

# **PANEL SESSION**

## **COMMERCIAL APPLICATIONS OF MICROWAVES**

SPONSORED BY MTT-7: TECHNICAL COMMITTEE ON MICROWAVE AND MILLIMETER  
WAVE AND SOLID-STATE DEVICES

**WEDNESDAY, 1 JUNE 1983**  
**8-10 PM**  
**INDEPENDENCE ROOM**

ORGANIZERS: Bert Berson  
Consulting in Technology, Mountain View, CA  
  
Guy Gooch  
Rockwell International, Cedar Rapids, IO  
  
Robert J. Hamilton  
Avantek, Santa Clara, CA

### **ABSTRACT**

Much of the forward momentum in microwave technologies has come from the military, either through direct R&D support or through production contracts for new microwave equipment. In the past several years opportunities to apply this technology to commercial applications have begun to arise. This will require a fresh approach to design and production. The panel will consider the advances in design and production techniques which are necessary in order for the commercial/consumer markets to develop.

### **PANEL MEMBERS AND SUBJECTS:**

Moderator: Bert Berson, Consulting in Technology, Mountain View, CA

- Microwave Circuits for Commercial High Volume Markets -  
Jim Bowen, Microwave Associates, Burlington, MA
- GPS - Brad Parkinson, Inter Metrics, Cambridge, MA
- Automotive Radar - Dr. Erwin Belohoubek, RCA, Princeton, NJ
- Low Cost Digital Satellite Terminals - Malcolm Lee, Equatorial Communications, Mountain View, CA
- Commercial Microwave Components - Robert J. Hamilton, Avantek, Santa Clara, CA
- Terrestrial Microwave Communications - Ferdo Ivanek, Harris Corp.  
- Farinon Division, San Carlos, CA
- DBS/TVRO - N. Kitagawa, NEC Tokyo Japan
- Medical Applications of Microwaves - Robert Paglione, RCA Research Labs, David Sarnoff Research Center, Princeton, N.J.
- Microwave Heating/Ovens - James Bennett, Amana Corp., Amana, Iowa

# **PANEL SESSION**

## **ARE ACTIVE APERTURE SYSTEMS HERE AT LAST?**

SPONSORED BY MTT-6 TECHNICAL COMMITTEE ON MICROWAVE AND MILLIMETER  
WAVE INTEGRATED CIRCUITS

**WEDNESDAY, 1 JUNE 1983**  
**8-10 PM**  
**CONSTITUTION ROOM**

ORGANIZERS: Edward C. Niehenke, Westinghouse Electric Corp.,  
Baltimore, MD

Tsuneo Shishido, Hughes Aircraft Co., Los Angeles, CA

### **ABSTRACT**

Active aperture systems offer significant improvements over conventional systems. Low system noise figure, high reliability, low probability of intercept, and high data rate with multimode capability are major advantages of the active aperture. Key considerations for the microwave module, a major ingredient of this system, are low cost, high efficiency, low junction semiconductor temperature, good phase and amplitude tracking and low parts count with minimal circuit interconnection (high reliability). Whether or not these systems will find use in the next generation radar, communication, or ECM system depends upon reducing the initial acquisition cost of the microwave module.

Key technologies leading to lower cost will be addressed by the panel. These include monolithic GaAs, improved semiconductor yields, automatic testing, on-wafer trimming, advanced solid state devices, GaAs heat sinking, robotics, module architecture and manufacturing.

The latest module development work will be presented with emphasis on present and projected costs.

### **PANEL MEMBERS AND SUBJECTS:**

Moderator: Edward C. Niehenke, Westinghouse Electric Corp., Baltimore, MD

- A VHSIC - Like Focus Could Make It Happen - H. Warren Cooper, Westinghouse Electric Corp., Baltimore, MD
- MMIC's - The Worlds Heaviest Burden - Unfulfilled Potential - Robert Bierig, Raytheon Co., Lexington, MA
- Current Status, Remaining Problems, and Future Developments - Eugene Gregory, Hughes Aircraft Co., El Segundo, CA
- High Module Efficiency Key to Airborne Active Aperture Viability - David McQuiddy, Texas Instruments, Inc., Dallas, TX
- Solid State Makes the Array Affordable - But Not Yet - Harold Weber, Wright Patterson AFB, Dayton, OH
- Active Aperture Arrays: Promises and Problems - Barry Spielman, Naval Research Lab, Washington, D.C.
- Solid State Power Source Key to Active Aperture - Roger Sudbury, MIT Lincoln Lab, Lexington, MA