

(100)-oriented gallium oxide substrate for ultra-violet emission by metalorganic vapor phase epitaxy

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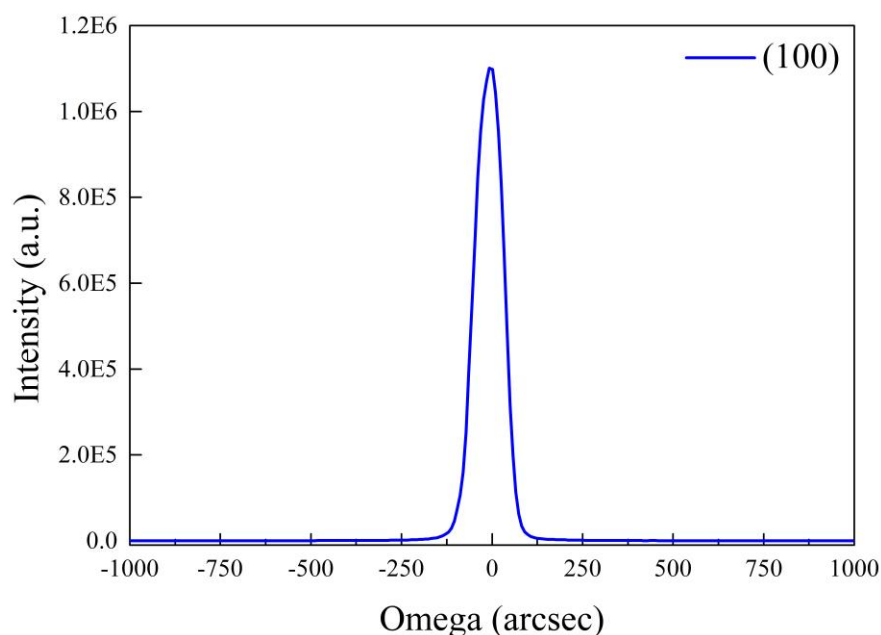


Figure S1. XRD rocking curve of (100) β -Ga₂O₃ substrate around (100) reflection peak with its FWHM around 94 arcsec.

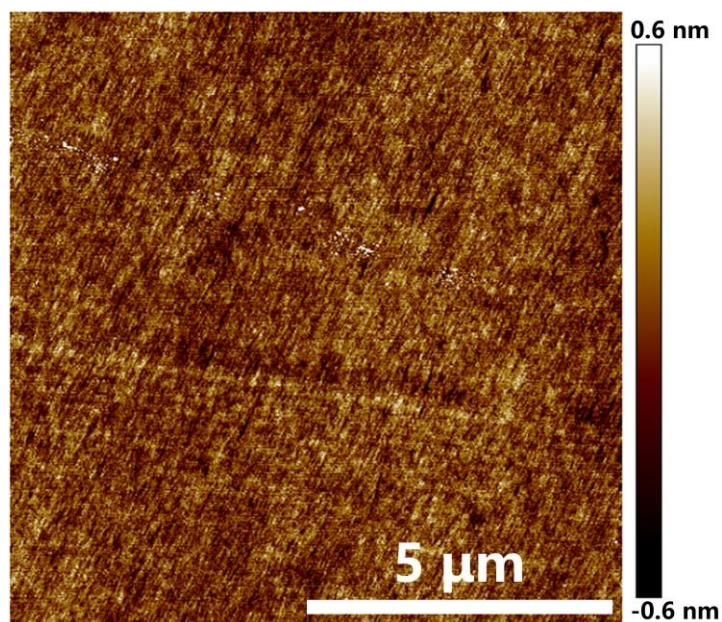


Figure S2. 10×10 μ m² AFM images of (100) β -Ga₂O₃ substrate, showing a relatively smooth surface with RMS around 0.176 nm.

