

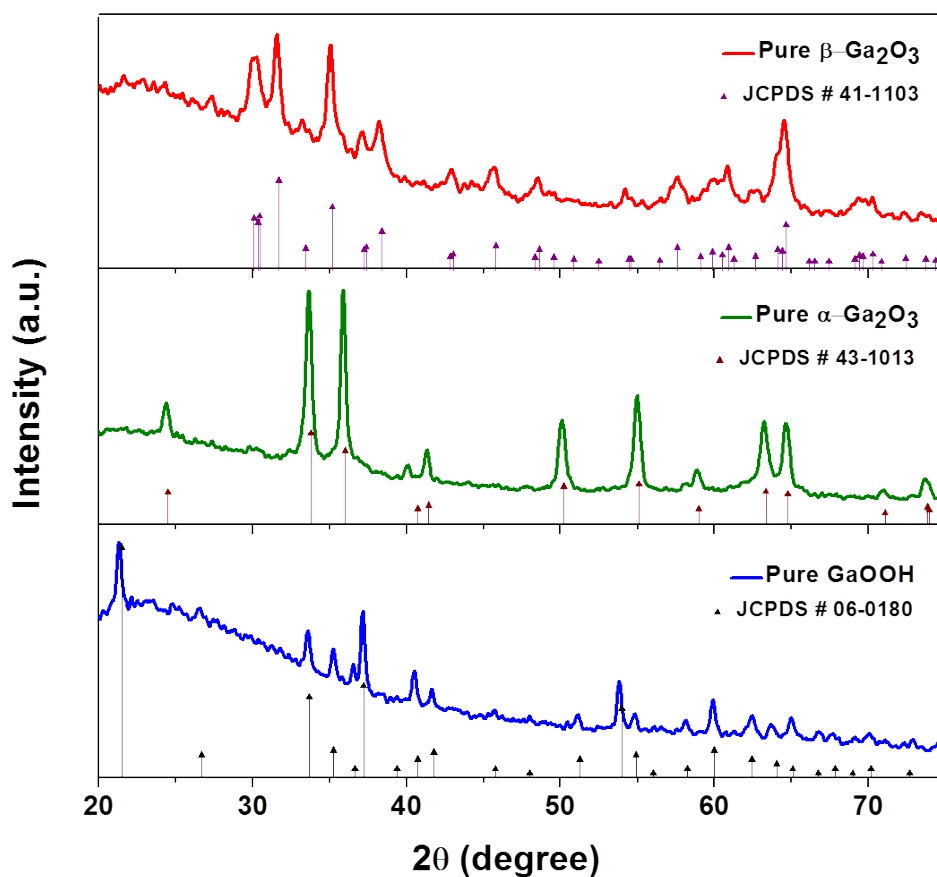
## Electronic supplementary Information

### Exploiting oriented attachment in stabilizing La<sup>3+</sup> doped gallium oxide nano-spindles

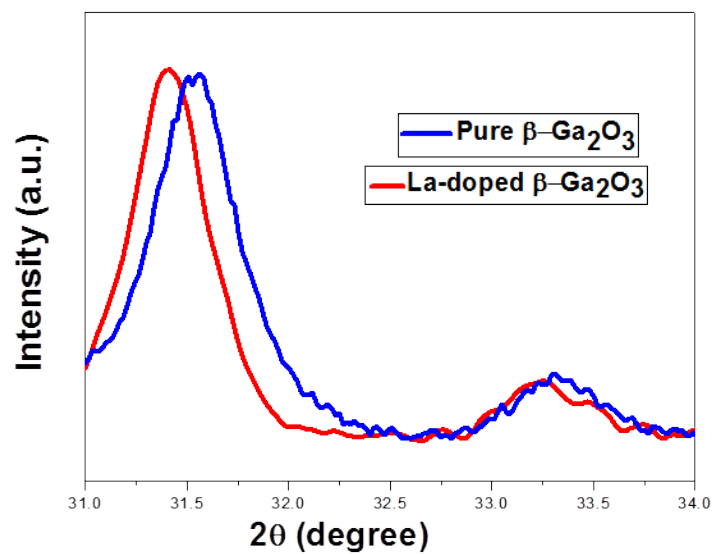
