SupportingInformation

Honeycomb-like NiO/ZnO Heterostructured Nanorods: Photochemical Synthesis, Characterization, and Enhanced UV Detection Performance

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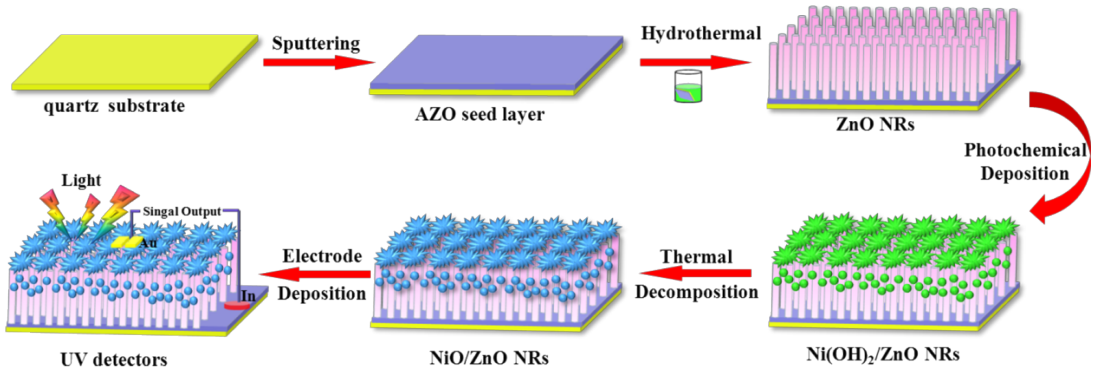
Supporting Information I: Experiment process



Scheme S1. Schematic illustration of the fabrication of honeycomb-like NiO/ZnO heterostructure UV photodetector.

Supporting Information II: Optical images

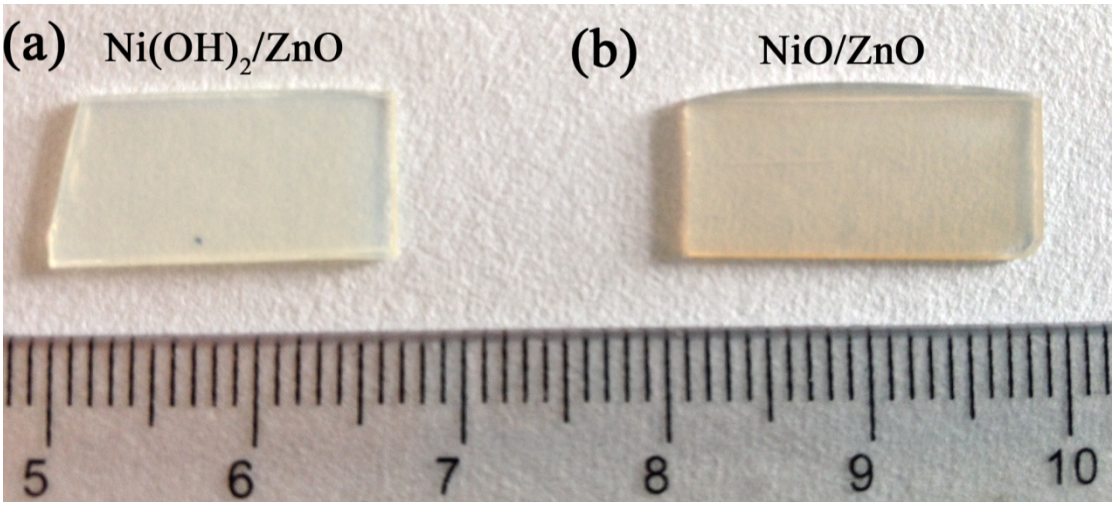


Figure S1. Optical images of (a) precursor $Ni(OH)_2$/ZnO and (b) NiO/ZnO heterostructures.

Supporting Information III: UV light source details

The employed light source for UV detection is UVA-LED (peak ~ 365 nm, LUYOR-365, LUYOR®).Furthermore, the UV light source has been filtered to block the disturbance of other lights (see below). The irradiation of UVA-LED is filtered by Integral Clear Filter (built in, bandpass filter 355 ~ 375 nm).

