Electronic Supplementary Material (ESI) for Nanoscale.
This journal is © The Royal Society of Chemistry 2017

Supporting Information

Light-induced pyro-phototronic effect improving ZnO/NiO/Si heterojunction photodetector for selectively detecting ultraviolet or visible illumination

*Bing Yin, Heqiu Zhang, Yu Qiu, Yingmin Luo, Yu Zhao, Lizhong Hu**

School of Physics and Optoelectronic Technology, Dalian University of Technology, Dalian 116024, China;
School of Microelectronics, Dalian University of Technology, Dalian 116024, China

E-mail: lizhongh@dlut.edu.cn

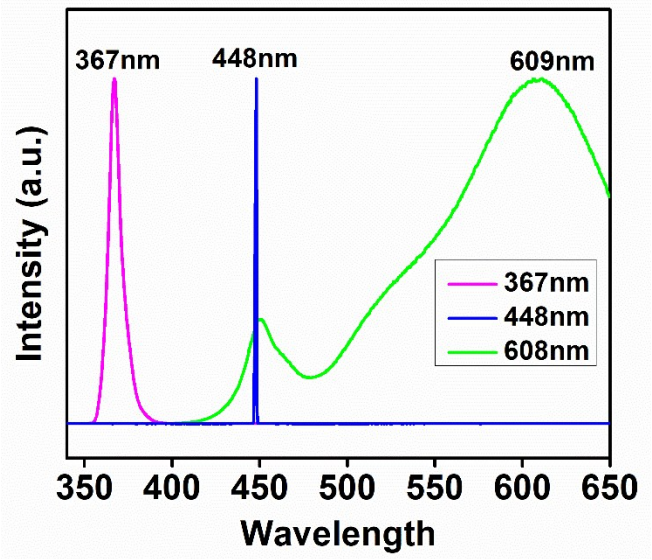

Figure S1 The spectrums of the light sources.

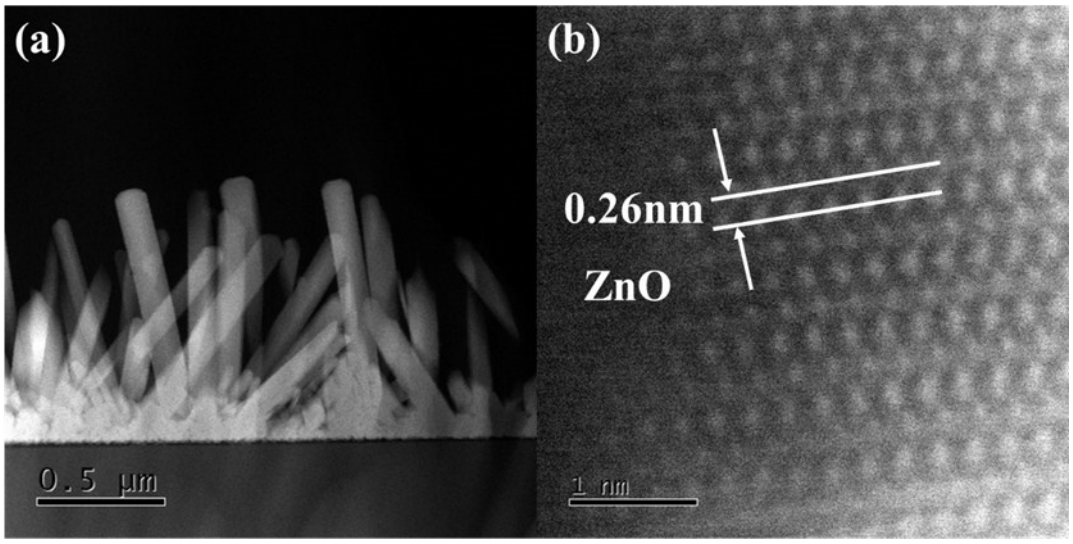

Figure S2 (a) TEM image and (b) HRTEM image of ZnO nanorods.