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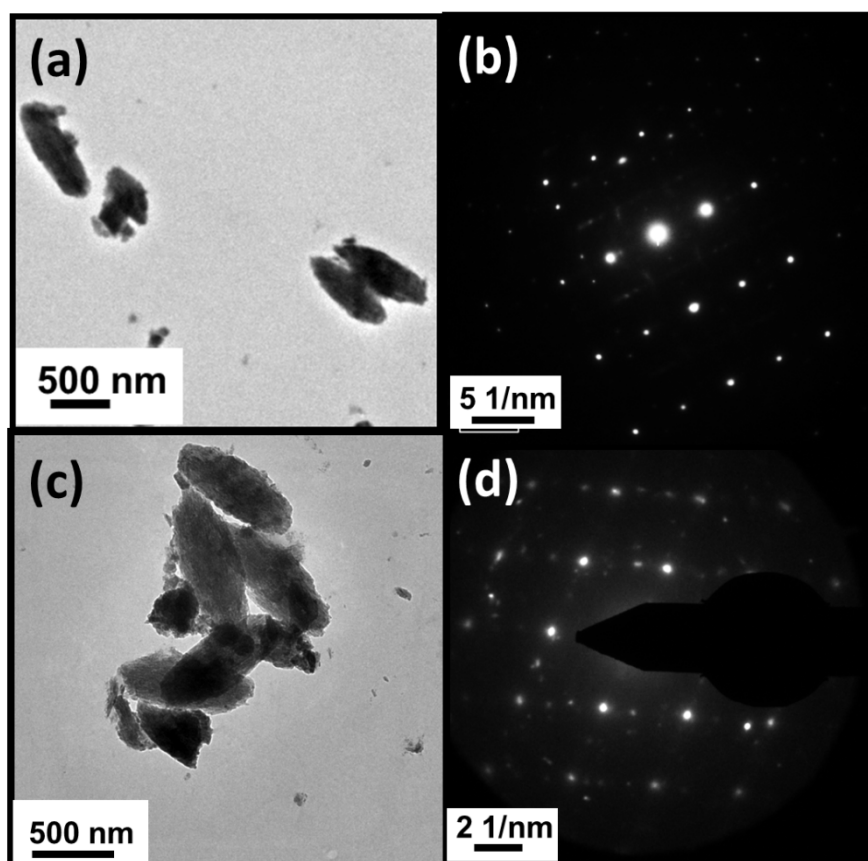
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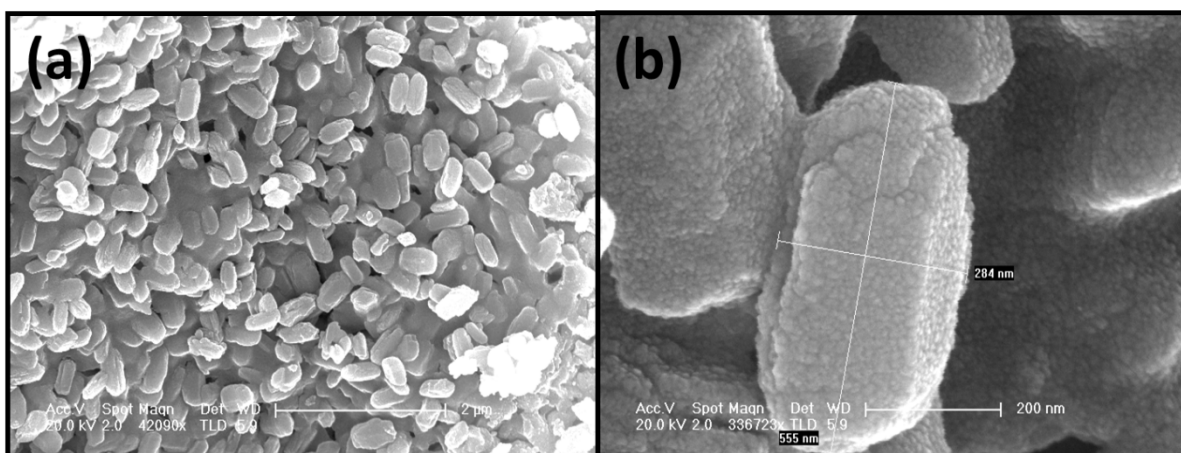
**Figure S1:** Powder X-ray diffraction patterns of pure gallium oxides nano-spindles.



