

## Supporting Information

# Synthesis of InAl-alloyed Ga<sub>2</sub>O<sub>3</sub> nanowires for self-powered ultraviolet detectors by CVD method

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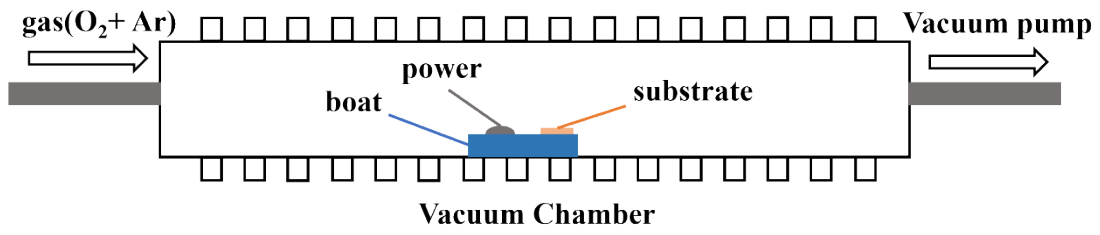


Fig S1. Schematic diagram of CVD experimental device.

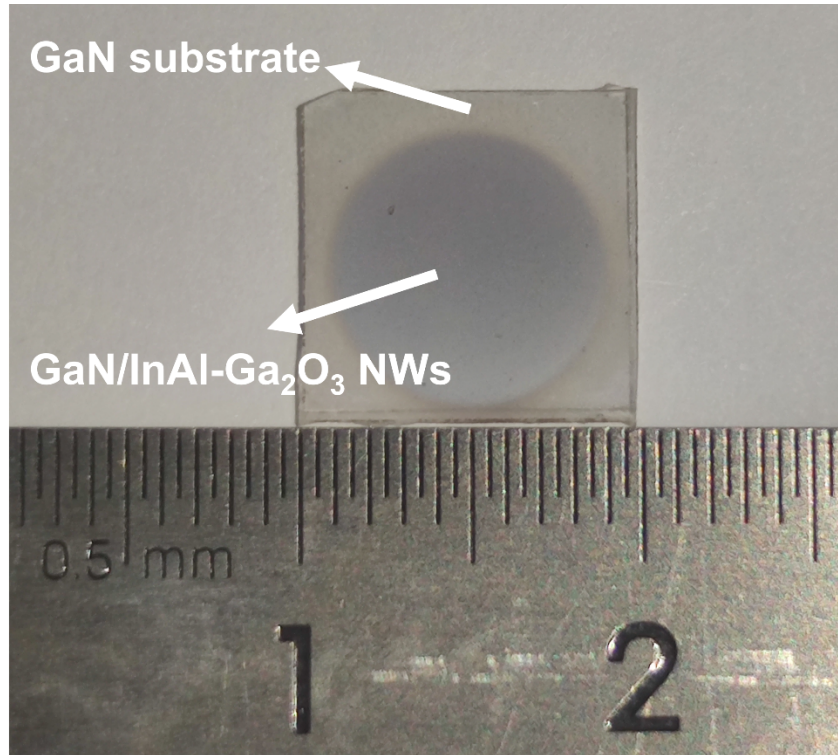
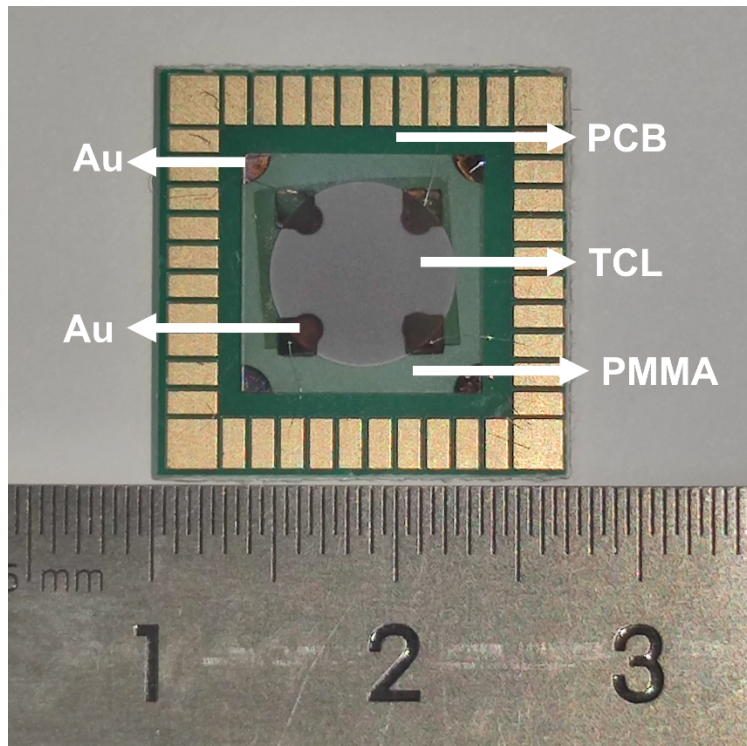


