Supporting Information

Photoelectric cooperative patterning of liquid permeation on the micro/nano hierarchical structured mesh film with low adhesion

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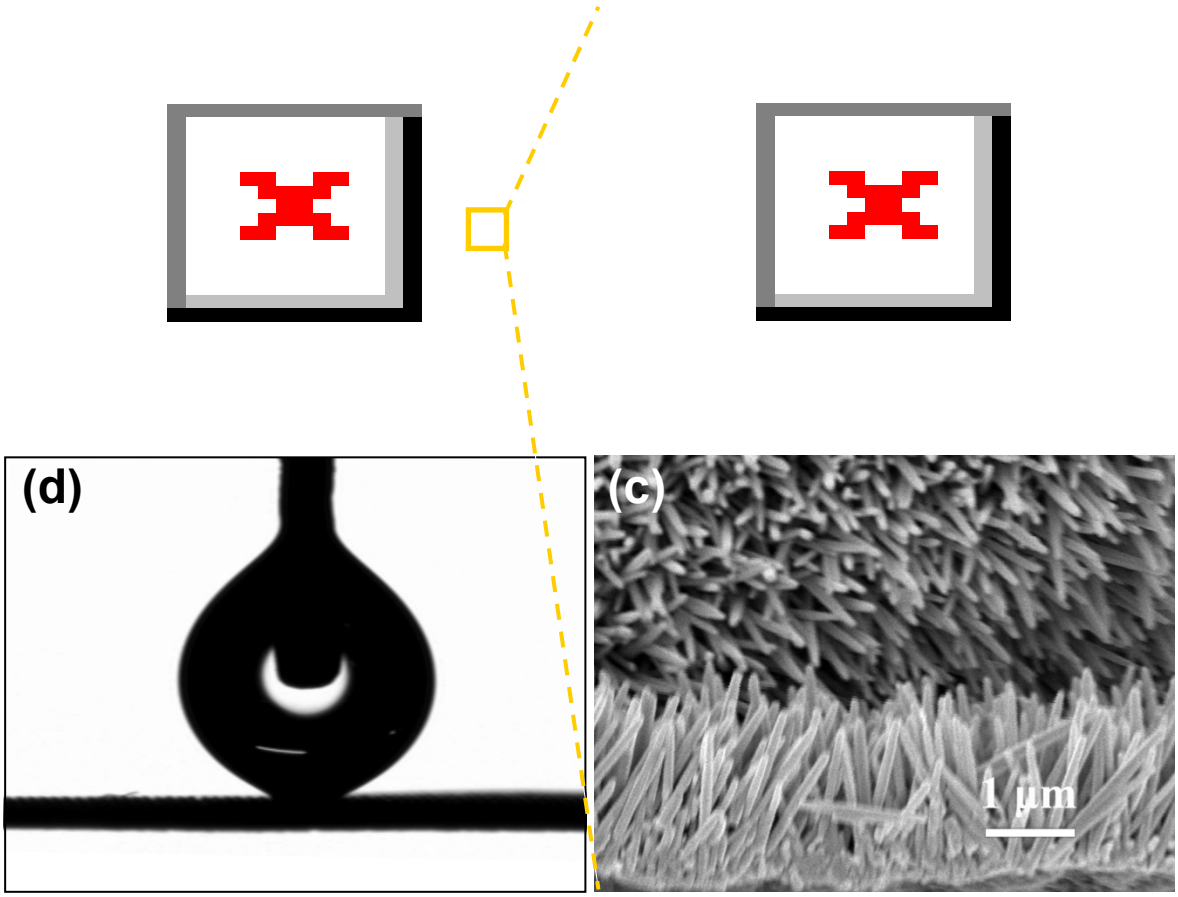

Fig. S1 SEM images of the micro/nano hierarchical structured ZnO mesh film and the contact angle (CA) photograph of the ZnO mesh film sensitized by N719 dye and treated by FAS. (a) SEM top view of micro/nano hierarchical structured ZnO mesh film. (b) High magnification SEM images of the aligned ZnO nanorod array. (c) SEM side view of the aligned ZnO naorod array film. (d) The contact angle photograph (CA ≈ 172°) of the ZnO coated mesh film sensitized by N719 dye and treated by FAS.

