

Panel Sessions

Efficient High Power GaAs Monolithic Amplifiers—It's a Cinch!

Date: Tuesday, May 8, 1990

Time: 7:30–9:30 p.m.

Location: Hyatt Regency Hotel—Reunion Ballroom

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

Organizers: F. Ali, Pacific Monolithics
D. Hornbuckle, Hewlett-Packard
J. Kuno, Hughes Aircraft

Panelists: B. Bayraktaroglu, Texas Instruments
A. Platzker, Raytheon
A. Podell, Pacific Monolithics
A. Teetzel, Hewlett-Packard
P. Smith, General Electric
Y. Shih, Hughes
I. Bahl, ITT

Abstract:

In the past years, there has been a growing interest in the design and development of high power, high efficiency monolithic GaAs amplifiers. This panel session will focus on design techniques and resulting performance for state-of-the-art monolithic power amplifiers; relative advantages of MESFETs, pseudomorphic HEMTs, and heterojunction bipolar; and related manufacturability/reliability issues.

Panel Sessions

Advances in Millimeter-Wave Subsystems

Date: Tuesday, May 8, 1990

Time: 7:30–9:30 p.m.

Location: Hyatt Regency Hotel—Reunion Ballroom

Sponsor: MTT-16 Microwave Systems

Organizer: J. B. Horton, USA—TRW
T. Oxley, England—Consultant
J. Kuno, USA—Hughes Aircraft Co.

Moderator: J. B. Horton

Panelists: H. J. Kuno, USA—Hughes Aircraft Company
S. Kitazume, Japan—Nippon Electric Company
H. Meinel, Germany—AEG-Telefunken
D. Williams, England—Marconi Electronic Devices
S. Weinreb, USA—Martin Marietta Laboratories
G. Cachier, France—Thomson-CSF

Abstract:

Rapid advances in millimeter-wave technology in recent years have led to a new generation of device applications and increasingly higher level of integration in millimeter-wave subsystems (20 to 250 GHz). Members of this panel have been selected to represent a cross section of technologies and applications of these subsystems. Each panel member will review the technical advances and current state-of-the-art in his own area of expertise. Emphasis will be on current construction techniques and how these techniques are used to produce practical multifunction subsystems. Techniques applicable to low volume and high volume production will be discussed. The subject of MMIC technology insertion for millimeter-wave subsystems will be addressed by each of the panel members. Panel members have been selected from Europe, Japan, and the U.S.A. A general discussion with audience participation will be held after each speaker's presentation. Short presentations (1–3 vugraphs) by members of the audience may be included in the session after presentations by the panelists (contact J.B. Horton (213) 813-1156).

Panel Sessions

MMIC Reliability

Date: Tuesday, May 8, 1990

Time: 7:30–9:30 p.m.

Location: Hyatt Regency Hotel—Reunion Ballroom

Sponsor: MTT-17 Manufacturing Technology

Organizer: J. Calviello, AIL Systems Inc.

Panelists:

- A. Christou, Naval Research Laboratory
- A. Geissberger, ITT GaAs Technology Center
- K. Yano, TRW/ESG
- G. Geschwind, Packaging Solutions
- D. Ragle, Texas Instruments
- D. J. LaCombe, General Electric
- W. J. Roesch, Triquint

Abstract:

MMIC technology is nearing maturity and its successful insertion into defense and to some extent commercial systems is highly dependent on its reliability. Excellent progress has been achieved to date in the development and fabrication of reliable chips, modules, and packaging, making this technology a contender for insertion into systems.

In this panel discussion important reliability issues and progress status will be presented. The panel will consist of representatives from the reliability groups of MIMIC Program Teams, the Naval Research Laboratory, and commercial foundries. A short presentation by each of the panelists will be followed by open discussion.

