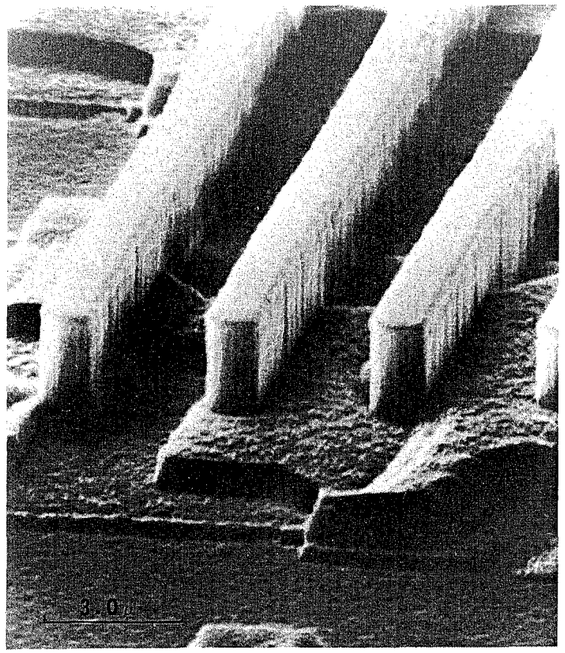
THE METALLURGICAL SOCIETY OF AIME

THE NORTHERN CALIFORNIA METALLURGICAL SECTION

FOUNDED 1871



THE

NORTHERN CALIFORNIA

METALLURGICAL SECTION

OF AIME

PRESENTS

THE TENTH ANNUAL

ELECTRONIC MATERIALS SYMPOSIUM

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

MARRIOTT HOTEL

GREAT AMERICA PARKWAY

SANTA CLARA, CALIFORNIA

MONDAY

April 5, 1982

7:30 A.M.

PROGRAM

Monday, April 5, 1982

Marriott Hotel

7:30 Registration

MORNING SESSION (California Ballroom - Center)

Session Chairman: Dr. Robert McDonald
Intel Corporation
Santa Clara, California

8:30 Welcoming Remarks and Introduction
Dr. Kurt Petersen
IBM Corporation
San Jose, California

8:40 **"High Speed Silicon Integrated Circuits Using X-Ray Lithography"**
Mr. Martin Lepselter
Bell Telephone Laboratories
Murray Hill, New Jersey

9:30 **"Bipolar Technology for VLSI"**
Dr. Tak Ning
IBM Corporation
Yorktown Heights, New York

10:20 REFRESHMENT BREAK (California Ballroom - Right)

10:50 **"Control of Processed-Induced Defects in Silicon Wafers"**
Dr. Harold Korb
Monsanto
St. Louis, Missouri

11:45 LUNCHEON (California Ballroom - Left)

12:20 Ross N. Tucker Memorial Award Presentation to Mr. Tzu-Yin Chiu
Department of Electrical Engineering, University of California
Berkeley, California

12:30 **"Future Directions in the Electronics Industry"**
Professor Carver Mead
California Institute of Technology
Pasadena, California

AFTERNOON SESSION (California Ballroom - Center)

Session Chairman: Dr. Krishna Saraswat
Stanford University
Stanford, California

1:30 **"Plasma Deposition: A Powerful Tool for VLSI"**
Dr. Evert van de Ven
PRLS Signetics
Sunnyvale, California

2:15 **"Integrated Circuit Metallization"**
Dr. Ilan Blech
Xerox Corporation
Palo Alto, California

3:00 REFRESHMENT BREAK (California Ballroom - Right)

3:30 **"Soft Errors in VLSI Devices"**
Mr. Timothy May
Intel Corporation
Aloha, Oregon

4:15 **"Mixed Phase Oxides in EAROM Applications"**
Dr. Daniel DiMaria
IBM Corporation
Yorktown Heights, New York

5:00 HOSTED COCKTAIL PARTY

Marriott Hotel (California Ballroom - Left)

VENDOR'S SHOW (California Ballroom - Right)