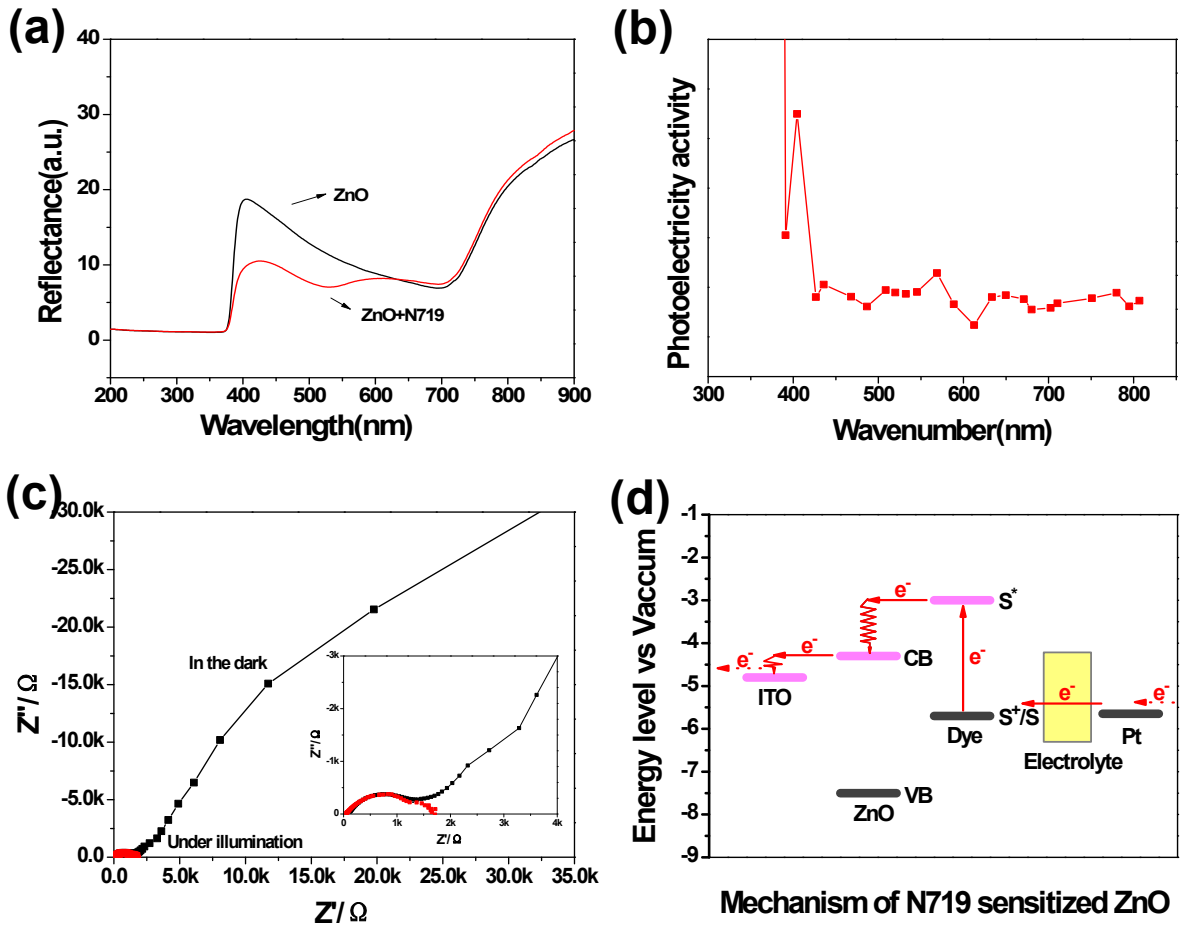

Fig. S2 Photoelectric properties characterization of the N719 dye sensitized aligned ZnO nanorod array films. (a) UV-vis diffuse-reflectance spectra of the aligned ZnO nanorod array film and the film sensitized by N719-dye. (b) Photocurrent action spectrum of the N719-dye-sensitized aligned ZnO nanorod array film. (c) Nyquist plots of the electrochemical impedance spectra obtained in the dark and under illumination for N719-dye-sensitized aligned ZnO nanorod array film. Inset shows the corresponding enlarged drawing of the high-frequency region. (d) Schematic diagram of the electron transportation process between N719 dye and ZnO.

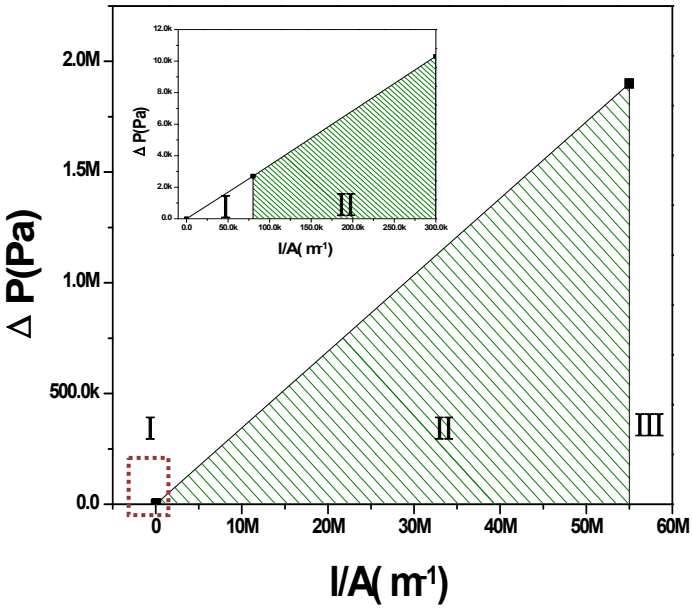

Fig. S3 The detailed description of ΔP versus l/A relationship. In region Ⅰ, liquid permeation would not happen; in region Ⅱ, liquid would only permeate into micro mesh pores, which was the suitable case for liquid reprography; in region Ⅲ, liquid would further permeate into the spacings between the nanorods. Inset is the enlarging region of Ⅰ and Ⅱ.