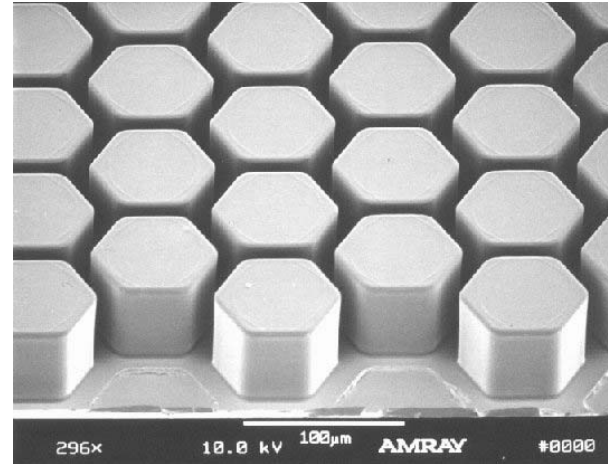


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THE 29th Annual  
NORTHERN CALIFORNIA

## ELECTRONIC MATERIALS SYMPOSIUM

A One-Day Symposium on Electronic  
Materials Featuring Outstanding Authorities  
in Their Respective Fields

SUNNYVALE SHERATON  
1250 Lakeside Drive  
SUNNYVALE, CALIFORNIA

Monday  
April 2nd, 2001  
8:00 AM

<http://www.parc.xerox.com/ems>

(Online registration available)

### PROGRAM

Monday, April 2nd, 2001  
Sunnyvale Sheraton

8:00 Registration

#### MORNING SESSION

Session Chair: Prof. Stacy Gleixner  
San Jose State University, San Jose, CA

8:30 **Welcome Remarks and Introduction**

Dr. Raj Apte  
Xerox PARC, Palo Alto, CA

8:40 "Materials and Epitaxy for Vertical-cavity Lasers"

Dr. Richard Schneider, Agilent Technologies, San  
Jose, CA

9:25 "Silicon Debug Techniques for Advanced  
Microprocessors" Dr. Travis Eiles, Intel Corp, Santa  
Clara, CA

10:10 **REFRESHMENTS** (Vendor Exhibit Area)

10:40 "Polymer Displays and Electronics" Dr. Nick Colaneria,  
UNIAX Polymer Electronics, Santa Barbara, CA

11:30 **LUNCHEON**

12:15 **27<sup>th</sup> Annual Ross Tucker Award**  
**3<sup>rd</sup> Annual EMS Undergraduate Scholarship**

12:25 "Taste and the Structure of Chocolate" Dr. Robert  
Steinberg, Scharffen Berger Chocolate Maker

#### AFTERNOON SESSION

Session Chair: Dr. Valeska Schroeder  
HP, Palo Alto, CA

1:30 "Recent Progress in Integrated Fluidic Circuits" Dr. Luc  
Bousse, Caliper Technologies, Mountain View, CA

2:15 "Magnetic Recording Materials for the XXI  
Century: Challenges and Opportunities" Dr.  
Ernesto Marinero, IBM Almaden Research Center,  
San Jose, CA

3:00 **REFRESHMENTS** (Vendor Exhibit Area)

3:30 "Electron Spin Resonance Transistors, for  
Quantum Communication & Computing" Dr. Eli  
Yablonovitch, UCLA, Los Angeles, CA

4:15 "Magnetic Resonance Force Microscopy: The  
Quest for a Three-Dimensional, Atomic Resolution  
Imaging Technique" Dr. Dan Rugar, IBM, San  
Jose, CA

5:00 **HOSTED COCKTAIL PARTY**  
**VENDOR'S SHOW**

### General Information

The Symposium registration covers admission to the Symposium sessions, abstracts of the Symposium presentations, luncheon, a vendor's exhibit, and a partially hosted cocktail hour following the Symposium. Beverage tokens for the cocktail hour will be available in the vendor area during the afternoon sessions. Physical limitations require the attendance to be limited to 400 registrants.

Costs of the Symposium have been kept to a minimum to encourage attendance. A discounted registration fee is available until March 26, 2001. To reserve your place in the Symposium and in the luncheon, we urge you to register early by mail, using the attached form. All registration is transferable but not refundable.

During the Symposium, the Ross N. Tucker Memorial Awards will be presented to two Bay Area graduate students in recognition of excellence in research. The EMS Undergraduate Awards will be presented to a Bay area undergraduate in recognition of excellent scholarship in electronic materials.

The Symposium features a Vendor's exhibit. Information and displays of new materials, processing equipment, and analytical instruments will be presented by representatives of manufacturers. A special feature this year will be HR booths by a number of leading employers of materials scientists and engineers.