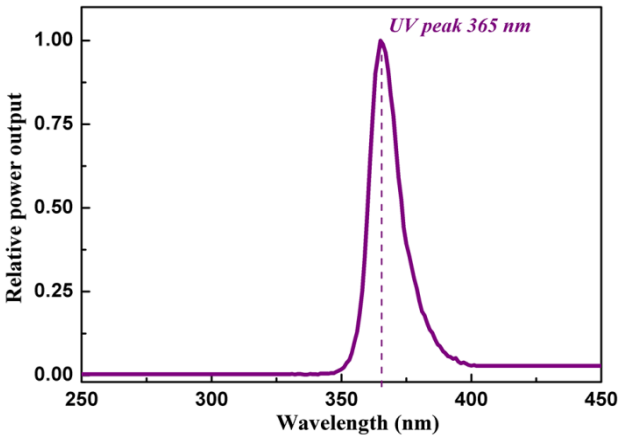


Figure S2. Relative spectral power output for UV light.

Supporting Information IV: SEM images of ZnO NRs before and after annealing in air at 500 ^{o}C

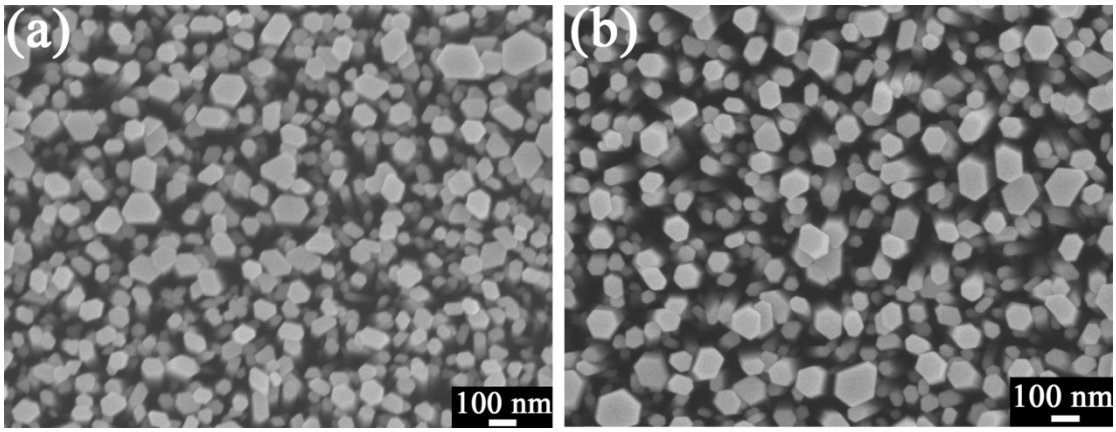


Figure S3. SEM images of ZnO NRs: (a) as-grown ZnO NRs. (b) ZnO NRs after annealing in air at 500 ^{o}C.

Supporting Information V: SEM images of $Ni(OH)_2$/ZnO NRs precursor prepared at different Ni^{2+} ion concentrations