8:00-5:00 Vendor's Exhibits

GENERAL INFORMATION

- The registration fee for the symposium covers admission to symposium sessions, extended abstracts of symposium presentation, luncheon, a vendor's exhibit, and a partially hosted cocktail hour following the symposium. Two tokens are included in the registration envelope. Physical limitations require that attendance be limited to the first 400 registrants.
- Costs for the symposium have been kept to a minimum to encourage attendance. A surcharge will be required from those who do not register by Monday, March 8, 1982, because of added costs for arrangements after that date. To reserve your place at the symposium and luncheon, we urge you to register early by mail, using the attached form. No refunds of registration fees will be made after Monday, March 8, 1982.
- During the Symposium, the eighth annual Ross N. Tucker Memorial Award will be presented to Mr. Tzu-Yin Chiu, Department of Electrical Engineering, University of California, Berkeley, for his work on low energy nitrogen implantation into silicon, related to local oxidation technology.
- We are honored to have Professor Carver Mead from the California Institute of Technology, as our luncheon Speaker. Professor Mead is a leading figure in the fields of solid-state electronics and the design of VLSI circuits. His presentation will be entitled "Future Directions in the Electronics Industry".
- The symposium will feature a vendor's exhibit. Information and displays of new materials, processing equipment and analytical instruments will be presented by manufacturing representatives.
- A partially hosted cocktail party will follow the final symposium presentation. This provides an opportunity for informal discussions with symposium speakers, vendors, and attendees.
- Registration material and extended abstracts of the symposium presentations will be provided at the registration booth.
- The opening session will begin promptly at 8:30 A.M. Registration begins at 7:30 A.M.
- Further questions regarding the symposium should be directed to Kurt Petersen, IBM Research Laboratory, K43/281, 5600 Cottle Road, San Jose, CA 95193. Telephone (408) 256-6899.

ABOUT THE SPEAKERS

Dr. Ilan A Blech was born in Haifa, Israel, received his B.Sc. in Mechanical Engineering in 1959 and the M.Sc. in Metallurgy in 1961 from the Technion-Israel Institute of Technology. He received the D.Sc. in Metallurgy in 1964 from M.I.T., Cambridge, Massachusetts.

He joined Fairchild Semiconductor in 1964 as a Member of the Technical Staff in the Materials and Processes Department and later as Section Head in the Device Development Department. In 1969 he joined the faculty in the Department of Materials Engineering at the Technion where he also served as Department Head during 1977-1979. He worked during 1974-1976 at Bell Telephone Laboratories at Murray Hill, N.J. in the Materials Technology Department and is presently spending a sabbatical at Xerox Palo Alto Research Center in the Integrated Circuit Laboratory.

Dr. Daniel J. DiMaria recieved his B.S. in Engineering Physics in 1968, his M.S. in 1970 and Ph.D. in 1973 in Physics, all from Lehigh University. He joined the IBM Thomas J. Watson Research Center in 1973 in a post-doctoral position. In 1974, he was promoted to a Research Staff Member and is currently Manager of the Interface Physics Group. Dr. DiMaria's main interests are in electrical and optical properties of insulators and their application to solid state devices. He is a member of the Phi Beta Kappa and the Tau Beta Pi honorary societies.

Dr. Harold W. Korb received his B.S. degree from North Dakota State University in 1964 and the M.A. degree from Dartmouth College in 1967, both in Physics. He received the Ph.D. degree in Electrical Engineering from the University of Illinois in 1971. From 1966 to 1974 he was employed by Bell Telephone Laboratories where he worked on MOS memory design and testing, high-speed bipolar memory design, and process development for high-density bipolar integrated circuits. In 1974 he joined the Monsanto Company, where he initially worked on the design and fabrication of optoelectronic devices. Since 1979 he has been Manager of Silicon Applications Research, and is responsible for work aimed at identifying and realizing the optimum properties of silicon wafers for microelectronic applications. Dr. Korb is a member of the IEEE and the Electrochemical Society.

Mr. Martin P. Lepselter has worked on semiconductor device development since joining Bell Telephone Laboratories in 1957. He holds over 50 patents on silicon device technology, including beam lead integrated circuit (structure, metallurgy, and process), platinum silicide Schottky diodes, ion-implanted semiconductor devices, and the shallow-junction contacts developed for the Telstar solar cells currently in use on many satellites. He is presently Director of the Advanced LSI Development Laboratory at Murray Hill, New Jersey, where he is responsible for the Bell Laboratory's fine-line program. Previously, he spent four years as Director of the Bipolar Device Laboratory at Allentown, Pennsylvania, and four years as Director of the MOS Integrated Circuit Laboratory at Murray Hill.

