

Fig. S11 The deconvolution for the PL spectra of (a) S2, (b) S3, (c) S4, and (d) S5.

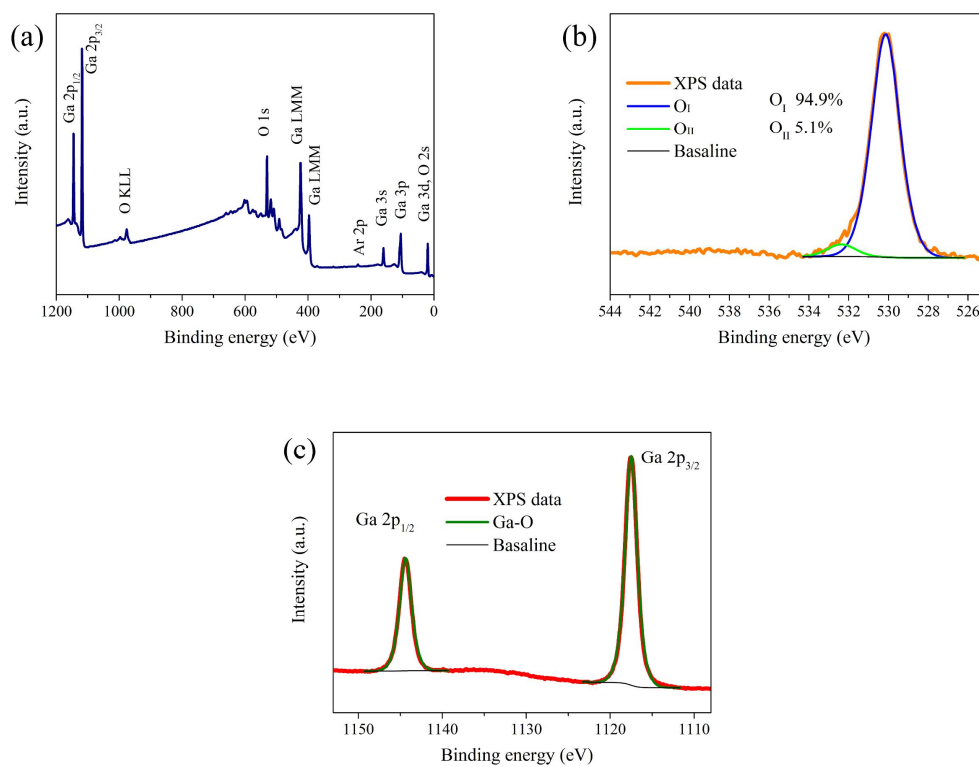


Fig. S12 XPS spectra of the β -Ga₂O₃ homoepitaxial film: (a) full scan; (b) O 1s; (c) Ga 2p. * To reduce potential interference caused by surface contaminants, an Ar⁺ etching treatment lasting 30 seconds was conducted prior to the XPS analysis.