

# SESSION VI

## Processing II

*Chair: Bruce Bernhardt, Motorola*

Continual process development and refinement of existing processes will help drive gallium arsenide devices into more products. Innovative processing allows one to develop new structures that would not be possible with conventional GaAs MESFET processing techniques. The first paper in this session deals with micromachining of GaAs devices to exploit the resulting mechanical structures for improved RF performance, including linearity improvements and reduced current consumption. The second paper introduces refinements to the SLIMFET at Wright Laboratory through reduced process complexity. Originally designed to be as simple a process as possible, the SLIMFET is further refined by using an alternative etch stop that is incorporated into the MBE structure. In the third paper, ITT will discuss their development work on a near enhancement-mode ion implanted MESFET optimized for 3V applications at 920 MHz. The authors will describe optimization of the RTA module, gate metal, anneal cap composition and Ldd spacings based on wafer and final test yields. The fourth paper describes work performed at Rockwell to understand the impact of ledge leakage current for AlGaAs/GaAs HBT performance. Their model incorporates the effect of base emitter potential on the level of leakage current which consequently affects the gain of the device.