

Tuning of Multifunctional Cu-doped ZnO Films and Nanowires for Enhanced Piezo/Ferroelectric-like and Gas/Photoresponse Properties

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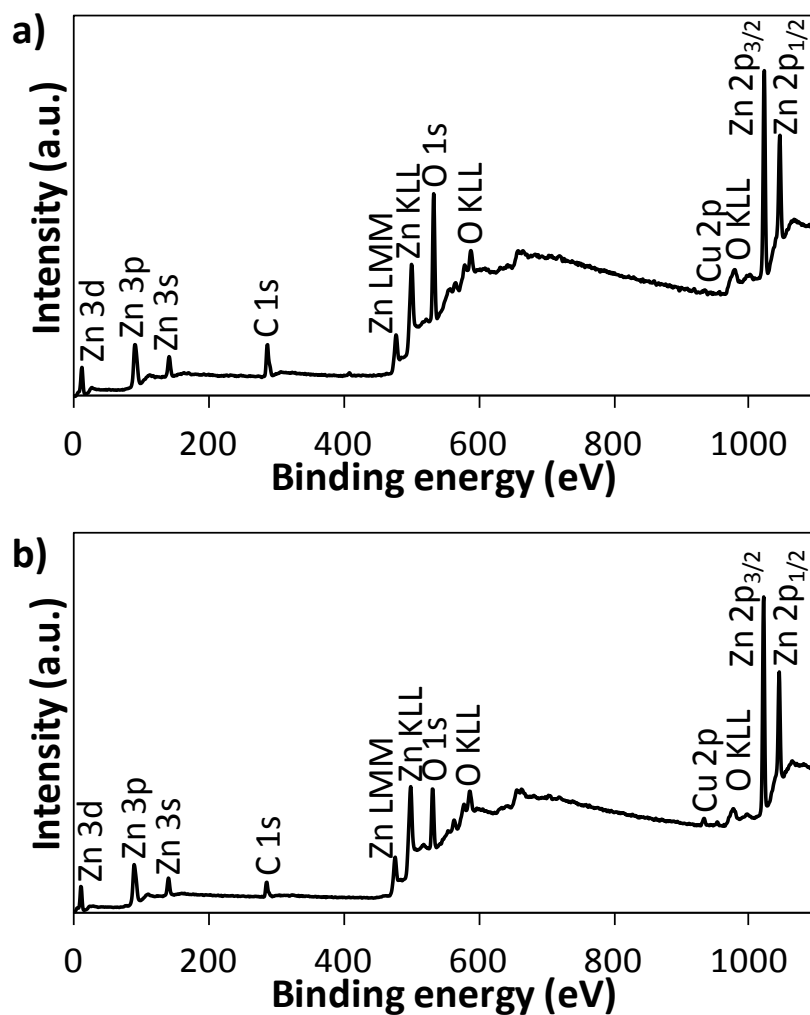


Fig. S1. Survey XPS spectra of (a) 5% and (b) 10% Cu-ZnO films.

