Epitaxial growth of (111) $BaTiO_3$ thin films on AlGaN/GaN heterostructures – Supplemental Figures

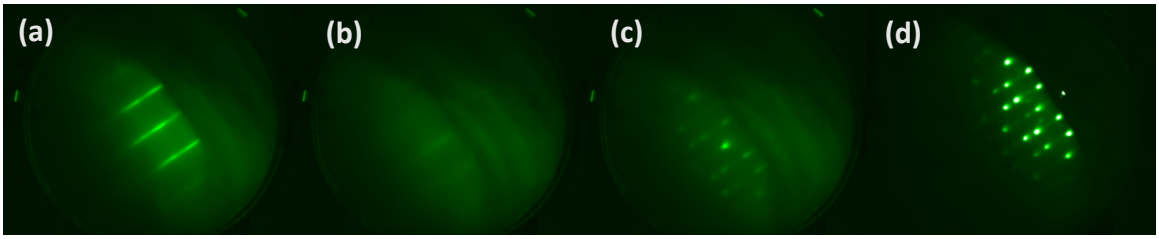

Fig. S1: Reflection high-energy electron diffraction patterns of BTO/AlGaN growth. (a) Starting surface of AlGaN along the (11-20) azimuth. (b) 1 nm TiO_2 deposited at 500 °C. (c) 2 nm $SrTiO_3$ deposited at 650 °C. (d) 40 nm of $BaTiO_3$ deposited at 750 °C.

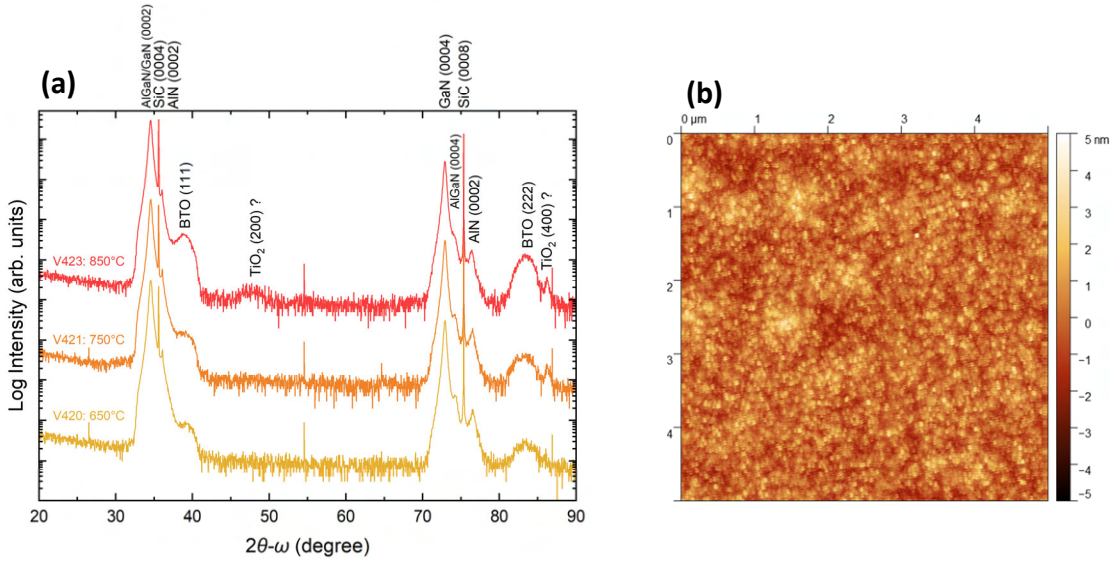

Fig. S2: (a) X-ray diffraction spectra of BTO/AlGaN hetrostructures. Medium resolution line scans are shown for films grown at different temperatures between 650-850 °C. (b) 5 x 5 μm^2 atomic force microscopy image of the sample grown at 750 °C, indicating a smooth surface with a *rms* roughness value of 0.86 nm.

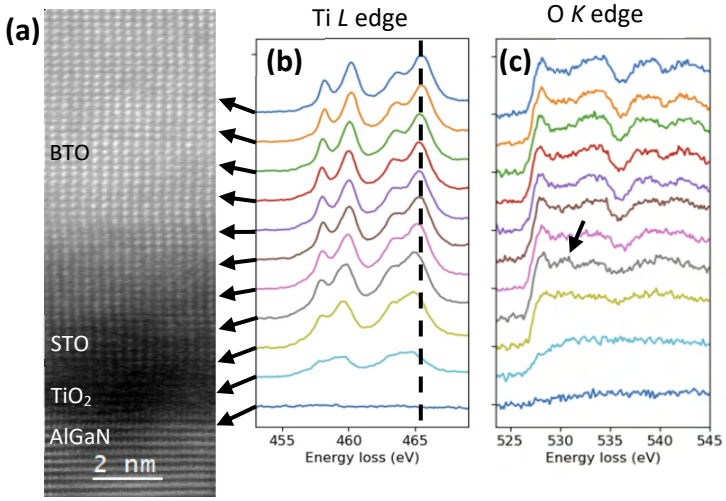

Fig. S3: Scanning transmission electron microscopy imaging and electron energy-loss spectroscopy. (a) High magnification high-angle annular dark field image of the oxide-nitride interface. (b) Ti *L* and (c) O *K* edges scanned across various points in (a). The black arrow in (c) indicates a feature in the STO layers associated with oxygen vacancies.