

Supporting Information

Template approach to crystalline GaN nanosheets

Baodan Liu,^{a,*,#} Wenjin Yang,^{a,b,#} Jing Li,^{a,#} Xinglai Zhang,^a Pingjuan Niu,^c Xin Jiang^{a,*}

^aShenyang National Laboratory for Materials Science (SYNL), Institute of Metal Research (IMR), Chinese Academy of Sciences (CAS), No. 72 Wenhua Road, Shenyang 110016 China

^bSchool of Materials Science and Engineering, University of Science and Technology of China, No. 72 Wenhua Road, Shenyang 110016 China

^cSchool of Electrical Engineering and Automation, Tianjin polytechnical university No. 399, Binshuixi Road, Tianjin, 300387, China

contact: baodanliu@hotmail.com

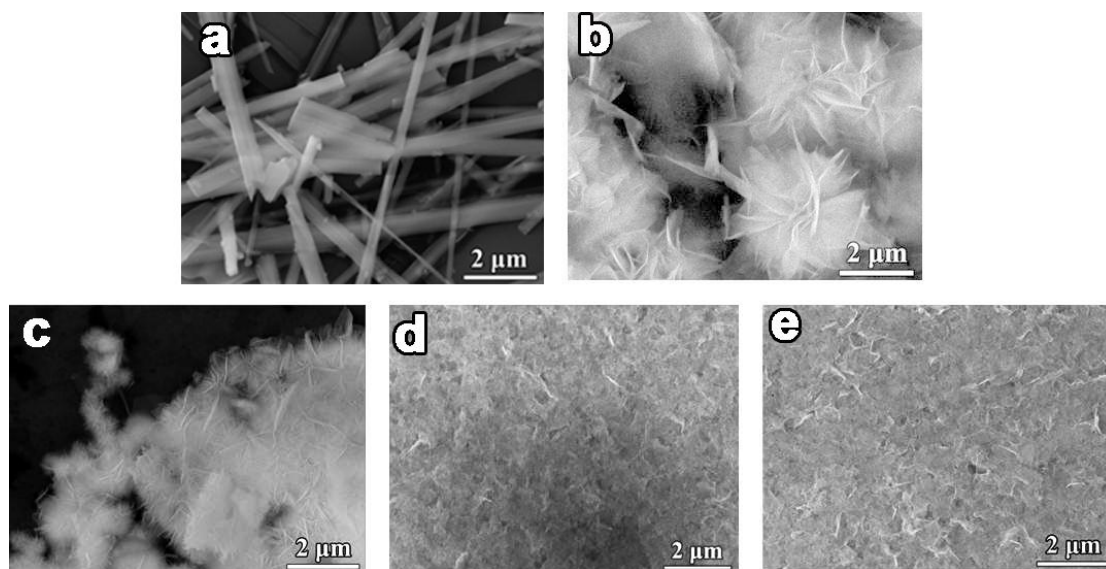


Figure S1 SEM images of GaOOH and γ -Ga₂O₃ nanostructures synthesized at different H₂O and ethanediamine ratios: (a) 3:1; (b) 2:1; (c) 1:1; (d) 1:2 and (e) 1:3, respectively;

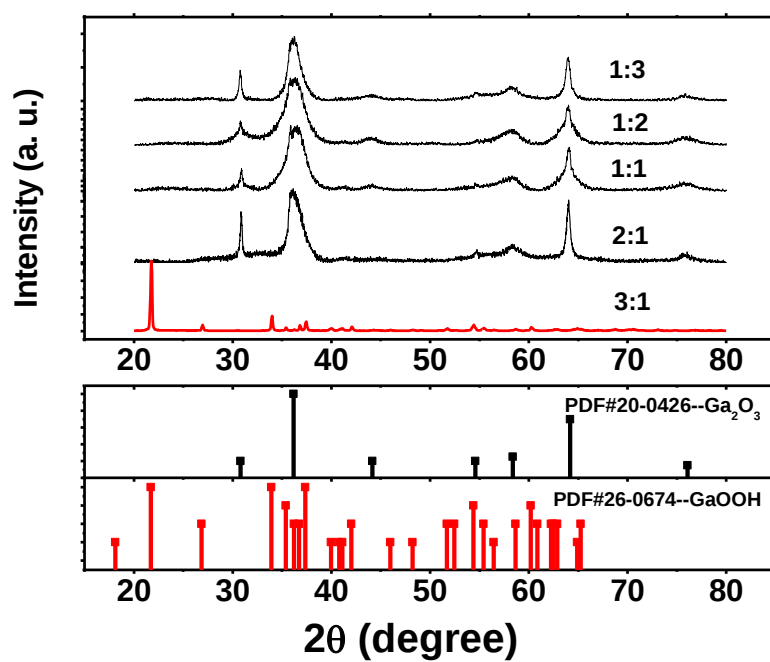


Figure S2 XRD patterns of GaOOH and γ -Ga₂O₃ nanostructures synthesized at different H₂O and ethanediamine ratios;

