Supplementary Information

The Influence of Carrier Concentration on Piezotronic Effect in ZnO/Au Schottky Junction

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1. Figures

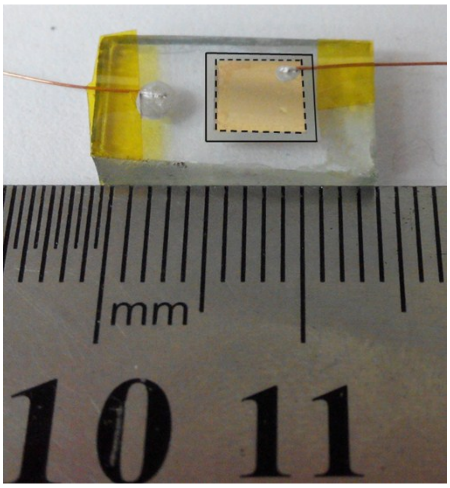

Figure S1. The optical image of the fabricated device. The solid line is the area of the synthesized ZnO, while the dashed line is the Au electrode area.

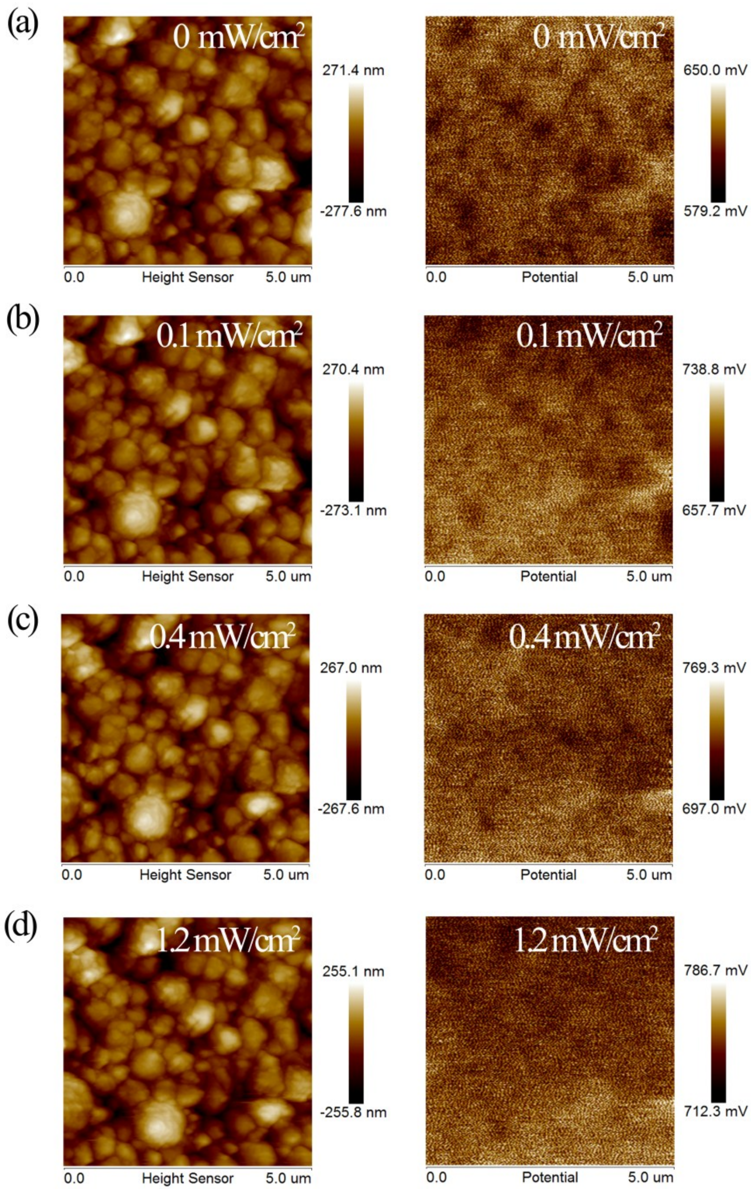

Figure S2. Atomic force microscope topography image (left) and contact potential difference (right) of the ZnO nanorods under 0 mW/cm^2 (a), 0.1 mW/cm^2 (b), 0.4 mW/cm^2 (c), 1.2 mW/cm^2 (d) UV light illumination.

2. The method that apply strain

The strain was introduced based on the level principle with the help of the equipment that assembled ourselves. Briefly, as shown in Fig. S3, the point O is fixed and cannot move, while the point B is free, where we can precisely control its displacement. And A is where the device located and the loading location. When we move B to B_1, the A moves to A_1 simultaneously. Since the displacement of B is controllable, the movement of A can be acquire from the equation

$$AA_1 = \frac{OA}{OB} BB_1$$

Furthermore, as the elasticity modulus of glass is bigger than that of ZnO, the movement of A (AA_1) is approximately equal to the deformation of ZnO NRs. In addition, the original length of ZnO NRs can be required from the cross section image in Fig. 1(a). Hence the strain applied on ZnO nanorods is easily introduced by precisely controlling the displacement of B.

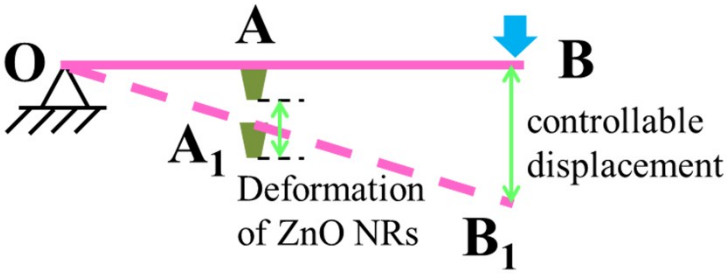

Figure S3. The schematic diagram of the strain applied.