

Electronic Supplementary Information

Catalyst-assisted synthesis and growth mechanism of ultra-long single crystal α -Si₃N₄ nanobelts with strong violet-blue luminescent properties

Juntong Huang^{a,b} Shaowei Zhang,^{*b,c} Zhaohui Huang,^{*a} Yan Wen,^{b,c} Minghao Fang^a and Yangai Liu^a

^a School of Materials Science and Technology, China University of Geosciences (Beijing), Beijing 100083, P. R. China.

^b Department of Materials Science and Engineering, University of Sheffield, Sheffield S1 3JD, UK.

^c College of Engineering, Mathematics and Physical Sciences, University of Exeter, Exeter EX4 4QF, UK.

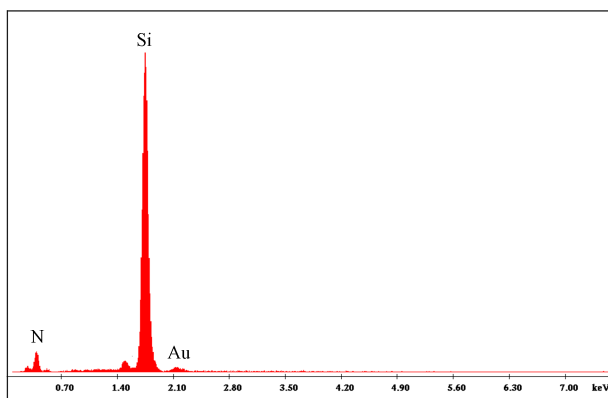


Fig. S1 EDS pattern of the white-colored product layer on the Ni(NO₃)₂-deposited carbon substrate.

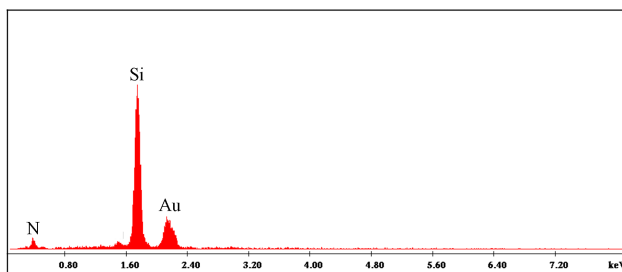


Fig. S2 EDS pattern detected at the tip of the α -Si₃N₄ nanobelts.

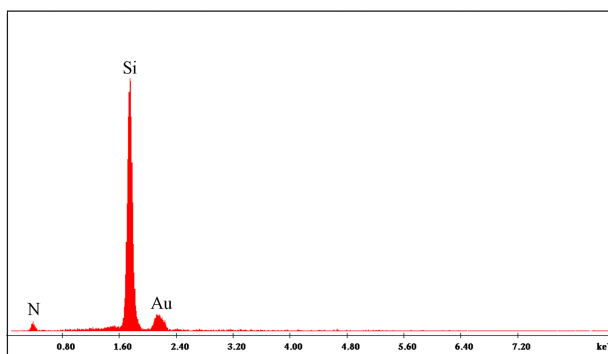


Fig. S3 EDS pattern of short nanobelts.

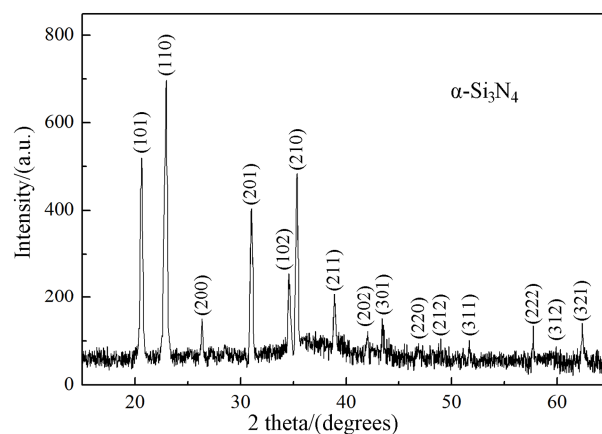


Fig. S4 XRD pattern of the products formed on the carbon felt deposited without deposition of $\text{Ni}(\text{NO}_3)_2$.

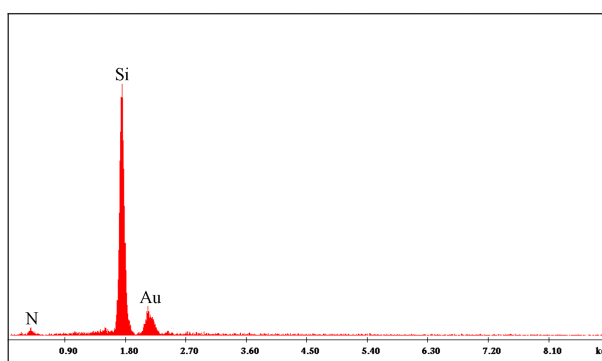


Fig. S5 EDS pattern of the products formed on the carbon felt deposited without deposition of $\text{Ni}(\text{NO}_3)_2$.

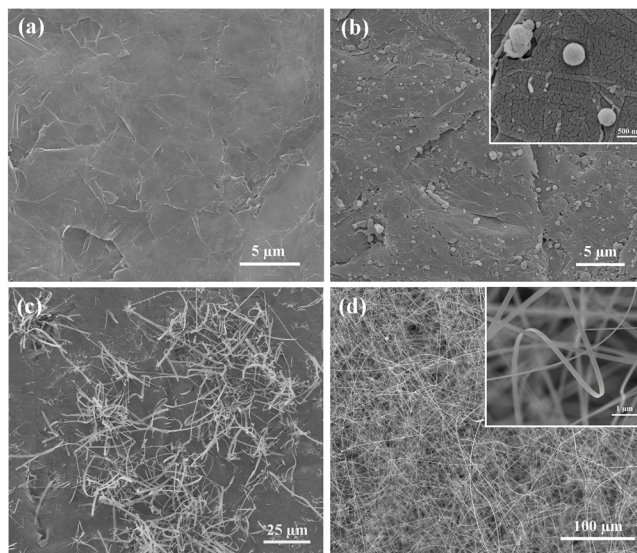


Fig. S6 SEM images of (a) the original carbon felt without any catalyst; (b) the carbon felt with $\text{Ni}(\text{NO}_3)_2$ heated at 1450 °C for 5 min; (c) some short nanobelts are initially grown on the carbon substrate at 1450 °C for 0.5 h; (d) a plenty of long nanobelts formed at 1450 °C for 3 h are fully covering the carbon felt substrate.