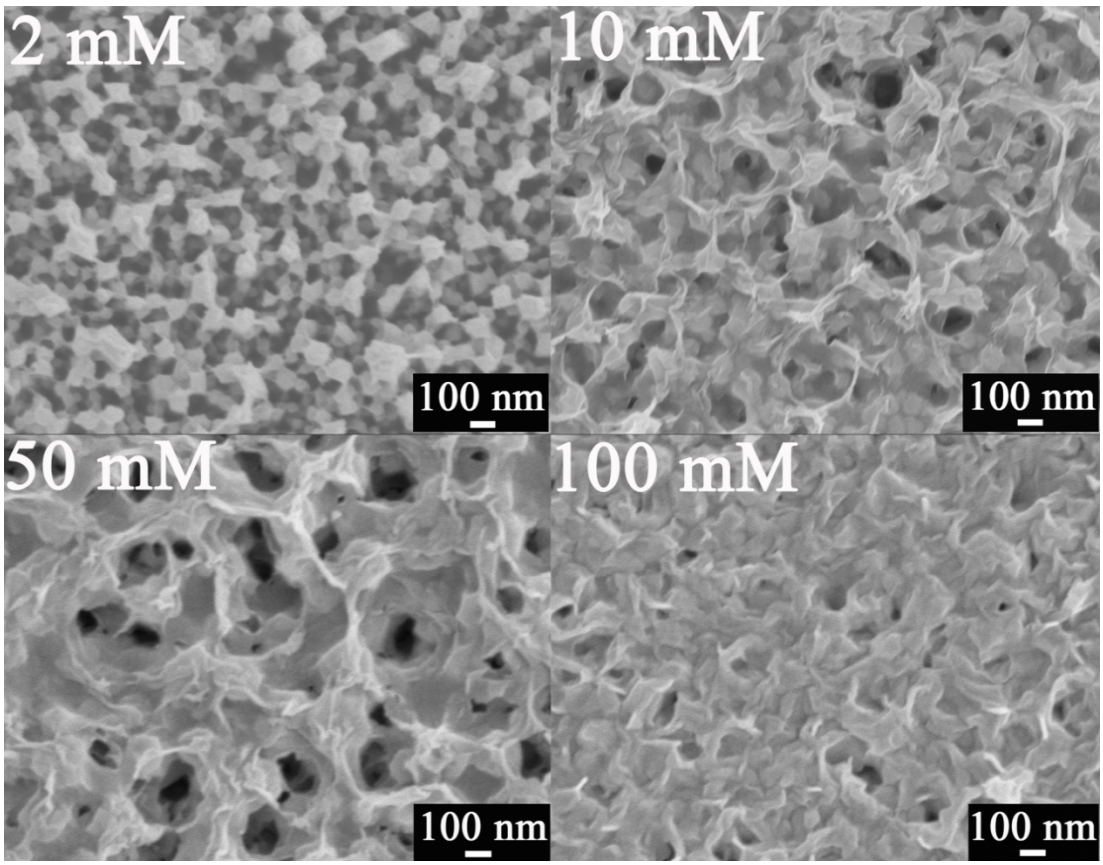


Figure S4. SEM images of the $Ni(OH)_2$/ZnO NRs precursor prepared at different Ni^{2+} ion concentrations. For all samples, UV irradiation time was fixed at 12 h.

Supporting Information VI: *I-V* characteristics of bare ZnO NRs

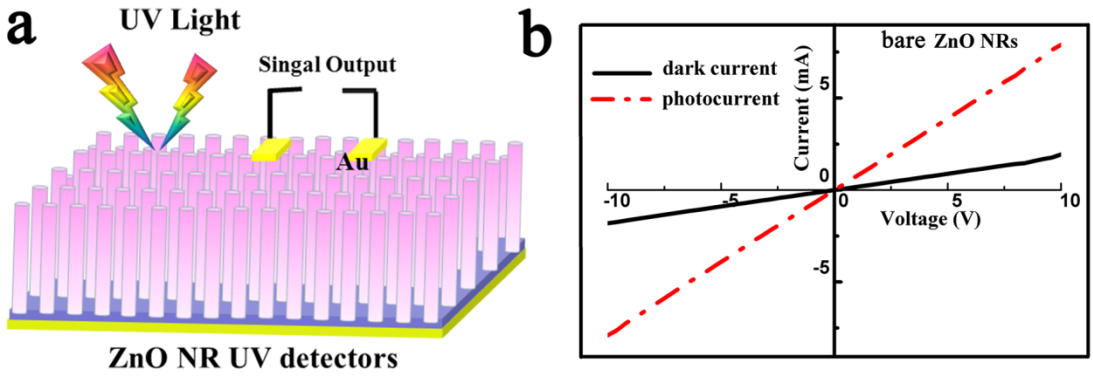


Figure S5. (a) The schematic diagram of the bare ZnO NRs based UV detectors; (b) *I-V* characteristics of bare ZnO NRs under dark and 365 nm UV illumination conditions.