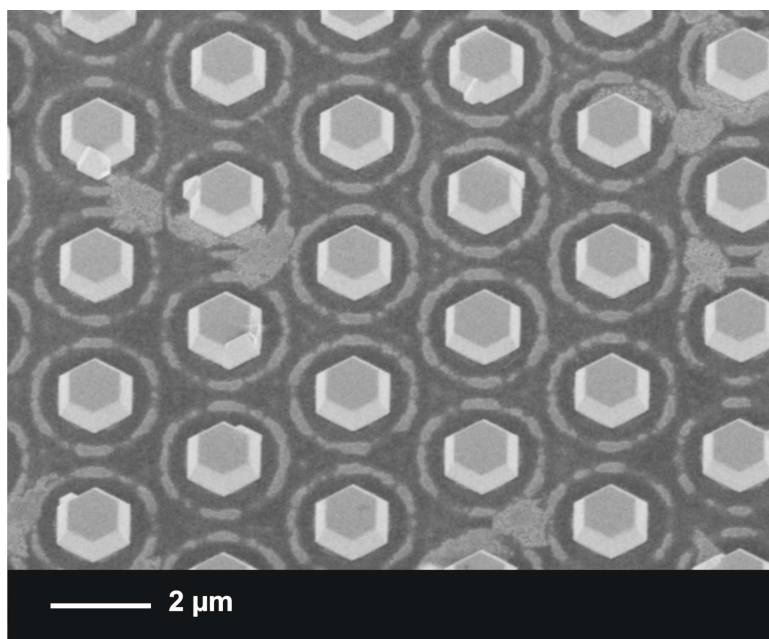
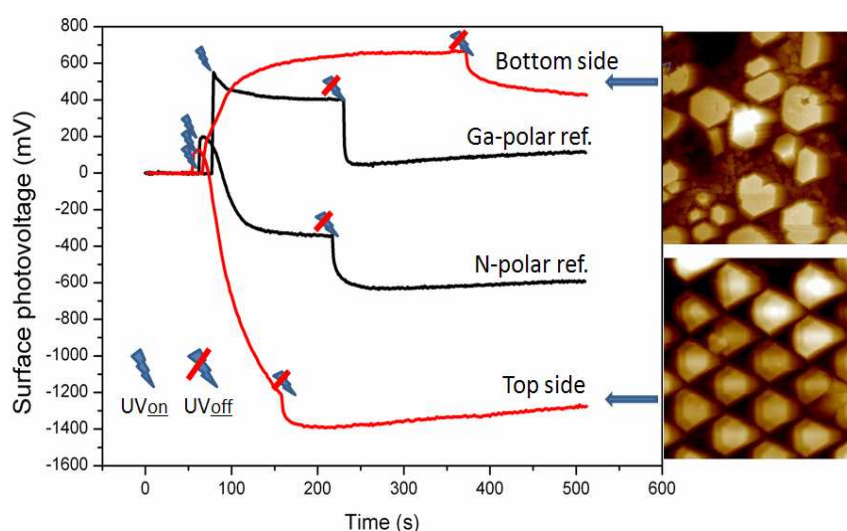


## Supporting information files

1. SEM image of Ga-polar GaN structures after etching by hot KOH solution.
2. Photo-assisted Kelvin probe force microscopy (KPFM) measurement on the top and bottom sides of our GaN sub- $\mu\text{m}$  rods, in comparison with KPFM results on bulk GaN substrate.



1. SEM image of selective area grown Ga-polar GaN structures after chemical etching in hot KOH (5 M) solution at 80° C for 10 min.



2. Evolution of surface photovoltage of the top and bottom surfaces of GaN sub- $\mu\text{m}$  rods and of Ga-polar and N-polar GaN reference samples. This image is fig. 3, taken from our recent publication, ref 18, Jiandong Wei et al. 'Polarity analysis of GaN nanorods by photo-assisted Kelvin probe force microscopy', accepted by physica status solidi c. For the details, please refer to this mentioned paper ref. 18 and the ref. 13.