Supporting

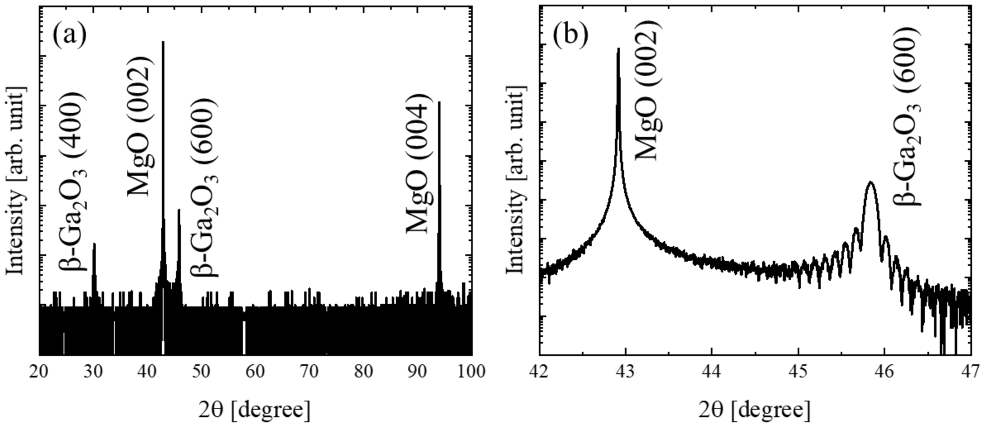

Figure 1. (a) XRD pattern of β-Ga_2O_3 film grown on MgO (001) substrate and (b) expansion of the region corresponding to diffraction from β-Ga_2O_3 (600). The presence of γ-Ga_2O_3 (400) would generate a diffraction peak at 2θ=43.93°, which was not observed.

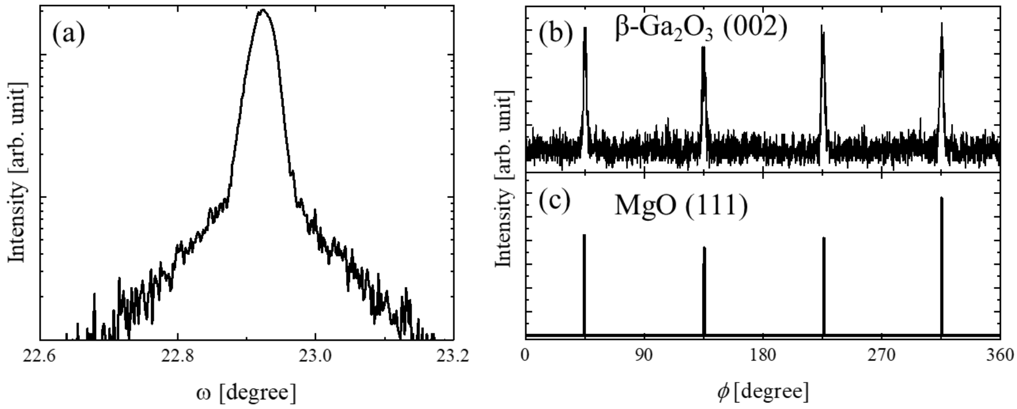

Figure 2. (a) The ω-rocking curve of the β-Ga_2O_3 (600) reflection. The full width at half maximum was 145 arcsec. (b) ϕ-scan profiles of β-Ga_2O_3 (002) film and (c) MgO(111) substrate.

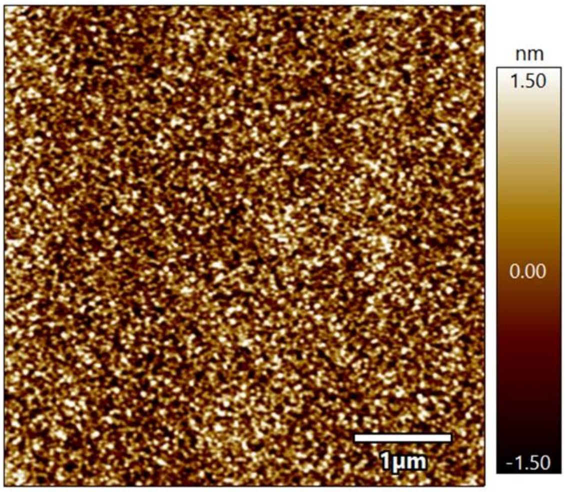

Figure 3. AFM image of β-Ga_2O_3 film grown on MgO(001) substrate showing 0.74 nm RMS roughness.