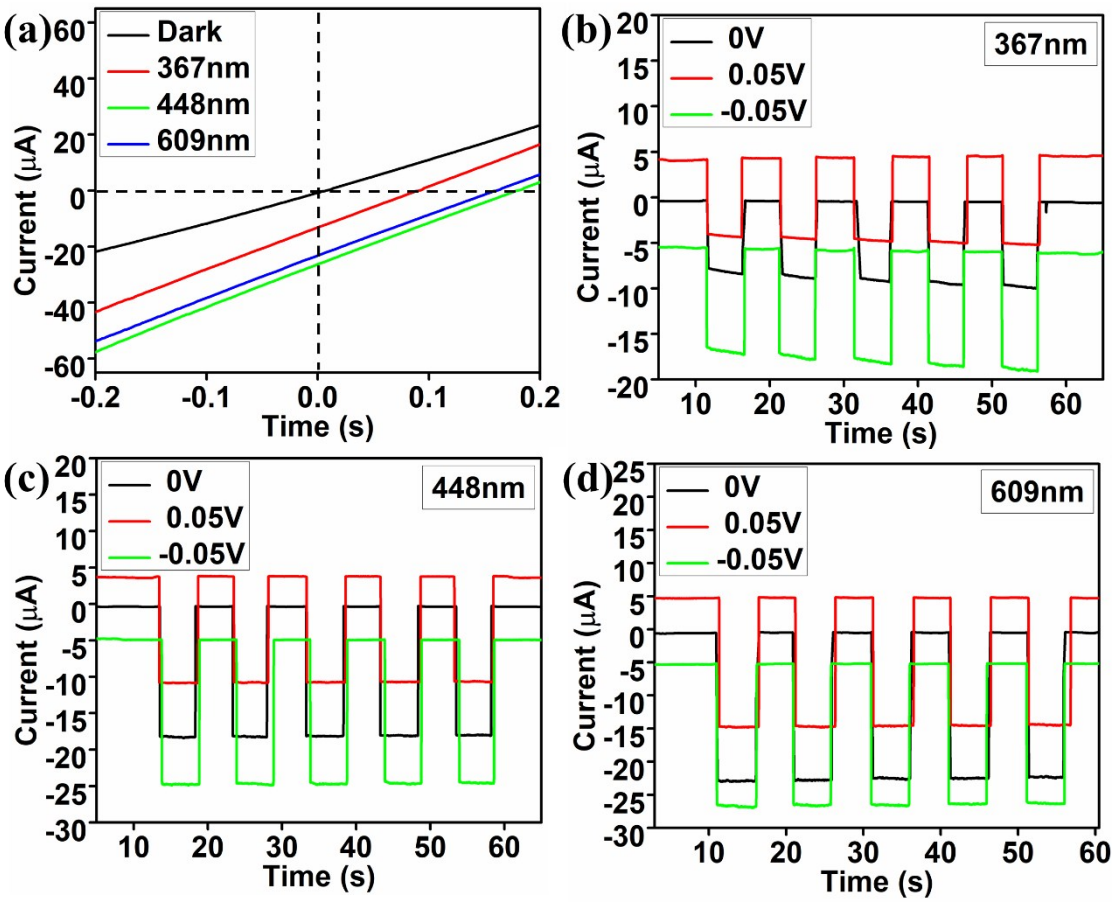

Figure S3 (a) The I-V curves of the ZnO/Si heterojunction in dark and under 367nm, 448nm and 609nm illumination. (b)-(d) The phototcurrent responses of the PD based on the ZnO/Si heterojunction under 367 nm, 448 nm and 609nm illumination at -0.05V, 0V, 0.05V bias voltage.

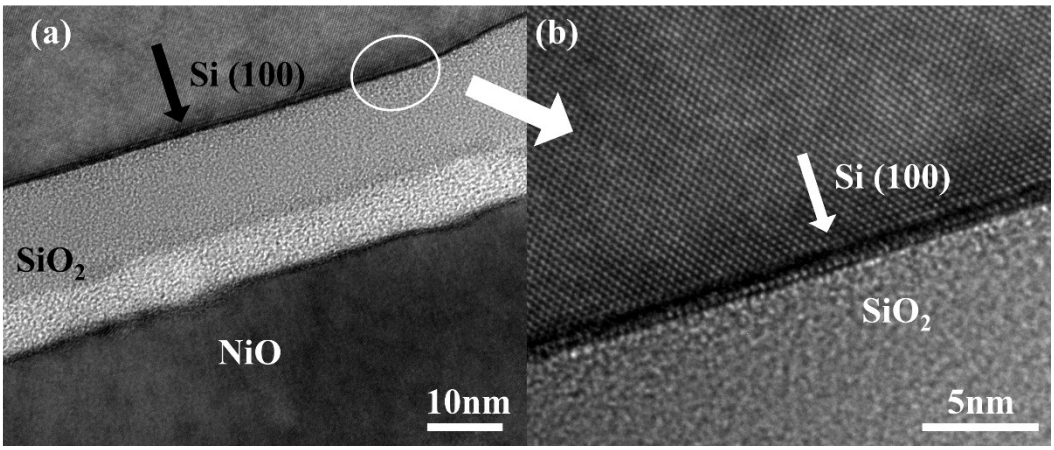

Figure S4 (a) TEM image and (b) HRTEM image of NiO/SiO2/Si interface.

