyzes processing data used to establish new and improved processing methods, tooling, and equipment. Develop manufacturing/processing methods (molding, bonding, lay-up, testing, tooling techniques) for flight and development hardware made from composites, rubbers, adhesives, elastomers, metals and finishes. Duties will also include providing technical oversight on materials replacement and adhesive bonding test plans.

EDUCATION REQUIRED: Equivalent to a bachelor's degree in engineering or science, such as chemical engineering.

MINIMUM EXPERIENCE: Equivalent to 1-3 years.

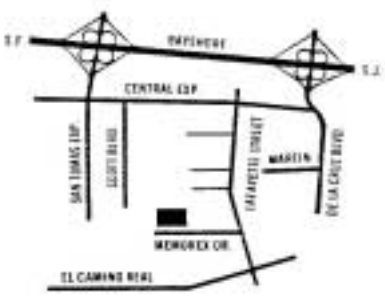
Contact Paul Scheve at (408) 776-4462 or Scheve@csd.com to answer your questions and inquire.

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Executive Committee

Richard Chung	San Jose State University	(408) 924-3195	sjwrc@aol.com
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Robert Elliott	Retired	(408) 984-1146	-
John Ferrante	Seagate	(408) 941-5702	john_a_ferrante@notes.seagate.com
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Bob Petruscha	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@aol.com
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Special Thanks to our ASMI-SCV Sustaining Members:

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Upcoming Events:

September 13 Magnetic Recording Technology: Trends And Challenges
Thomas Albrecht, IBM Almaden Research Center

October 7 Fall Picnic at Byington Winery

October 16 Tour of NUMMI Auto Plant

See inside for details on these events, and much more...



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