Supporting Information

Performance optimization of self-powered ultraviolet and short-wavelength blue photodetector based on ZnO/$SrTiO_3$ heterojunction by annealing treatment

Lujia Cong[a*], Yurui Han[d], Huimin Zhao[a], Chunyue Gao[a], Wei Zhang[c], Shan Zhang[b], Hongbin Wang[d*]

a. School of Mechatronics Engineering, Daqing Normal University, Daqing, P. R. China 163712
b. School of Foreign Languages, Daqing Normal University, Daqing, P. R. China 163712
c. Mudanjiang Normal Univ, Sch Comp & Informat Technol, Mudanjiang 157011, Peoples R China
d. Key Laboratory of UV-Emitting Materials and Technology, Ministry of Education, Northeast Normal University, Changchun 130024, PR China

[*]Corresponding author: Lujia Cong, Hongbin Wang

E-mail addresses
Lujia Cong: conglj378@nenu.edu.cn
Hongbin Wang: wanghb097@nenu.edu.cn

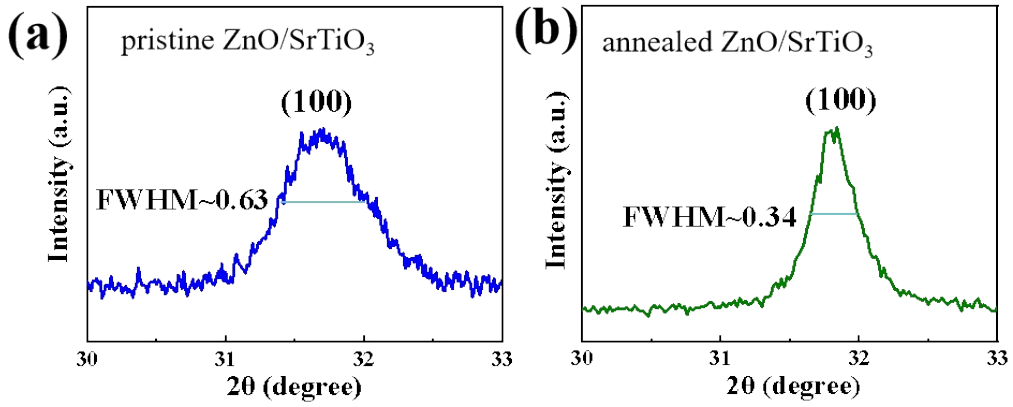

Figure S1. The full width at the half maximum (FWHM) of the pristine and the annealed $ZnO/SrTiO_3$ films for the ZnO (100) crystal plane.

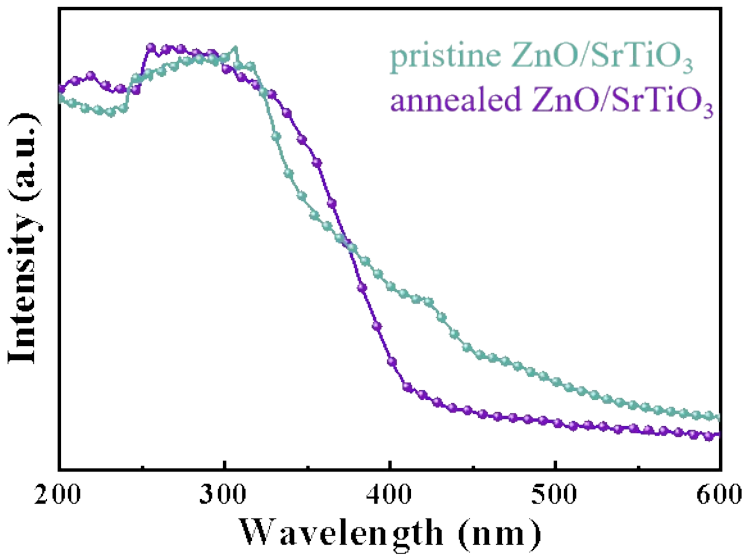

Figure S2. The optical absorption of the pristine and annealed $ZnO/SrTiO_3$ films

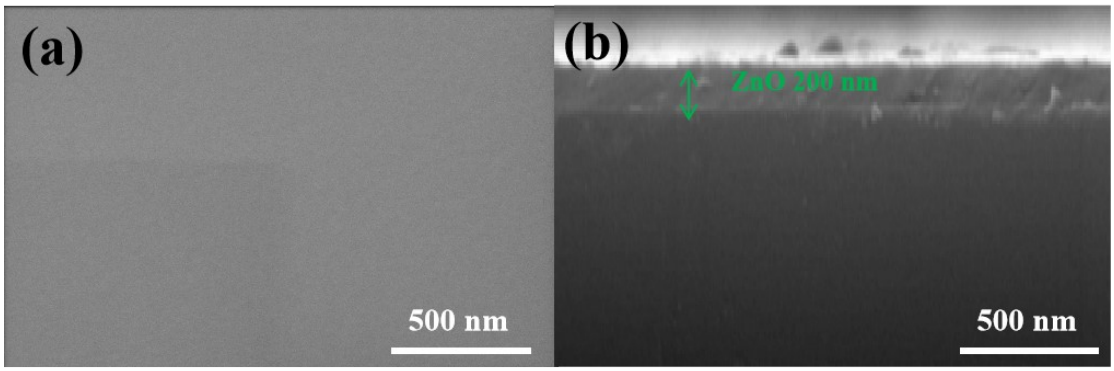

Figure S3. The surface (a) and cross-sectional (b) SEM image of the annealed ZnO/$SrTiO_3$ film.