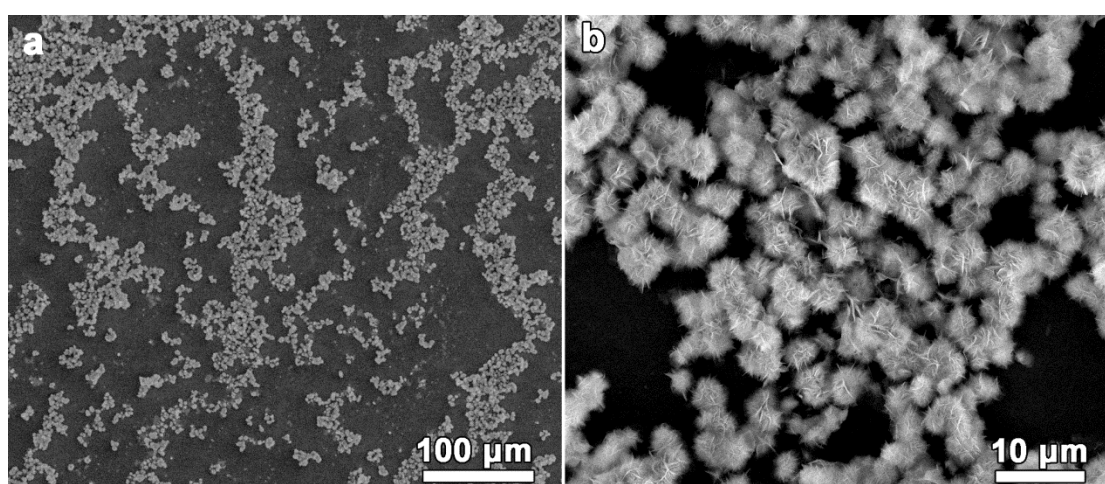


Figure S3 (a, b) SEM images of γ -Ga₂O₃ nanosheets under different magnifications;

