

A MOCVD INFRASTRUCTURE DESIGNED TO SUPPORT THE RAPID DEVELOPMENT OF III-V SEMICONDUCTOR DEVICES, James Singletery Jr., James Lamb, and Carlos Matus, Jet Propulsion Laboratory, Pasadena, CA. ,

Over the past several years the nature of material research within the **Microdevices** Laboratory (MDL) at JPL has shifted from exploratory research to development of an infrastructure to provide materials and devices in support of NASA experiments and DOD demonstration projects. To ensure the rapid development of III-V semiconductor devices, the construction of robust and reliable MOCVD infrastructure has proven to be essential.

The present infrastructure consists of two MOCVD reactors, a small one-inch General Air Model 10-4 MOCVD reactor which has undergone extensive renovation, and a large four-inch AIXTRON 200/4. Since safety was our first priority, the on-board MOCVD safety systems were augmented with additional monitoring systems. These systems include a wet chemical exhaust treatment system, arsine/phosphine gas monitoring points, combustible gas detection points, and incipient fire detection points. Alarm relays are not only linked to the MOCVD reactors but are **also fed to two other locations, a control room within MDL's H-6 area, and a centralized security monitoring system located within JPL's fire station.** The increased emphasis on safety hasn't detracted from our ability to grow high quality InGaAsP/InP and AlGaAs/GaAs materials.

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