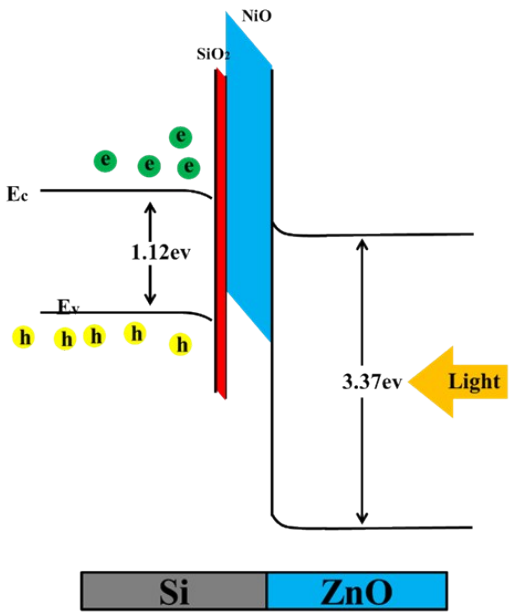

Figure S5 Energy band diagram of the device.

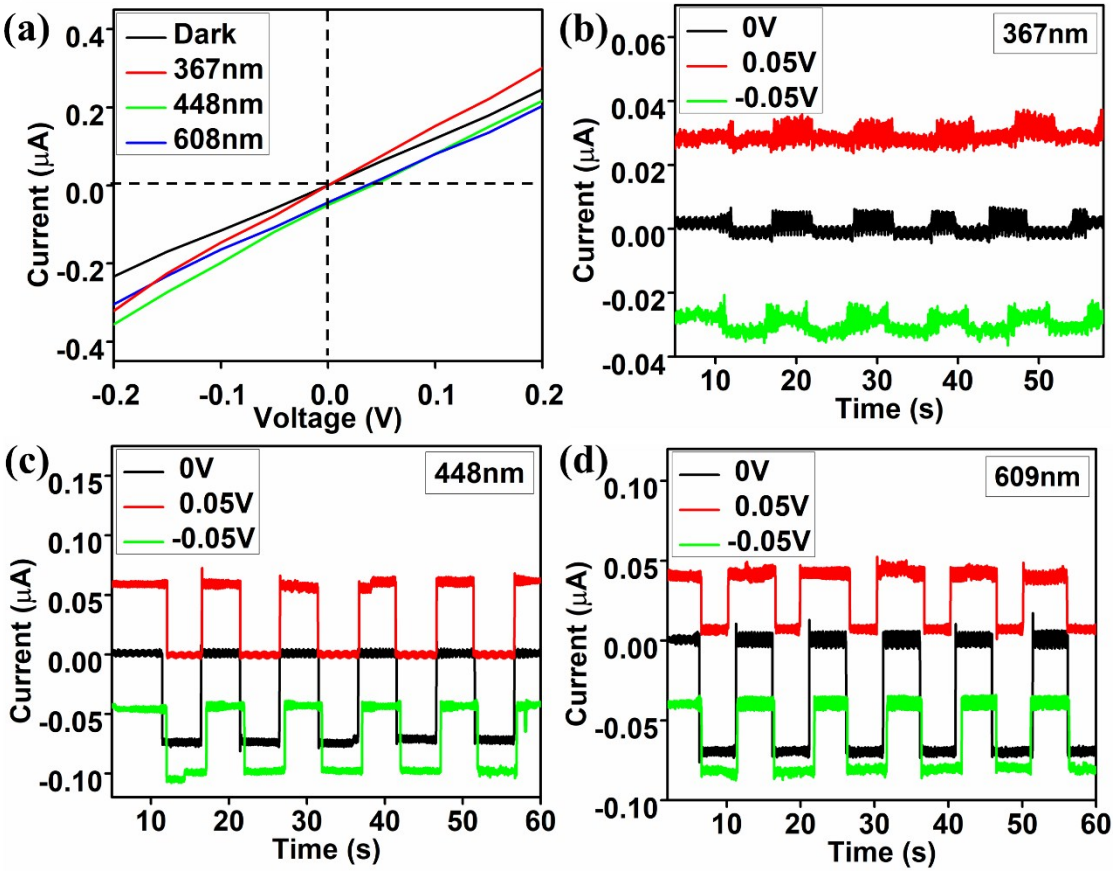

Figure S6 (a) The I-V curves of the ZnO/SiO_2/Si heterojunction in dark and under 367nm, 448nm and 609nm illumination. (b)-(d) The phototcurrent responses of the PD based on the ZnO/SiO_2/Si heterojunction under 367nm, 448nm and 609nm illumination at -0.05V, 0V, 0.05V bias voltage.