

The III-V molecular beam epitaxy (MBE) laboratory is located in the Materials Science and Electrical Engineering building. It contains a Varian GEN II solid source MBE system. The MBE system is used to grow epilayers of III-V compound semiconductors such as GaAs, InAs, and AlAs. In addition, there is an Aixtron AIX 200/4 HT chemical vapor deposition system for the growth of silicon carbide and III-V nitride epilayers. These films are used for a variety of programs including research on multiple-quantum well structures for non-linear optical devices, solar cells, visible and IR LEDs, heterojunction bipolar transistors, dynamic random access memories, quantum devices, optical devices including high speed photodiodes and photodetectors, metal-semiconductor composite structures for non-linear optical devices and ultra-fast detectors, and high-power switching and microwave devices. This laboratory also contains a class 100 clean room with equipment for processing these epilayers into finished device structures. Included in this processing equipment are a Karl Suss MJB3 mask aligner, an AG Associates mini-pulse rapid thermal processor, a Plasma Technology reactive ion etcher, a Temescal Ebeam metal deposition system, and a Bausch and Lomb Micro-Zoom Inspection Station.

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