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Molecular Beam Epitaxy of YInO₃ on GaN CAMERON KEENAN, FELIO PEREZ, DAVID LEDERMAN, West Virginia University — Novel non-volatile ferroelectric materials are of significant interest in the field of materials science as devices and integrated circuits approach smaller dimensions and broader use. Materials and device structures incorporating GaN are also of particular interest as devices transition away from relying solely on silicon. Oxide materials, such as YMnO₃ on GaN, have been researched in an effort to fill this niche, but problems associated with lattice mismatch and interfacial degradation have limited sample quality and utility. YInO₃ is another material that may provide an avenue for oxide device integration with GaN. YInO₃ thin films were prepared on metal organic chemical vapor deposition GaN templates via molecular beam epitaxy. Atomic force microscopy was used to determine surface roughness and morphology. X-ray reflectivity and x-ray diffraction were implemented in order to determine the thickness, crystallinity, and crystal structure of the films. Results for structural analysis, as well as, ferroelectric measurements will be presented and discussed.

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