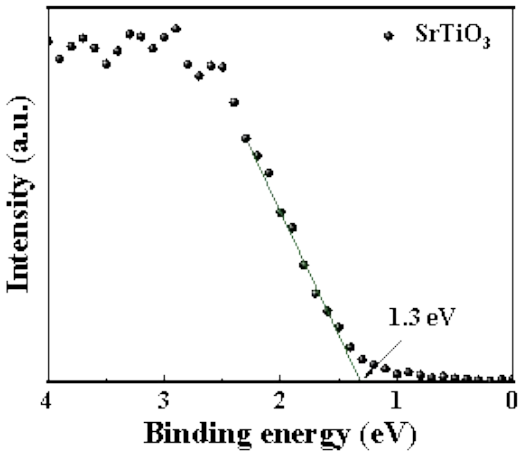

Figure S4. The XPS VB photoelectron spectrum of $SrTiO_3$ single crystal substrate.

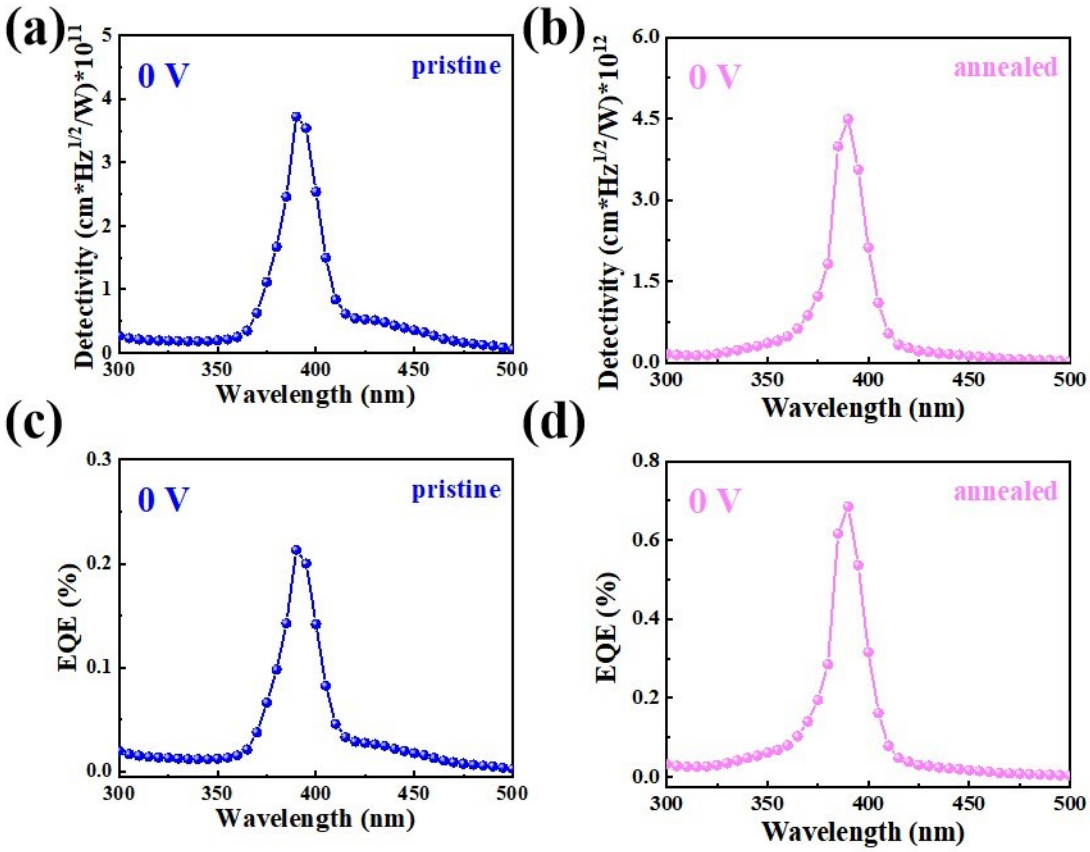

Figure S5. The Detectivity (D^*) of the pristine a) and annealed b) $ZnO/SrTiO_3$ PDs at 0 V bias. The external quantum efficiency (EQE) of the pristine c) and annealed d) $ZnO/SrTiO_3$ PDs at 0 V bias.

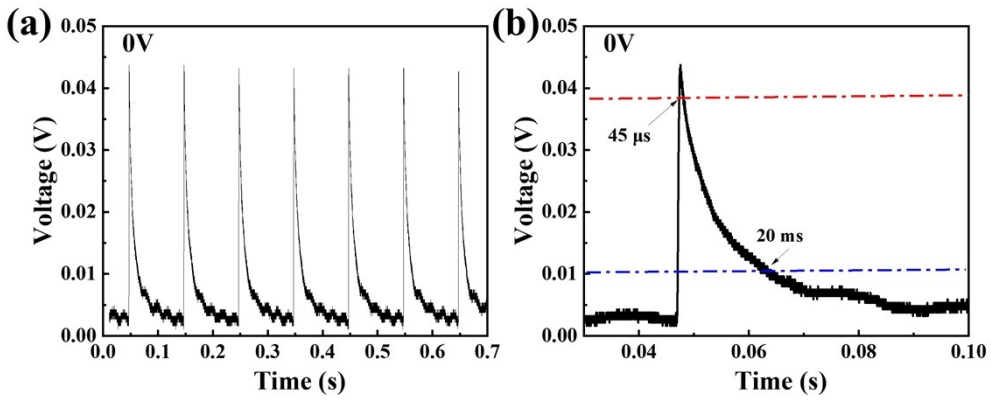

Figure S6. The time response curve of the pristine $ZnO/SrTiO_3$ PD under 0 V bias with 395 nm illumination.