Supporting Information

Preparation of large scale and highly ordered vanadium pentoxide (V_2O_5) nanowires array towards high performance photodetectors

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*E-mail: gtfei@issp.ac.cn (Guang Tao Fei); Tel: +86-551-65591453; Fax: +86-551-65591434. S1. The EDX images of single VO₂(A) nanowire.



Fig. S1 EDS mapping of V and O elements of VO₂(A).



S2. Digital photographs of the preparation process.

Fig. S2 (a) Digital photograph of dispersed VO₂(A) nanowires solution after ultrasonic treatment. (b) Digital photograph of VO₂(A) nanowires self-assembly process.

S3. Digital photographs of the ordered pine needles array structure.



Fig. S3 Digital photograph of ordered pine needles array structure, which was induced by rain wash. Even if pine needles exist poor water-solubility or hydrophily.

S4. The side view of different thickness of orderd nanowires array film.



Fig. S4 The SEM image of different thickness of ordered VO₂(A) nanowires array film and corresponding to different magnification.



S5. EDX elemental mapping of single V₂O₅ nanowire.

Fig. S5 EDX elemental mapping of V and O elements of $V_2 O_5.$

S6. Optical absorption spectra of V₂O₅ nanowires.



Fig. S6 UV-Vis absorption spectra of V₂O₅ nanowires.

S7. The SEM images of V₂O₅ nanowires array after evaporating the Ti/Au

electrodes.



Fig. S7 shows the SEM images of V_2O_5 nanowires array after evaporating Ti/Au electrodes with copper grid mask. The darker ribbon is nanowires array that to be tested, the lighter part is the array covered with Ti/Au electrodes.