

# Session Y

## FET and HEMT Circuits

### **Chairman:**

**Edward C. Niehenke**

Westinghouse Electric Corporation  
Baltimore, MD

This session includes papers describing significant circuit capabilities achieved with FET and HEMT technologies. In P based HEMT designs were developed at 12, 35, and 55 GHz using a 0.15 micron gate length with associated gains of 15, 14, and 8 dB respectively. The reported 12 GHz power amplifier achieved 2.2 watts with 39% power added efficiency. A novel MMIC FET circuit operates at 30V with a novel bias circuit. The Ka band VCO reports interesting results using both MESFETs and HEMTs. The 38 GHz DRO achieved 0dBm power with + 3.5 ppm/°C stability. The 16 GHz DRO used a new high Q (30,000) resonator to achieve low phase noise of—102 dBm/Hz at 10 KHz offset frequency. A novel switch configuration using multigate FETs handled 8 watts of power. Finally, a double balanced image rejection mixer is described using a coplanar circuit, and MESFET ring grounds requiring only + 1 dBm power.

Y

**3:30 p.m.–5:00 p.m., Wednesday, June 12, 1991**  
**Ballroom A**