

Electronic Supporting Information

Light-Controlled Nanoswitches: from Fabrication to Photoelectric
Switching

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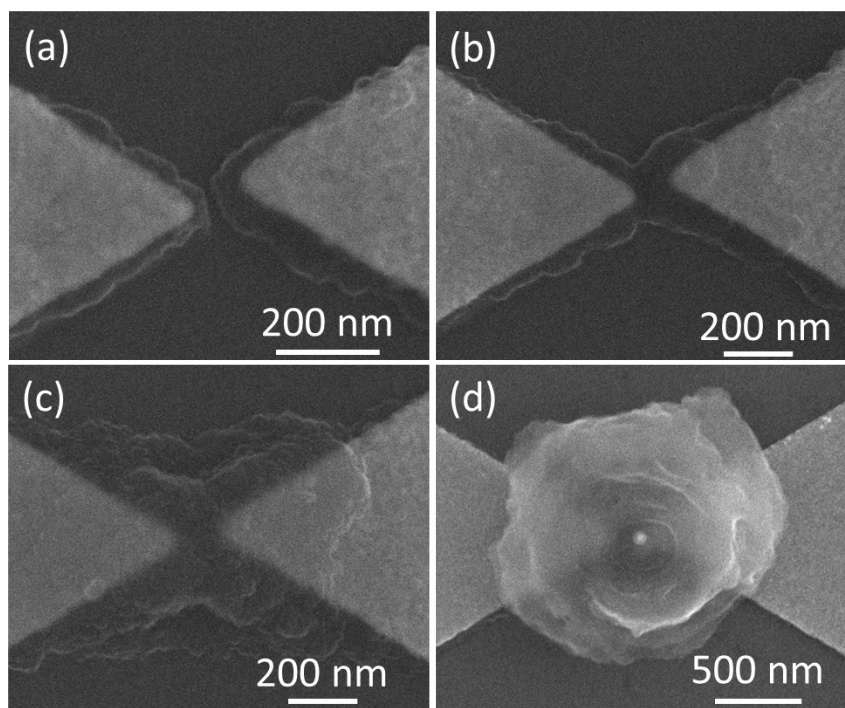


Figure S1. Polymerization of Ppy in the bowtie gaps of 95 nm. Irradiation time is 30 s and the irradiation power is (a) 1 mW, (b) 1.5 mW, (c) 2 mW, and (d) 3 mW.

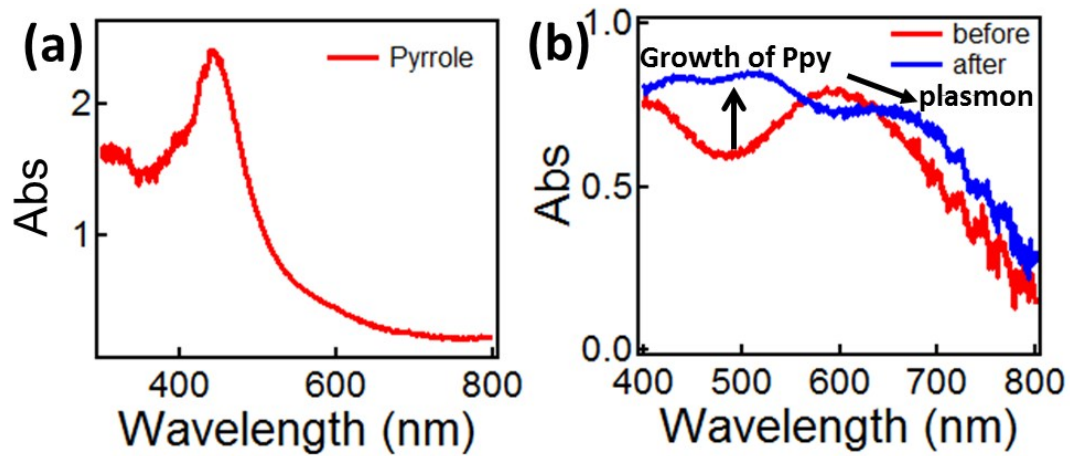


Figure S2. Absorbance spectra of (a) pyrrole and (b) Ppy in the bowtie nanogaps.

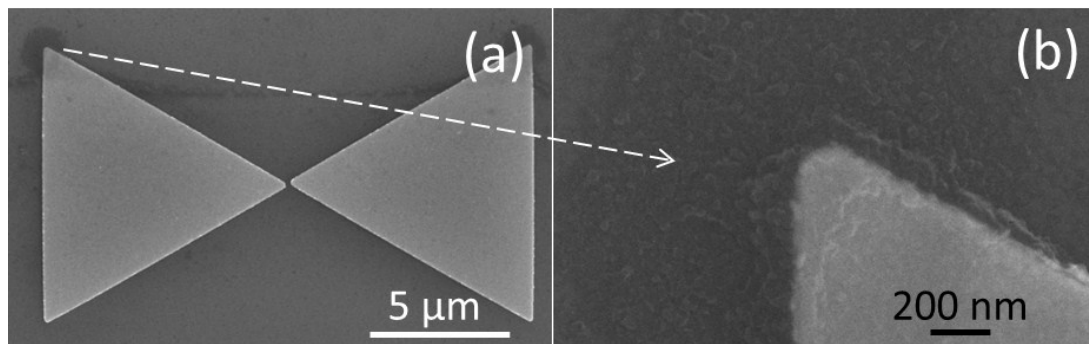


Figure S3. Plasmon assisted growth of Ppy in the corner of bowtie. Irradiation condition is 640 nm laser with power of 2 mW for 120 s.

