Supporting Information

Efficient light absorption by GaN truncated nanocones for high performance water splitting applications

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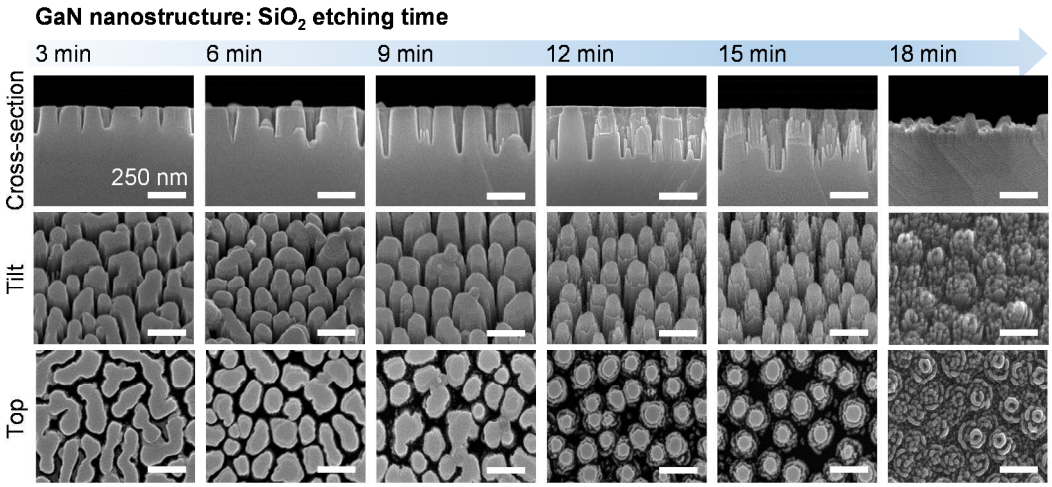

Figure. S1 SEM images of GaN nanostructures for varying a Ag/SiO_2 mask etching time

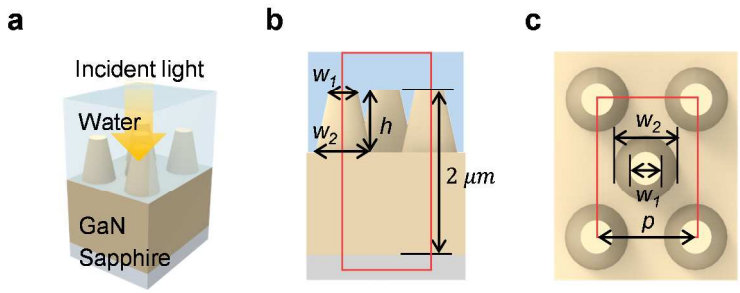

Figure. S2 Schematic illustration of GaN nanostructures for optical simulations (RCWA and FDTD) (a) Perspective view, (b) Cross section view and (c) Top view. The red line indicates the simulation domain.

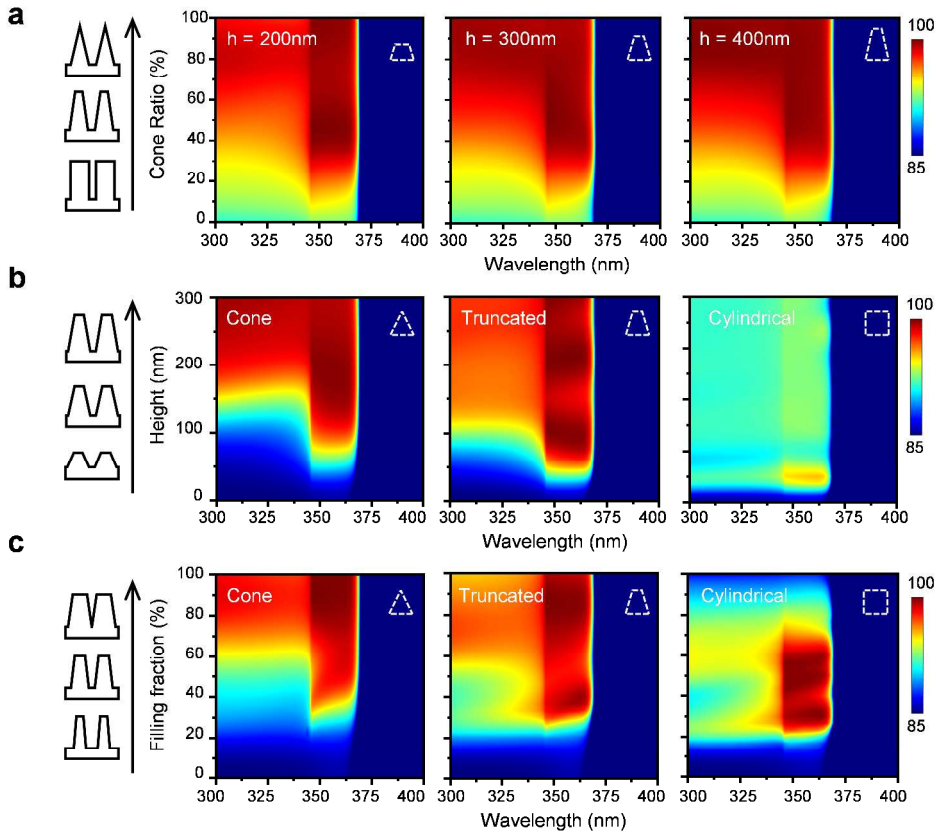

Figure. S3 Contour plots for calculated absorption spectra of the GaN nanostructures in the range from 300 to 400 nm: as a function of wavelength and (a) cone ratio, (b) height and (c) filling fraction.

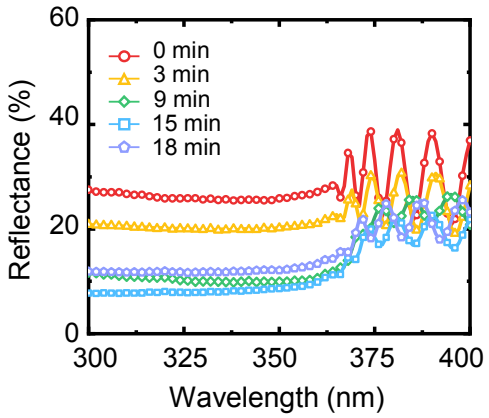

Figure. S4 Reflectance spectra of etched GaN in the range from 300 to 400 nm wavelengths

	R_{dp}	R_{sc}	CPE_{sc}-T	CPE_{sc}-P	R_b	CPE_b-T	CPE_b-P
Planar	100	28500	4.2E-5	1	100	1.5E-5	1
3 min	100	22000	3.0E-5	0.83	1000	1.5 E-5	1
9 min	100	18500	3.0E-5	0.83	1000	1.5 E-5	1
15 min	100	11100	3.0 E-5	0.83	350	1.5 E-5	1
18 min	100	20000	2.8 E-5	0.88	2500	1.5 E-5	1

Table. S1. Electrochemical impedance spectra (EIS) fitting results for the etched GaN nanostructures.