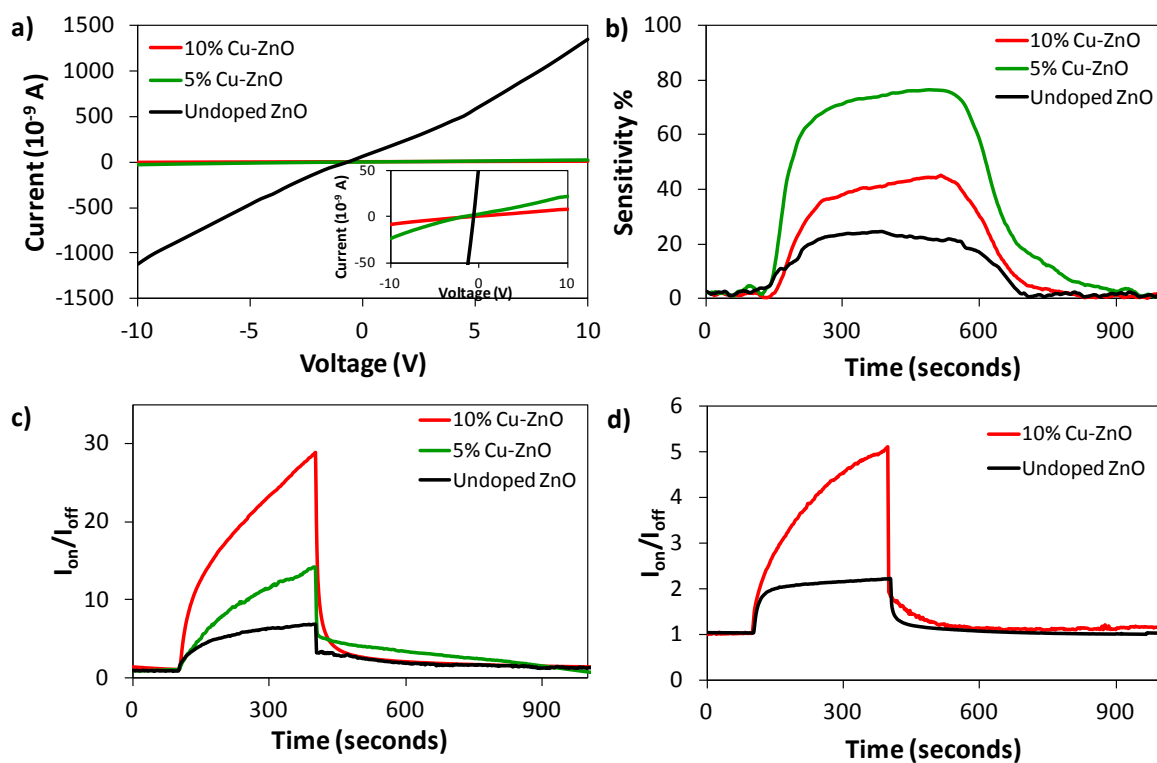


Fig. S2. a) I-V plot of pristine and Cu-doped ZnO films in dark conditions. Inset shows a magnified view of the IV curve. b) Hydrogen gas sensing (500 ppm) of pristine and Cu-doped ZnO films at room temperature. c) UV sensing of pristine and Cu-doped ZnO films. d) White light sensing of pristine and 10% Cu-ZnO film.

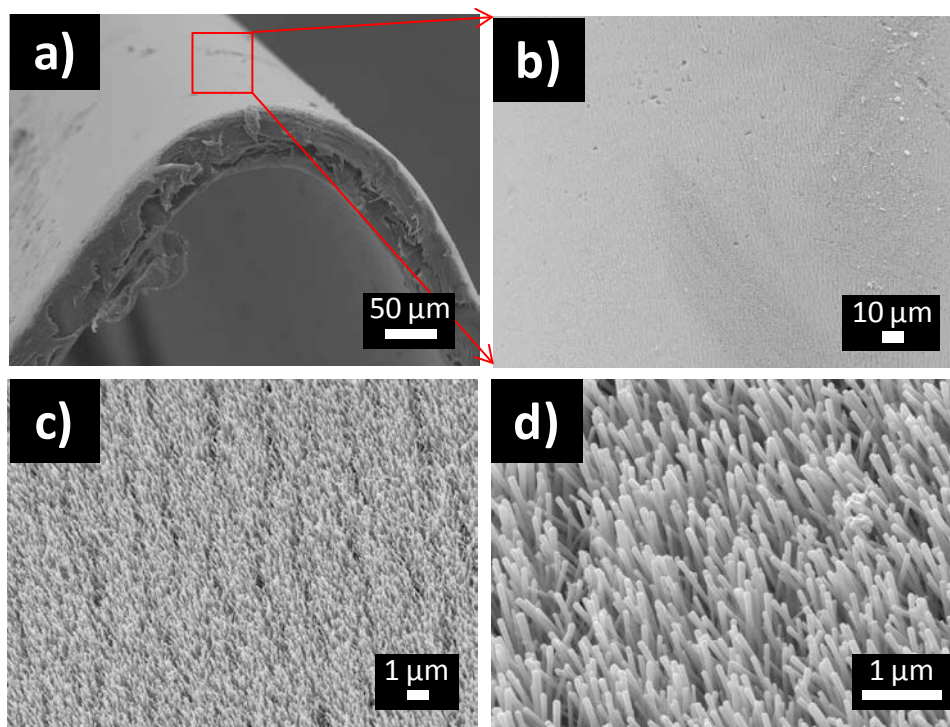


Fig. S3. a) Cross-section SEM image of a bent sample of ZnO nanowires synthesized on PET substrate. b-d) SEM images of the region outlined by a red box at higher magnifications.

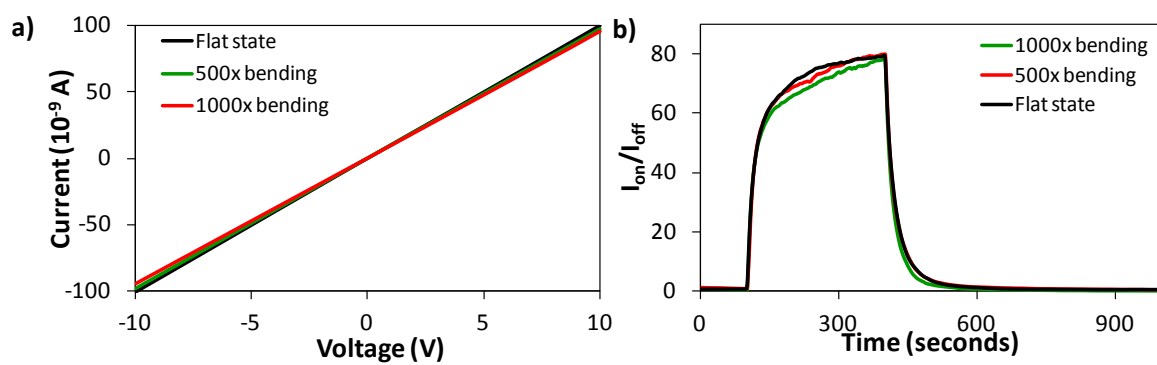


Fig. S4. a) I-V plot of 10% Cu-ZnO nanowires in a flat state and after 500 and 1000 times of bending.
b) UV sensing of flat and bent 10% Cu-ZnO nanowires.