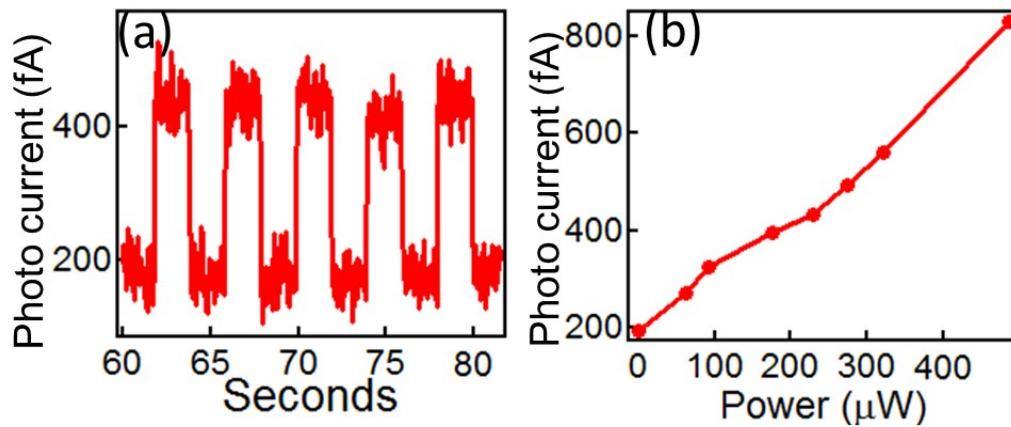


Figure S4. Photocurrent effect of Ppy-based nanoswitches. (a) Photocurrent with laser on/off under 450 nm laser irradiation (175 μW). (b) Change of photocurrent with irradiation power.

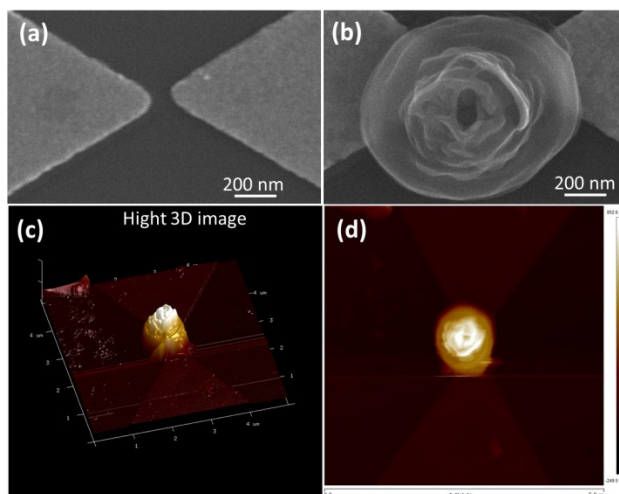


Figure S5. SEM and AFM images of the Ppy in the bowtie nanogap.

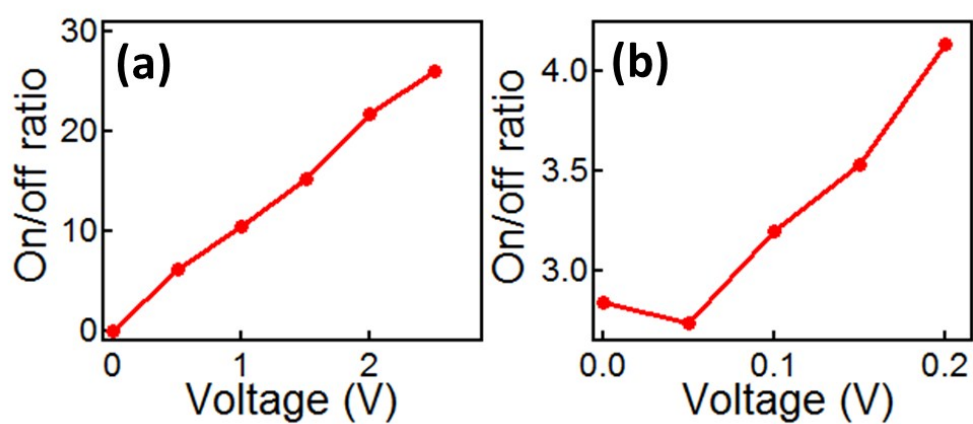


Figure S6. Change of on/off ratio with applied voltage. (a) from 0 to 3 V, (b) from 0 to 0.2 V. Illumination power 175 μ W (445 nm).

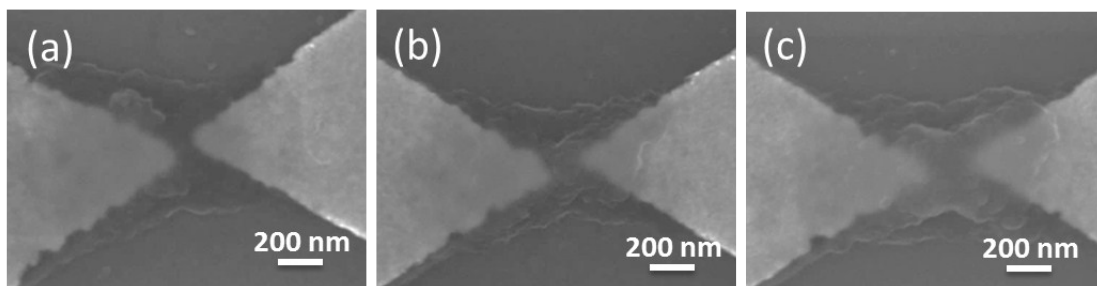


Figure S7. SEM images of Ppy grown in the bowtie nanogaps with different sizes. (a) 75 nm, (b) 140 nm, (c) 190 nm. Irradiation time 60s, power 1.5-2mW.