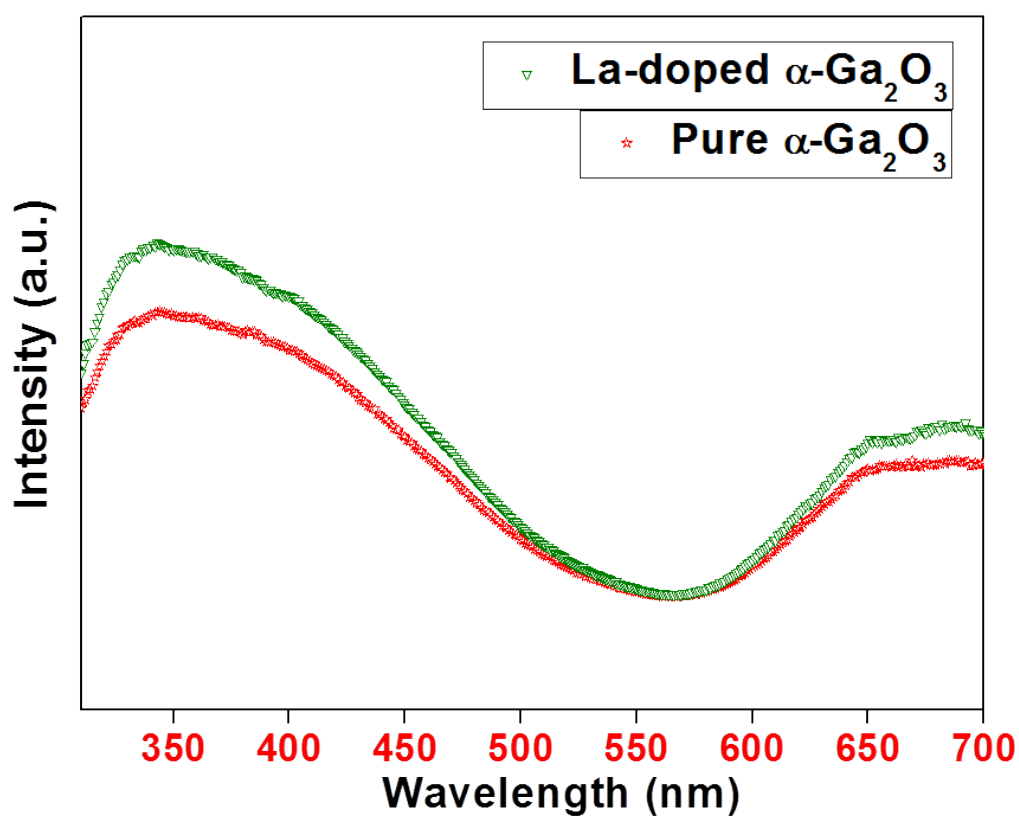
**Figure S2:** Comparative analysis of powder X-ray diffraction patterns of pure and La-doped  $\beta$ -Ga<sub>2</sub>O<sub>3</sub> nano-spindles.



**Figure S3:** Pure (a & b) and La-doped (c & d)  $\beta$ -Ga<sub>2</sub>O<sub>3</sub> nano-spindles: (a & c) Bright-field TEM images and (b & d) SAED patterns.



**Figure S4:** FESEM micrographs (a) low magnification (b) high magnification of pure  $\alpha$ -GaOOH nano-spindles synthesized using 0.5 M sodium azide.



**Figure S5:** Room temperature photoluminescence spectra of undoped and La-doped  $\alpha$ -Ga<sub>2</sub>O<sub>3</sub> nano-spindles. In the main manuscript, the broad peak ranging from 300 nm to 520 nm of the photoluminescence spectrum has been deconvoluted using three peaks corresponding to UV

(~340 nm), blue (~420 nm) and green (~500 nm). The photoluminescence spectrum of the doped samples is broad and asymmetric and Gaussian curve fitting was applied in the OriginPro8 software to deconvolute the PL curves.