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Studies on the Growth and Characterization of hexagonal boron nitride thin films M.L. NAKARMI, B. CAI, Department of Physics, Brooklyn College and Graduate Center of the CUNY, Brooklyn, NY 11210, A. DELMONT, A. SPROW, R.C. RAI, Department of Physics, SUNY College at Buffalo, Buffalo, NY 14222 — Hexagonal Boron Nitride (h-BN) with a direct band gap of ∼5.9 eV has emerged as a promising deep ultraviolet photonic material. We will present the studies on the growth and characterization of h-BN thin films grown on different substrates such as sapphire, YSZ, quartz, and metal substrates. The samples were grown by electron beam evaporation technique. Atomic force microscopy, x-ray diffraction, optical spectroscopy, and Hall effect measurement were employed to characterize surface morphology, structural, optical and electronic, and electrical properties, respectively. We will also present the results of Mg-doped h-BN thin films in an effort to make p-type BN. Implementation of our findings on the development of deep ultraviolet photonic devices will also be discussed.

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