He has been awarded the Daniel C. Hughes, Jr. Memorial Award by ISHM, and is a Fellow of the IEEE. He was awarded the IEEE Jack A. Morton Award in December 1979.

Mr. Timothy C. May received his B.S. degree in Physics from the University of California at Santa Barbara in 1974. Since joining Intel Corporation that year he has been involved with technology development and reliability, with an emphasis on the physics of memory devices. In 1977 he discovered that soft errors in VLSI originate primarily from trace levels of radioactivity and from cosmic rays. Since then he has worked on several aspects of this problem including the dynamics of charge collection by device structures and implications of the the soft error phenomenon for future devices. Tim currently manages the Reliability Physics Lab in Intel's Oregon facility. He has received several paper awards and patents, most notably the W.R.G. Baker Prize in 1981 for the best IEEE paper of 1979.

Professor Carver A. Mead, Gordon and Betty Moore Professor of Computer Science, has taught at California Institute of Technology in Pasadena, California for over twenty years. During this time he has been a professor in Electrical Engineering, Applied Physics, and Computer Science.

Professor Mead has pioneered in the fields of solid-state electronics and the management of complexity in the design of very large-scale integrated circuits. He has been the leading force in the development of a design methodology for VLSI - a field which has seen a merger of semiconductor and computer technologies.

Professor Mead has written and contributed to over 100 publications covering his wide range of interests in solid-state physics, microelectronics, and biophysics. He holds a number of patents in these fields and has written, with Lynn Conway of Xerox, Palo Alto Research Center, the standard text for VLSI design, Introduction to VLSI Systems. Carver Mead also has extensive experience as a consultant to industry.

Dr. Tak H. Ning received the B.A. degree from Reed College, Portland, Oregon in 1967, and the Ph.D. degree in physics from the University of Illinois, Urbana, Illinois in 1971. He joined the IBM Thomas J. Watson Research Center, Yorktown Heights, New York in 1973, and worked on hot-electron effects in MOSFET's and electron trapping in silicon dioxide. Since 1977, he has been working in areas of bipolar device physics and technology.

Dr. Evert van de Ven graduated from the University of Technology in Eindhoven, The Netherlands, in 1973. Following a year of post graduate work on the chemistry of semiconductor surfaces, he joined Philips Research Laboratories in Eindhoven. In 1977 he moved to the IC Production and Development Division of Philips in Nijmegen. In 1980 he accepted the position of a Member of the Technical Staff of Philips Research Laboratories at Signetics Corporation, Sunnyvale, California.

His past work has been concerned with in-depth development of plasma etching and deposition processes. He has presented numerous papers at International conferences. His current responsibility is to develop multi-level metallization structures for VLSI applications.

CONFERENCE COMMITTEE

Robert Burnham	*Xerox*	*Eugene Meieran*	*Intel*
Douglas Collins	*Hewlett Packard*	*Dilip Rajdev*	*Technology Glass*
Steven Depp	*IBM*	*Lynn Roylance*	*Hewlett Packard*
Jude Koenig	*Perkin Elmer*	*Krishna Saraswat*	*Stanford*
Vince Marrello	*IBM*	*Dixie Sinkovits*	*Perkin Elmer*
Robert McDonald	*Intel*		

CONFERENCE CHAIRMAN

Kurt Petersen
IBM Research K43/281
5600 Cottle Road
San Jose, CA 95193
(408) 256-6899

REGISTRATION FORM - 1982 TENTH AIME ELECTRONIC MATERIALS CONFERENCE

Name: _____ Title: _____

Organization: _____

Mailing Address: _____

City, State: _____ ZIP: _____

	Before March 8, 1982	After March 8, 1982
( ) Registration Fee	$35	$45
( ) Full-Time Registered Student	$15	$20

Make check payable to: "No. Cal. Met. Section, AIME", and send with the above information to: Kurt Petersen, IBM Research Laboratory, K43/281, 5600 Cottle Road, San Jose, CA 95193, (408)-256-6899. Do not send purchase orders. Please make sure your name and affiliation are clearly identified.