



Figure 1. (a) Out-of-plane XRD of C-Er₂O₃ films with different film thickness. The C-Er₂O₃(222) peak becomes sharp and shifts to lower 2θ values slightly when the film is thicker. (b) Out-of-plane (red square marks with left vertical axis) and in-plane (blue triangle marks with right vertical axis) d-spacing converted from C-Er₂O₃(222) and (-440) reflections, respectively, correlating with the film cycle-numbers. (c) The STEM image taken along GaN<-11-20> with corresponding C-Er₂O₃ and GaN projections.