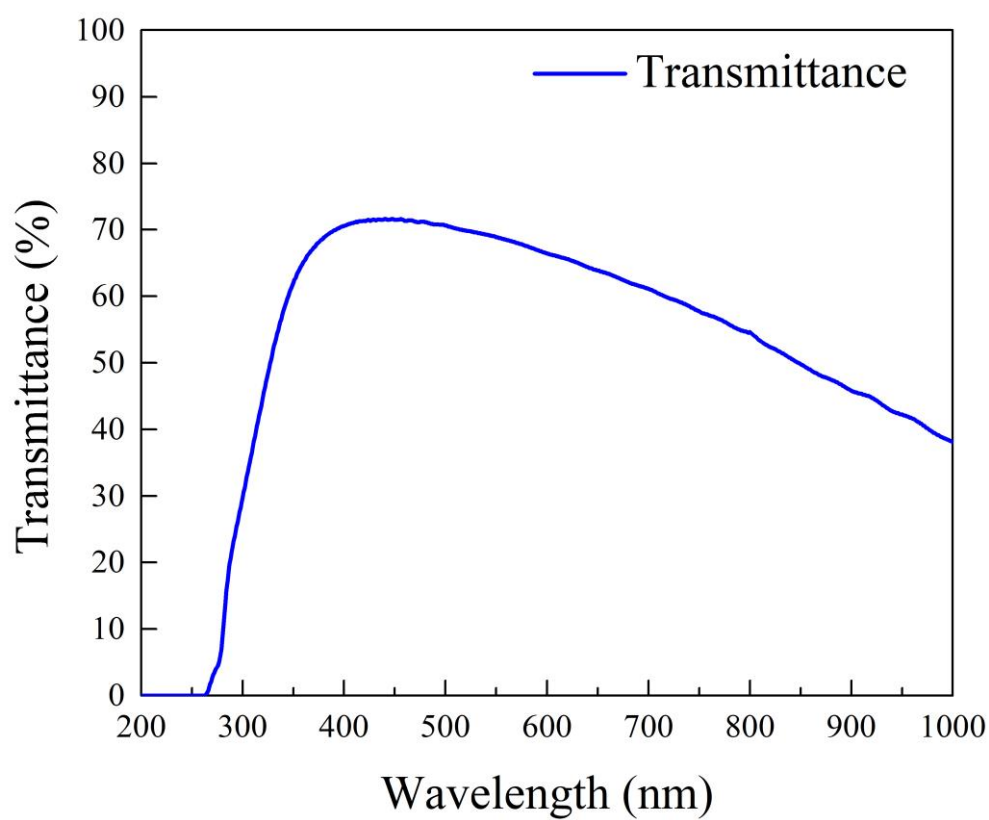


Figure S3. Transmittance spectrum of (100) β -Ga₂O₃ substrate, showing a relatively high transparency with maximum transmittance exceeding 71%.

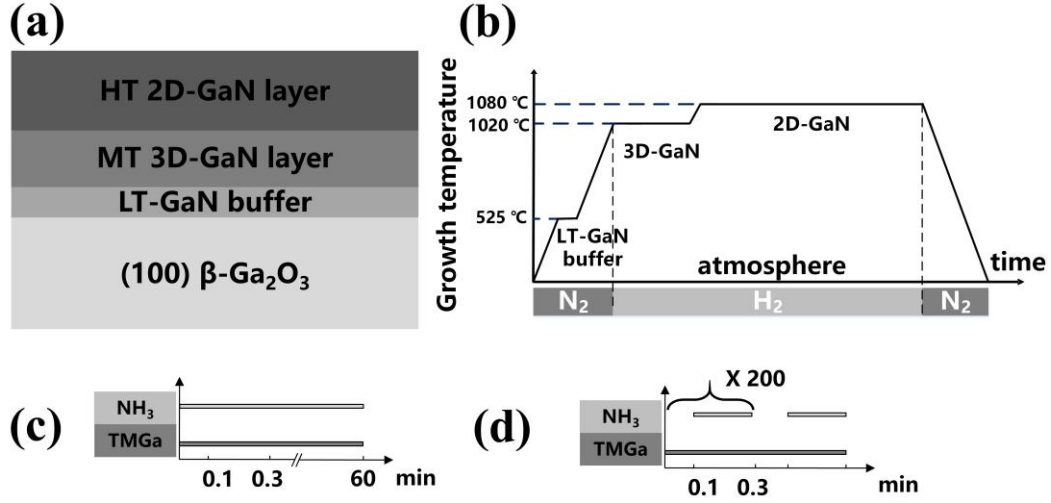


Figure S4. (a) epitaxial growth structure of GaN on (100) β -Ga₂O₃ using three-step method, (b) procedure for epitaxially growing GaN on (100) β -Ga₂O₃, supply procedure of NH₃ and TMG sources for (c) continuous-flow mode and (d) pulsed-flow mode.

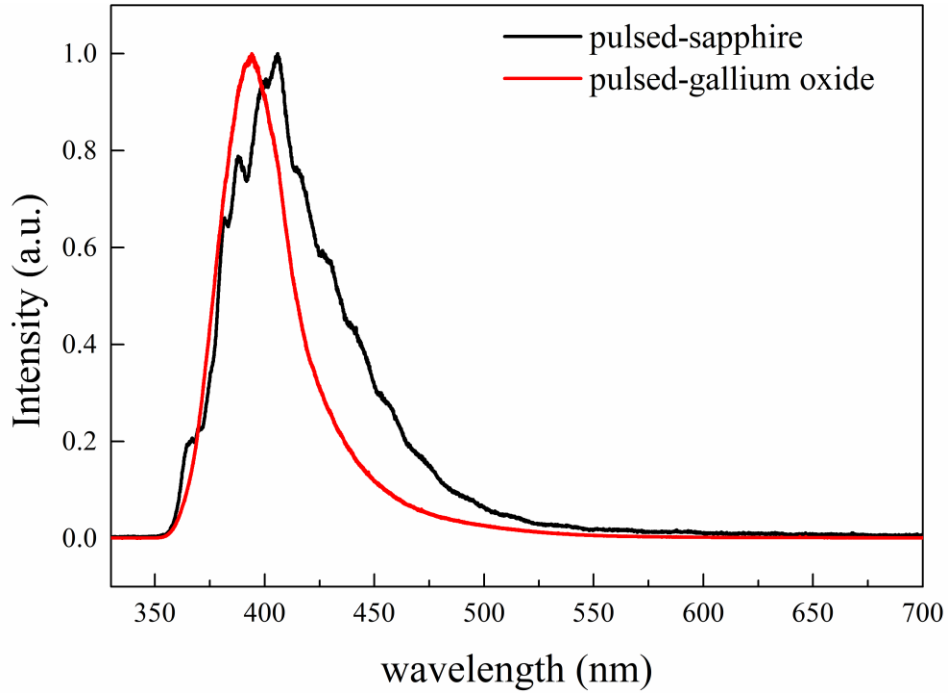


Figure S5. Normalized PL spectrum of the MQWs grown on pulsed-GaN on sapphire and (100) Ga₂O₃ substrate under same growth conditions.