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Optics and Acoustics » Lasers and Masers

Laser Assisted CVD Growth of A1N and GaN

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Abstract: This is the second annual report of a project for investigating the laser induced CVD growth of AIN and Gallium Nitrogen. In the second year significant progress has been made in the growth of AIN. AIN films have been produced by laser ablation. A new LI CVD source for A1 atoms has been characterized and verified by growth of A1 films. Additionally, some progress has been made in the understanding and characterization of alkyl aluminum-amino adducts which may be used for the growth of AIN. The goal of this project is to design, test and verify advanced laser induced chemical vapor deposition processes (LI-CVD), specifically for the growth of AIN. In the past year we have made progress in three areas: (a) Rapid growth of AIN thin films by laser ablation of AIN powders. (b) Demonstration of an advanced LI-CVD method for deposition of Al from **trimethylaluminum** (TMA1). This method was designed to be used as the aluminum atom source in AIN growth, but also has utility for laser deposition of aluminum interconnects, an area of current interest. (c) Synthesis and characterization of a number of stable alkyl aluminum-nitrogen containing adducts for future use in film growth. We have grown Alkylaluminum nitrogen thin films by laser ablation of powdered Alkylaluminum nitrogen compressed into a pellet.

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