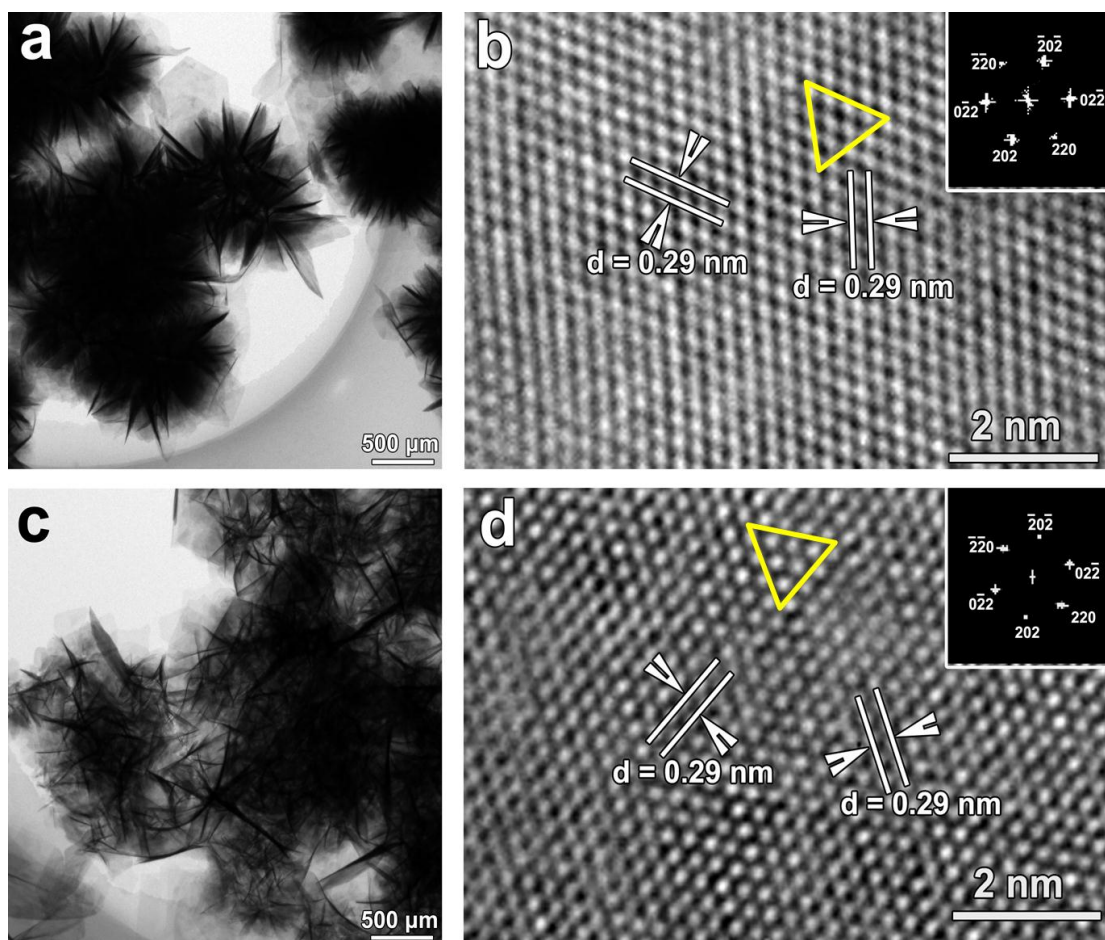


Figure S4 Low-magnification TEM and its corresponding HRTEM images of γ -Ga₂O₃ nanosheets with different H₂O and ethanediamine ratios: (a, b) 2:1 and (c, d) 1:1;

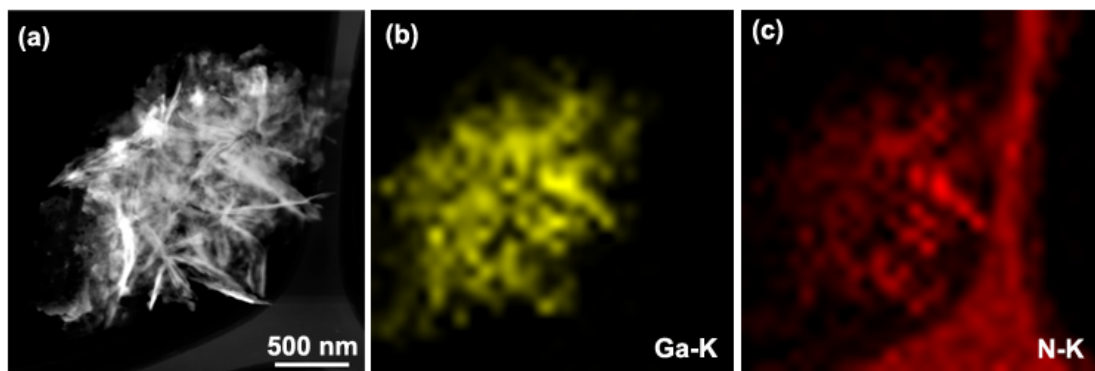


Figure S5 (a) Low-magnification STEM image of GaN nanosheets and their elemental mapping of (b) Ga and (c) N elements;

