Supporting Information

Single-crystalline sodium-doped p-type ZnO and ZnMgO nanowires via combination of thin-film and nano techniques

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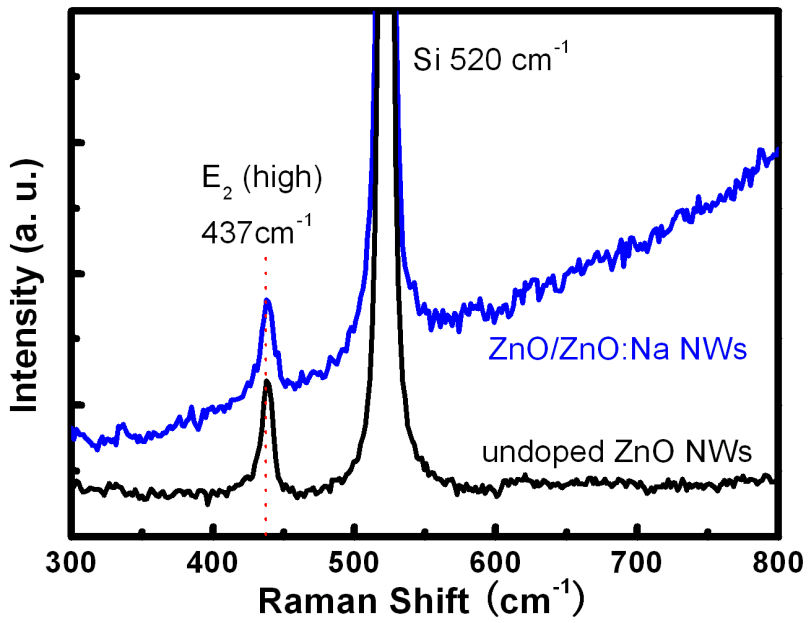

Fig. S1 Raman backscattering spectra of the undoped ZnO NWs and ZnO/ZnO:Na core-shell NWs array. Both NWs show the E_2 (high) mode of ZnO at 437 cm^{-1}, which agrees well with the reported value of bulk ZnO. The results indicate that the NWs are almost stress-free. In addtion, the defect-sensitive A_1(LO) mode at 575 cm^{-1} is not observed, indicating low defect density in both samples.

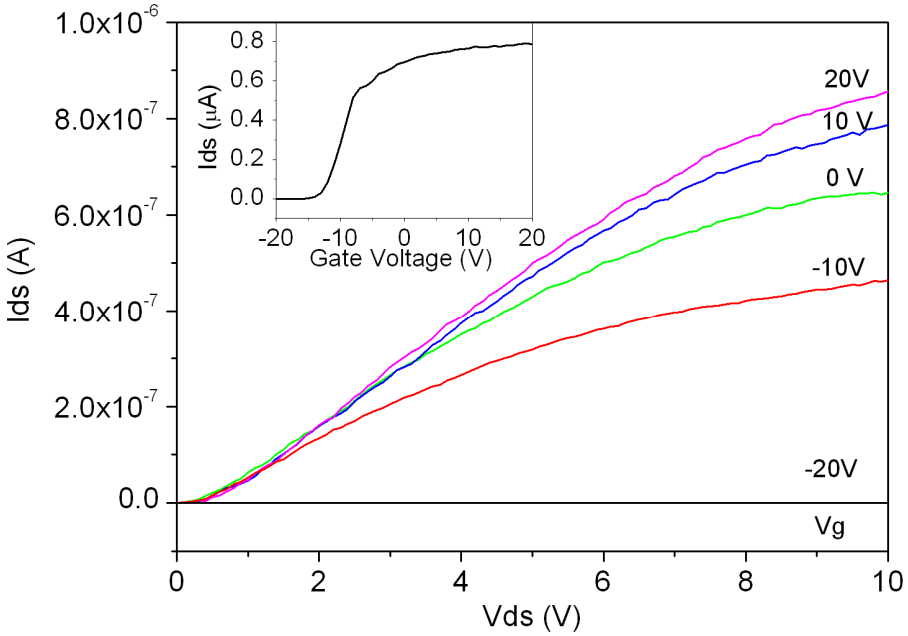

Fig. S2 Output and transfer characteristics (inset) of undoped ZnO NW-FET, showing *n*-type conductivity.

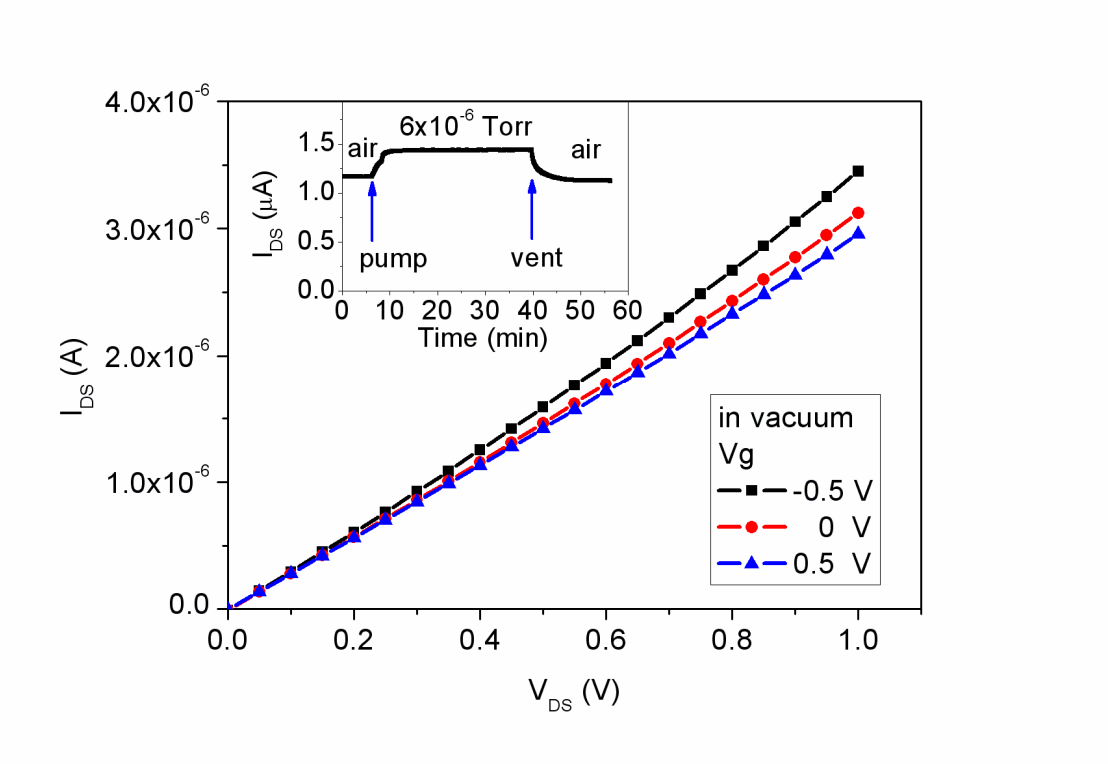

Fig. S3 Output characteristics of annealed ZnO/ZnO:Na core-shell NW-FET measured in high vacuum. The nanowire remain *p*-type conductivity. Inset shows the I_{DS} measured in air and vacuum. The current shows slight change in vacuum, indicating low density surface states in the nanowires.