Possible topics to be discussed are:

- Latest reliability data
- Reliability issues that have been addressed
- Reliability issues that have been identified as potential problems
- Topics will span the two terminal devices, three terminal devices (FETs, HEMTs, HBTs, etc.). The discussion will address the technology at the chip level as well as the module level.
- Degree of integration and how it appears to be related to reliability
- Monolithic vs Quasi-Monolithic
- Packaging and its effect on reliability
- Status of Radiation tolerance studies

Panel Sessions

Microwave/Millimeter-Wave Low Noise Amplifiers

Date: Wednesday, May 9, 1990

Time: 11:00 a.m.–1:00 p.m.

Location: Dallas Convention Center East Ballroom

Sponsor: MTT-6 Microwave and Millimeter-Wave Integrated Circuits
MTT-7 Microwave and Millimeter-Wave Devices

Organizers: F. Sullivan, Raytheon
E. Niehenke, Westinghouse Electric Corp.
F. Ali, Pacific Monolithics

Panelists: S. Binari, Naval Research Laboratory
D. Heston, Texas Instruments
A. Podell, Pacific Monolithics
P. Smith, General Electric Co.

Abstract:

This proposed session will focus on the state-of-the-art of low noise MMIC amplifiers, with particular emphasis on simultaneously obtaining low noise figure and high third-order intercept point. This is a major area of importance in many radar systems. Device trade-offs and limitations will be reviewed, with a focus on MESFETs, HEMTs, pseudomorphic HEMTs (both GaAs and InP based), and HBTs; and where each can most appropriately be utilized, covering both microwave and millimeter-wave frequencies. Innovative circuit techniques to improve the intercept point, such as feedforward, will also be addressed. An overall emphasis will be on monolithic circuit realization and any associated fabrication problems.

Panel Sessions

Spread Spectrum Technology in Consumer Electronics

Date: Wednesday, May 9, 1990

Time: 11:00 a.m.-1:00 p.m.

Location: Dallas Convention Center East Ballroom

Sponsor: MTT-16 Microwave Systems

Organizer: S. Bharj, David Sarnoff Research Center

Panelists: A. Pate, PA Consulting Group

R. Simpson, OCI

S. Messenger, Tele-Systems

P. Cripps, Agilis Corp.

Abstract:

Spread spectrum communications technology has been utilized by the military for secure command and control communications. A recent ruling of the Federal Communications Commission (FCC) has made available three bands in the microwave spectrum for unlicensed commercial use. Signals generated in these bands must use spread spectrum technology and not exceed one watt power level. Growth potential is best typified by the observation that growth in the industrial section has doubled in the past year. Some of the experts from this industry will conduct technical presentations to highlight the latest technology applications.

The discussion will cover the basics, present and future applications, manufacturability and the role of GaAs and Silicon monolithic microwave technology. Real time demonstration of the products will be conducted to augment the importance of the technology.

Panel Sessions

U.S. Electronics/Microwave Industry in a Globalized World Market: Impact of Japan, European Economic Community and Perestroika

Date: Wednesday, May 9, 1990

Time: 11:00 a.m.–1:00 p.m.

Location: Dallas Convention Center East Ballroom

Sponsor: MTT-S ADCOM

Organizer: L. N. Medgyesi-Mitschang

Panelists: A. McAdams, Cornell University
C. G. Thornton, U.S. Army
P. Herer, National Science Foundation

Abstract:

The explosive rate of technological innovation world-wide, coupled with a changing geopolitical environment has led to dramatic shifts in world markets. This is particularly true in electronics, telecommunications and microwaves. The panelists represent a cross section of views; academia, the science community and the services.

The panel will discuss the impact of a globalized world market on industry and the engineering profession. Potential topics to be covered include:

- *Impact of Transnationalism
- *Basic Research Trends
- *Technology Transfer/Licensing
- *Strategic Technology Investing
- *Future Prospects

After the speakers' presentations, the panel will be open for questions from the audience.

Panel Sessions

European Session

Date: Thursday, May 10, 1990

Time: 11:45 a.m.–1:15 p.m.

Location: Dallas Convention Center
West Ballroom A, B

Organizers: Andre VanDer Vorst and
Richard Sparks