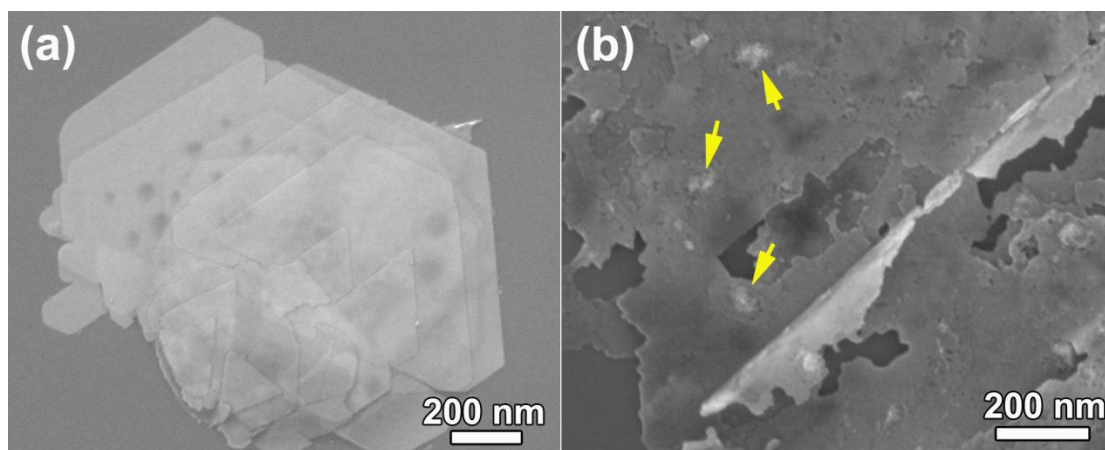


Figure S6 Typical SEM images of (a) γ -Ga₂O₃ nanosheets and (b) GaN nanosheets nitrified at 850°C for 30 min;

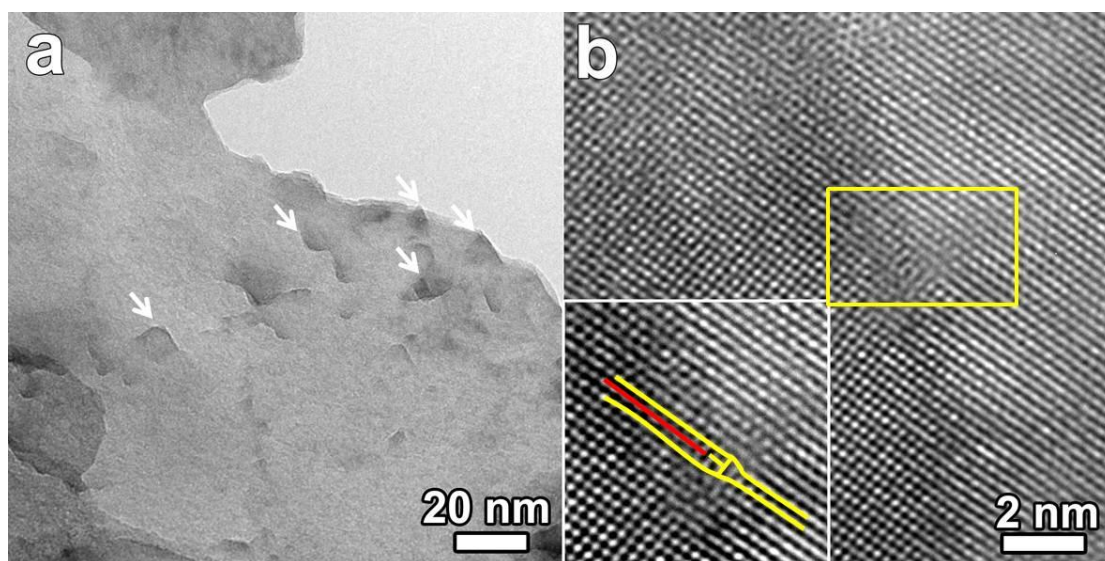


Figure S7 (a) Low-magnification TEM and (b) HRTEM images of GaN nanosheets synthesized at 850°C for 30 min;

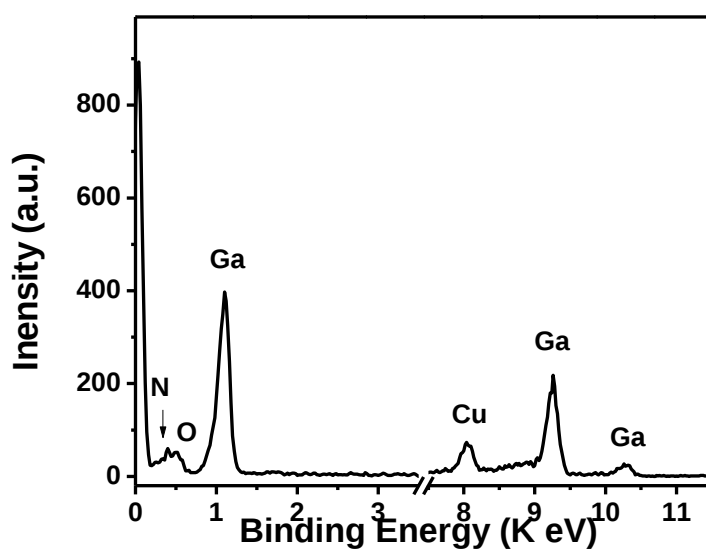


Figure S8 Representative EDS composition spectrum of GaN nanosheets transferred from nitrified γ -Ga₂O₃ nanosheet at 850°C for 60 min;