Workshops

Workshop 1—Optical/Microwave Circuit Interactions

Date: Monday, June 12, 1989, 8:30 a.m. to 5:00 p.m.

Location: Hyatt Regency—Regency Rooms D, E, F

Sponsor: MTT-3, MTT-11, MTT-15, MTT-16 Technical Committees

Organizers: H. Yen, PCO, Inc.
A. Rosen, David Sarnoff Research Center

Speakers: A. Rosen, David Sarnoff Research Center
B. Hendrickson, U. S. Air Force RADC
A. Daryoush, Drexel University
C. Lee, University of Maryland

Abstract:

This one-day workshop will provide microwave engineers with an opportunity to learn about the fundamental principles as well as the status of current research in the uses of optical techniques for the generation, transmission, and control of microwave signals in systems and devices. The workshop is made up of two parts. In the morning, three tutorial/overview presentations will be given. In the afternoons, a panel discussion and open forum will be held to give participants ample opportunities to ask detailed questions.

Agenda:

8:30–8:40 a.m.	Introduction A. Rosen, David Sarnoff Research Center
8:40–9:30 a.m.	"Photonics and Future DoD Systems" B. Hendrickson, U. S. Air Force RADC
9:30–10:45 a.m.	"Fundamentals of Lightwave Technology" A. Daryoush, Drexel University
10:45–10:00 a.m.	Coffee Break
11:00 a.m.–12:00 noon	"Optoelectronics for Microwave and MM-Waves" C. Lee, University of Maryland
12:00 noon–1:30 p.m.	Lunch
1:30–4:30 p.m.	Panel Discussion
4:30–4:40 p.m.	Concluding Remarks

Workshops

Workshop 2—High Power Passive Equipment for Satellite Application

Date: Monday, June 12, 1989, 8:30 a.m. to 5:00 p.m.

Location: Hyatt Regency—Regency Room A

Sponsor: MTT-8 Microwave Network Theory Technical Committee

Organizers: Chandra Kudsia, Com Dev.
Jerry Fiedziuszko, Ford Aerospace & Communications Corp.

Abstract:

Over the past fifteen years, there have been many advances in the art and science of designing and qualifying high power components and sub-systems for use in communications, remote sensing and defense satellites. This forum is intended for all members of the microwave community. The workshop will consist of short invited papers and panel discussions on the following topics:

- System Overview & Historical Perspective
- Multifunction & Passive Inter-Modulation
  —Theory, Generation, Detection & Prevention
  —Materials, Surface Finishes, Test Methods
- Devices & Experience
  —UHF, L, C, X, Ku, & Ka-Band Equipment
- Panel Discussion

Five minute presentations from the participants will be strongly encouraged to explain their views and share their experience during the workshop.

Workshops

Workshop 3—High-Power Microwave Generation and its Application

Date: Monday, June 12, 1989, 8:30 a.m. to 5:00 p.m.

Location: Hyatt Regency—Regency Rooms B, C

Sponsor: MTT-5 Technical Committee on High Power Microwave

Organizers: Jitendra Goel, TRW/ESG
Don W. Reid, Los Alamos National Lab

Panelists: Victor Granatstein, University of Maryland
Joseph Johnson, Microwave Modules & Devices
Merald Schrader, EIMAC
Gerald Swift, Hughes Aircraft Company
Ian Stones, TRW
John Antoniades, University of Maryland
Fuat Agi, Microwave Power Devices

Abstract:

This workshop is intended as a forum for exchange of ideas among those interested in generation and applications of High-Power Microwaves. It will consist of introductory invited presentations on:

- The overview of the technology
- Very high-power tubes generating up to Giga-Watts of power
- Klystrodes generating 500kW pulsed power
- Cryogenically cooled miniature high power modules
- Low-loss technology to combine power from several hundred modules
- Experimental results on SPEAR II, describing high voltage operation in space
- High-power generation for RADAR and other applications

Five minute presentations from the participants will be strongly encouraged to explain their views and share their experience following each speaker.

Workshops

Workshop 4—Microwave Characteristics of High-T_c Superconductors (Evening Rump Session)

Date: Tuesday, June 13, 1989, 7:30 p.m. to 9:30 p.m.

Location: Hyatt Regency—Regency Room A

Sponsor: MTT-18 Microwave Superconductor Applications

Co-Chairmen: Martin Nissenoff, Naval Research Laboratory
Richard Ralston, MIT Lincoln Laboratory

Abstract:

The high-transition-temperature (T_c) superconductors are projected to have near-ideal microwave transmission properties. The high expectations for the new superconductors triggered a large number of microwave measurements over the past two years. Many of the measurements, however, provide little or no real information for the materials researchers and application engineers. This **"rump session"** will attempt to form a consensus on the phenomenological models, experimental methods, data analysis techniques and correlations to other material properties which should be employed as tools for meaningful work in this important area. All attendees are expected to not only be active in the field, but to be prepared to actively participate in the discussion. No formal presentations will be given. However, participants may present up to five transparencies on a topic of interest. Participants are especially encouraged to report new microwave results on high-Tc thin-film samples with thoroughly characterized compositional, structural and dc electrical properties.