Fig S2 . Physical image of the synthesized GaN/InAl-Ga<sub>2</sub>O<sub>3</sub> NWs p-n junction.



**Fig S3.** Image of prepared GaN/InAl-Ga<sub>2</sub>O<sub>3</sub>NWs photodetector device.

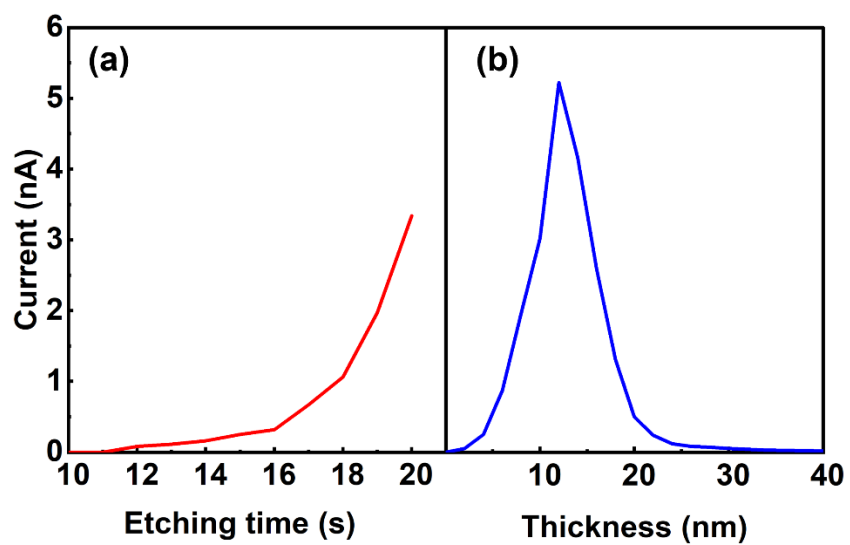


Fig S4. (a) Effect of etching time on photocurrent. (b) Effect of transparent conductive layer Au film thickness on photocurrent.

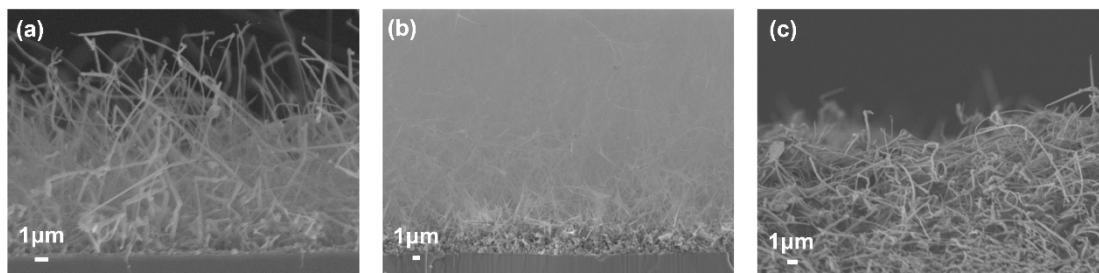


Fig S5. Cross-sections of GaN/InAl-Ga<sub>2</sub>O<sub>3</sub>NWs after different reaction times: (a) 3 min; (b) 5 min; (c) 10 min.