A partially hosted cocktail hour will follow the Symposium presentations. This provides an opportunity for informal discussions with Symposium speakers, vendors and attendees.

Registration material and abstracts of the Symposium presentations will be provided at the registration booth.

The opening session will begin promptly at 8:30AM. Registration begins at 8:00AM. The vendors' area will be available for setup at 7:00AM.

Further questions regarding the Symposium should be directed to Prof. Stacy Gleixner, San Jose State University. Phone: 408-924-4051, email: Gleixner@email.sjsu.edu.

The Electronic Materials Symposium Committee exists to promote the understanding of electronic materials within the industrial and academic communities of the San Francisco Bay area. This committee organizes the annual Electronic Materials Symposium, featuring presentations on advanced electronic, magnetic and optical materials processing, characterization and devices by outstanding speakers who have made significant contributions to their fields. Proceeds of the symposium are used to support electronic materials research and education in local universities.

#### ABOUT THE COVER

Scanning electron micrograph of SU-8 photo-epoxy microstructures. SU-8 blurs the boundary between packaging and device and is widely used by the MEMS community.

Electronic Materials Symposium  
c/o Prof Stacy Gleixner  
San Jose State University  
Dept of Chemical & Materials Engineering  
One Washington Square  
San Jose, CA 95192-0082



## ABOUT THE SPEAKERS

**Dr. Robert Steinberg**, M.D., co-founder of Scharffen Berger Chocolate Maker, will discuss the effect the structure of chocolate plays in creating the sensory experience for which it is cherished. Although chocolate is both loved and ubiquitous, it is not well understood, even by pastry chefs who use it daily and chocoholics who eat it daily. The ways it looks, behaves as a liquid and a solid, feels, and tastes are dependent on the basic materials that compose it, as well as the multiple manipulations it undergoes during harvesting and processing. From the unique perspective of one who has observed cacao agriculture and who is passionate about the manufacture and consumption of chocolate, Dr. Steinberg will try to enhance your appreciation of a revered food that, paradoxically, is often taken for granted.

**Dr. Luc Bousse** is Director of Device Technology at Caliper Technologies Corp. in Mountain View, California, where he is working on developing novel integrated analysis systems on a chip. Previously he was Director of Silicon Research at Molecular Devices Corp., Sunnyvale, and from 1982 to 1988 he was a research associate at the Center for Integrated Systems at Stanford University. In 1982, he was awarded a Doctorate in Technical Sciences, from Twente University (The Netherlands).

**Dr. Nick Colaneri** has been actively involved in the research and commercialization of conjugated polymers since 1983. He has published over 20 articles in refereed scientific and technical journals, and formerly held positions both in Corporate Research and Technology at Allied-Signal Corporation and at the Cavendish Laboratory, University of Cambridge. He joined the Company in 1990 as staff scientist, and assumed his present position in 1998. Dr. Colaneri is responsible for UNIAX market development activities, as well as the company's emerging business programs and the contact support for these latter projects.

**Dr. Travis Eiles** leads the Silicon Debug Technology Development Group at Intel, Santa Clara, with the responsibility for developing and deploying physical techniques for diagnosis of advanced microprocessors. He has been at Intel for five years and has developed numerous techniques for circuit debug and failure analysis. Travis Eiles received his Ph.D. in physics in 1993 from the University of Colorado.

**Dr. Ernesto Marinero** received his BSc and PhD degrees in Physics from Heriot-Watt University, Edinburgh, United Kingdom in 1977. His research experience has been gained through various appointments in Europe and the USA in the fields of laser physics, chemical physics, materials science and magnetism. This includes work (1977 - 1980) at the Max Planck Institut in Goettingen, Germany on isotope selective photochemistry, laser spectroscopy and picosecond phenomena. At Stanford University (1981 - 1983), his work in chemical physics focused on the study of the fundamental chemical exchange reactions between hydrogen atoms and hydrogen molecules. These experiments involving molecular beams, laser photochemistry and non-linear spectroscopy permitted for the first time test of quantum theories proposed in 1928 pertaining exchange reactions in molecular dynamics. Since joining the Research Division at IBM in late 1983, Marinero has worked at the IBM Almaden Reserach Center in San Jose, CA both as a Research Staff Member and as Research Manager. His research has focused on diverse aspects of thin films. This range from the study of their structure-property relationships to their device applications. His work on laser-induced phase transformations in semiconductor films, thin film corrosion, thin film magnetism and nonlinear photochemistry in

polymeric thin films has been widely published in the scientific literature and also utilized in IBM's technology products. His current research focuses on recording materials design for future magnetic recording technologies. A critical aspect of this work is manipulating the microstructural properties of recording materials to satisfy the needs for increasing storage densities of future devices. Another important facet of the work is the search for new materials with superior magnetic properties than those currently utilized. He is the author of over 150 scientific papers, editor of several books on Materials Science and holds several US and european patents. technology products. His current research focuses on recording materials design for future magnetic recording technologies. He is the author of over 150 scientific papers, editor of several books on Materials Science and holds several US and european patents.

