

Fig. 1 a) Monoclinic unit cell of $\beta\text{-Ga}_2\text{O}_3$ with the (100) and (-201) planes highlighted in blue and red, respectively. b) The planar mismatch between $\beta\text{-Ga}_2\text{O}_3$ and MgO. The (100) plane of both crystals is indicated by a black line.

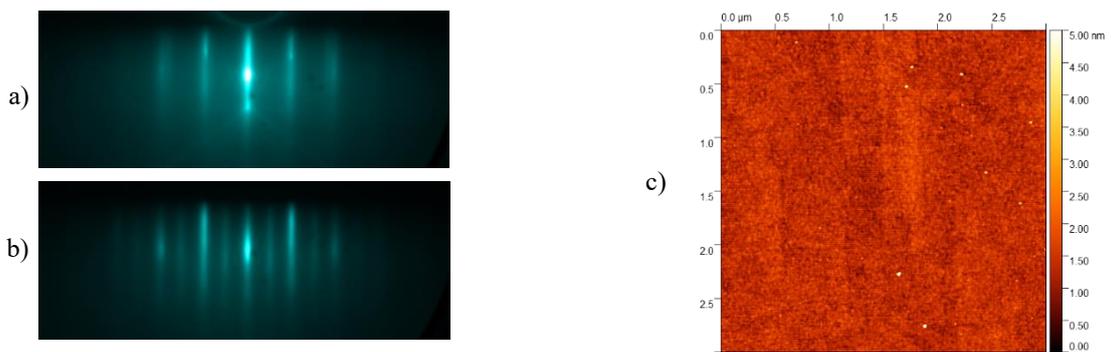


Fig. 2 In situ RHEED images of $\beta\text{-Ga}_2\text{O}_3$ deposited on an MgO(100) substrate a) before growth and b) after growth. c) AFM of the $\beta\text{-Ga}_2\text{O}_3$ film with RMS roughness of 0.25 nm.

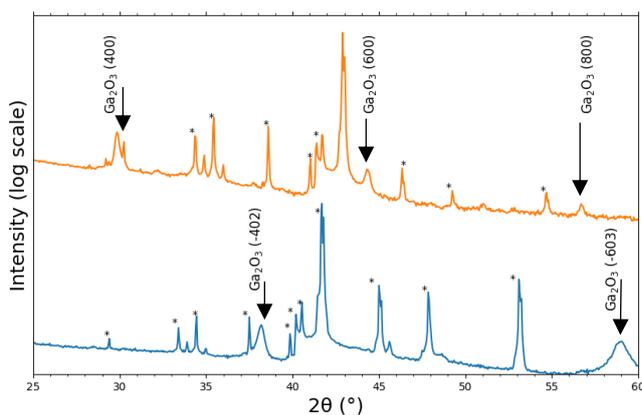


Fig. 3 XRD patterns of $\beta\text{-Ga}_2\text{O}_3$ grown on c-plane Al_2O_3 (blue) and MgO (100) (orange). Asterisks indicate substrate peaks.

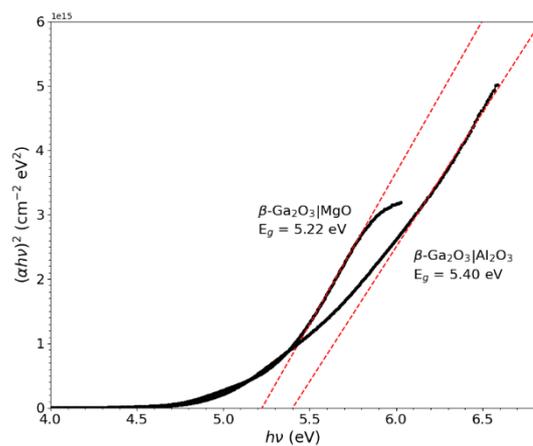


Fig. 4 Bandgap determination of $\beta\text{-Ga}_2\text{O}_3$ grown on c-plane Al_2O_3 and MgO (100) using the Tauc method.