Workshops

Workshop 5—High-Frequency Interconnections

Date: Friday, June 16, 1989, 8:30 a.m. to 5:00 p.m.

Location: Hyatt Regency—Regency Room D, E, F

Sponsor: MTT-15 Microwave Field Theory

Organizers: Michael Steer, North Carolina State University
Jim Mink, U. S. Army Research Office

Speakers: Nick Alexopolous
Jim Mink
Tatsuo Itoh
Tapan Sarkar
Michael Steer
Rolf Jansen

Abstract:

The evolution of MMIC devices requires highly accurate CAD techniques for their design. Yet, at this time, the understanding and efficient modeling of interconnections remains a major stumbling block. The emphasis of this workshop will be: upon the CAD modeling and understanding of interconnections between arbitrarily orientated MMIC (and other planar) lines; radiation from discontinuities and coupling to radiating elements; three-dimensional structures; and device/field interaction.

The morning session will be devoted to material, broad in scope, presented by selected speakers. The afternoon session will be open to presentations (limited to three viewgraphs) by workshop registrants. Those planning to participate should contact Michael Steer.

Workshops

Workshop 6—Microwave and Millimeter-Wave Synthesizers

Date: Friday, June 16, 1989, 8:30 a.m. to 5:00 p.m.

Location: Hyatt Regency—Regency Room B, C

Sponsor: MTT-6 Microwave and Millimeter-Wave Integrated Circuits Technical Committee

Organizers: Hiroyo Ogawa, NTT Network Systems Development Center
Derry Hornbuckle, Hewlett Packard

Speakers: Rolf Dalichow, Hewlett Packard
Robert Bayruns, Anadigics, Inc.
Eiji Nagata, NEC Microwave and Satellite Communications Division
David Williams, Marconi Electronic Devices
Dr. Takashi Ohira, NTT Communication Satellite Technology Laboratory
Ulrich Rohde, Compact Software Inc.
Shigeki Saito, NTT Radio Systems Technology Laboratory

Abstract:

Recent progress in microwave and millimeter-wave synthesizer design has resulted in lower phase noise, faster switching, and other performance enhancements; for the future, MMIC's promise further improvements in capability and cost. This workshop will review synthesizer design alternatives at the block diagram level, before focusing on component-level contributions, particularly potential applications of MMIC's to synthesizers. Communication system requirements for low power, narrow channel spacing, light weight, and extremely high reliability will be considered. Meeting measurement equipment needs for broad bandwidth and low phase noise will also be discussed, along with emerging techniques for very fast switching. The final two hours of the workshop will be organized as a panel discussion of MMIC applicability to synthesizers. The panel is intended to provide a forum for bringing up issues between component manufacturers, both in the audience and among the speakers, on the one hand, and communication/radar/instrument synthesizer manufacturers, on the other.

Workshops

Workshop 7—MMIC Package Standards and Progress in Packaging

Date: Friday, June 16, 1989, 8:30 a.m. to 5:00 p.m.

Location: Hyatt Regency—Regency Room A

Sponsor: MTT-12 Microwave and Millimeter-Wave Packaging

Organizers: Bert Berson, Berson & Associates
Fred Rosenbaum, Washington University
Doug Maki, M/A-COM, Inc.

Abstract:

The demand is increasing for affordable, high-performance packaging techniques for microwave and millimeter-wave components. To achieve breakthroughs in this area will require advances in modeling, materials, manufacture and test of packages. This workshop is intended to address these issues as they relate to discrete devices, monolithic and hybrid circuits, and systems. The morning will be devoted to reports and discussion on packaging standards by the participants and representatives of the packaging industry, the user community, and the government. Papers and open discussion on advances in packaging will be presented in the afternoon. Short presentations are welcomed from workshop participants. Please contact Bert Berson if you wish to be included in the program.

AM: PACKAGING STANDARDS
Electrical
Mechanical
Test

PM: PROGRESS IN PACKAGING

"System Implications of MMIC Packaging"
Richard Sparks, Consulting Engineer, Raytheon

"Low Cost MMIC Package Concepts"
Erwin Belohoubek, SRI David Sarnoff Research Center

"Advances in High Speed Packages"
Gary Holz, Holz Industries

"Package Cost Modeling"
Bert Berson, Berson and Associates

"Modeling for Package Design"
Fred Rosenbaum, Electronic Packaging Research Center, Washington University

"Lightwave Systems: The Microwave Limitation"
Jan Lipson, AT&T Bell Package Laboratories