

Supporting Information

Title

“An Ultrafast Response Grating Structural ZnO Photodetector with Back-to-Back Schottky Barriers Produced by Hydrothermal Growth”

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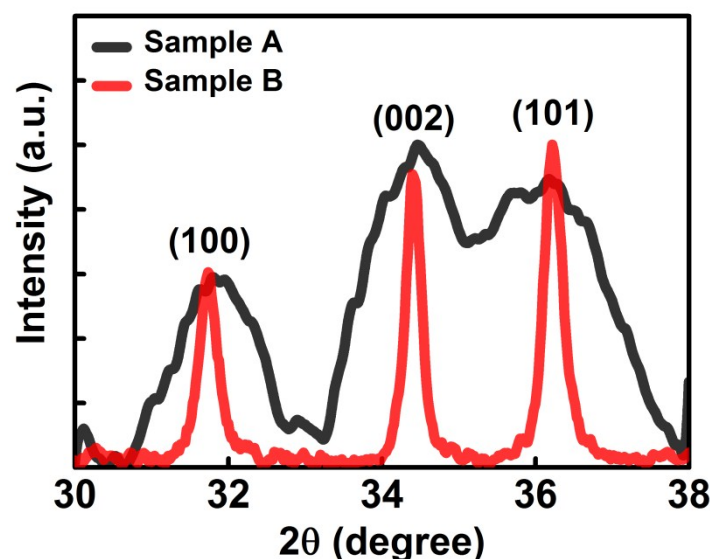


Fig. S1 Normalized XRD data of sample A (3 min growth time) and sample B (20 min growth time). (100), (002), (101) reflections indicate the wurzite crystal structure. Due to low growth time of sample A, it has a mixed structure of polycrystalline and amorphous with smaller grain size than sample B.

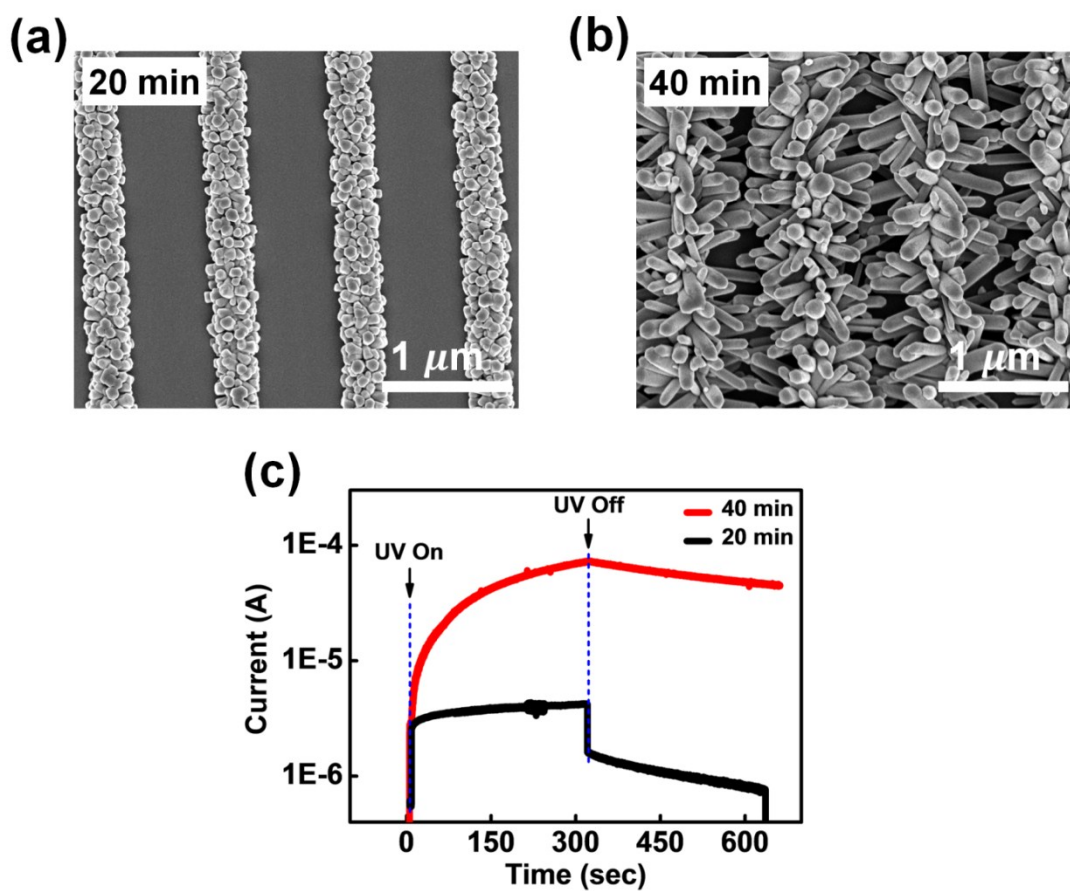


Fig. S2 SEM images of growth times of 20 min (sample B) (a) and 40 min (b). (c) Long time UV on/off response for growth times of 20 min and 40 min. The sample with 40 min growth time shows higher photo-generated current than that with 20 min growth time, while it relatively has long response time.

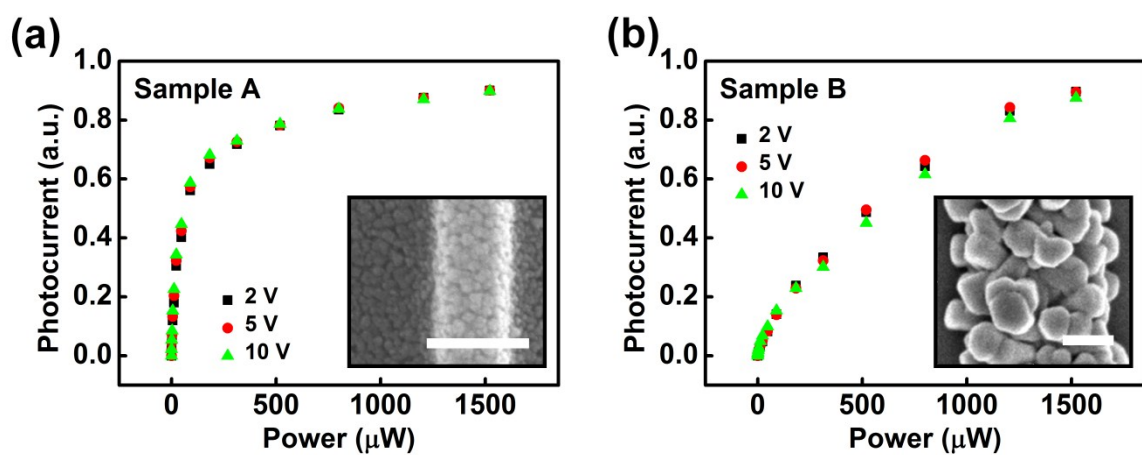


Fig. S3 (a, b) Photocurrent of sample A and B at 2 V, 5 V, and 10 V bias voltages with various intensities of UV light. The insets are SEM images with 100 nm scale bar. Sample A has a sensitivity at low optical power until 185 μW , while sample B has almost linear curve until 1.5 mW.