**Dr. Daniel Rugar** received his BA in Physics from Pomona College in 1975 and his Ph.D. in Applied Physics from Stanford University in 1982. From 1982 to 1984 he was the Hunt Fellow of the Acoustical Society of America and a research associate at Stanford where he worked on acoustic microscopy and phonon dispersion in superfluid helium. He joined the IBM Research Division in 1984 and has worked on ultrahigh density data storage, including magneto-optical and near-field optical recording, and many aspects of scanning probe microscopy, including atomic, magnetic and electrostatic force microscopies. His present position is manager of nanoscale studies, leading a group investigating magnetic resonance force microscopy (MRFM), detection of ultrasmall forces and applications of micromechanics.

**Dr. Richard P. Schneider** obtained degrees in Physical Metallurgy, from Washington State University, and Materials Science & Engineering, from Northwestern University. In a five-year career with Sandia National Laboratories in Albuquerque, NM, he contributed to pioneering early work in VCSEL technology, encompassing AlGaInP-based red VCSELs, all-epitaxial oxide-confined VCSELs, and development of metalorganic vapor phase epitaxy (MOVPE) for high-performance VCSELs. In 1995, he moved to Hewlett-Packard Laboratories in Palo Alto, where he contributed first to development of VCSELs for HP's fiberoptic tranceiver product line, and later to GaN materials and device technology for high-brightness visible LEDs and cw violet lasers. For the past year, he has managed VCSEL materials, epitaxy and device R&D in the III-V Department of Agilent's Network Solutions Division in San Jose. Dr. Schneider has authored or co-authored some 50 journal articles and 2 book chapters on VCSEL technology, and is named as co-inventor on a number of patents in the field.

**Dr. Eli Yablonovitch** graduated with the Ph. D. degree in Applied Physics from Harvard University in 1972. He worked for two years at Bell Telephone Laboratories, and then became a professor of Applied Physics at Harvard. At the peak of the energy crisis in 1979, he joined Exxon to do research on photovoltaic solar energy. Then in 1984, he joined Bell Communications Research, where he was a Distinguished Member of Staff, and also Director of Solid-State Physics Research. In 1992 he joined the University of California, Los Angeles, where he is Professor of Electrical Engineering. Among his honors are an Alfred P. Sloan fellowship (1978-79), the Adolf Lomb Medal of the Optical Society of America (1978), an R&D 100 award (1990), the W. Streifer Scientific Achievement award of the IEEE/LEOS (1993), and the R. W. Wood Prize of the Optical Society of America (1996). He chaired the 1979 Gordon Conference on Nonlinear Optics and Lasers. He has been named a Fellow of the Institute of Electrical and Electronic Engineers (1992), the American Physical Society (1990), and the

Optical Society of America (1982), and is a member of Eta Kappa Nu. His work has covered a broad variety of topics: nonlinear optics, laser-plasma interaction, infrared laser chemistry, photovoltaic energy conversion, strained-quantum-well lasers, and chemical modification of semiconductor surfaces. Currently his main interests are in optoelectronics, high speed optical communications, high efficiency light-emitting diodes and nano-cavity lasers, photonic crystals at optical and microwave frequencies, quantum computing and quantum communication.

## Symposium Committee

*Symposium Committee*

<i>Joseph Behnke</i> <i>(Applied Materials)</i>	<i>Eugene Meieran</i> <i>(Intel)</i>
<i>Judy Glazer</i> <i>(HP)</i>	<i>Scott McHugo</i> <i>(Agilent)</i>
<i>Stacy Gleixner</i> <i>(SJSU)</i>	<i>Valeska Schroeder</i> <i>(HP)</i>

Raj Apte (Xerox Parc), 2001 Chair

## Symposium Sponsors

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Regular Registration	\$90
Full-time Registered Student	\$45
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<p><b>Make checks payable to: Electronic Materials Symposium</b> and send along with the above information to Prof. Stacy Gleixner, Dept of Chemical &amp; Materials Engineering, San Jose State University, San Jose CA, 95192-0082. Any questions should be directed to Prof. Stacy Gleixner at 408-924-4051, <a href="mailto:Gleixner@email.sjsu.edu">Gleixner@email.sjsu.edu</a>. Please make sure your name and affiliation are clearly identified. The tax ID for the symposium is: 25-1484913. Registrations may be transferred/ substituted but are non-refundable.</p>	