# High-Performance Self-Powered Ultraviolet Photodetector Based on Nano-Porous GaN and CoPc *p–n* Vertical Heterojunction

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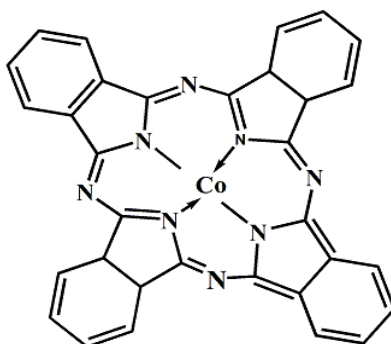‡ These authors contributed equally to this work.
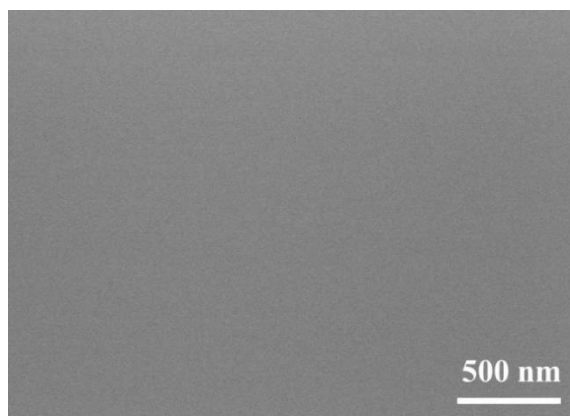
**Figure S1.** The chemical structure of CoPc.



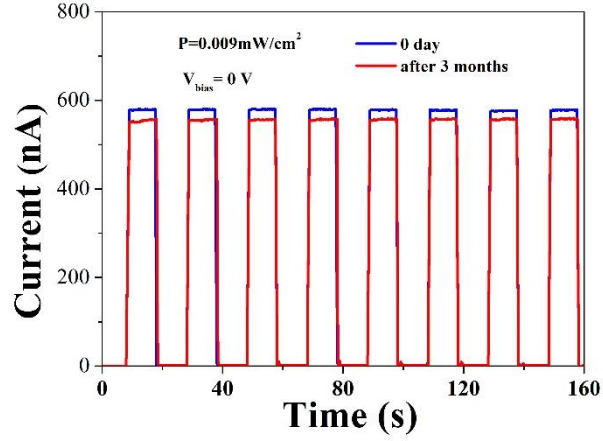**Figure S2.** SEM images of pure flat-GaN.

**Figure S3.** Time-dependent on/off switching of the device at day one and after 3 months under 365 nm light illumination, the light intensity is 0.009 mW/cm$^2$ and bias potential is 0 V.
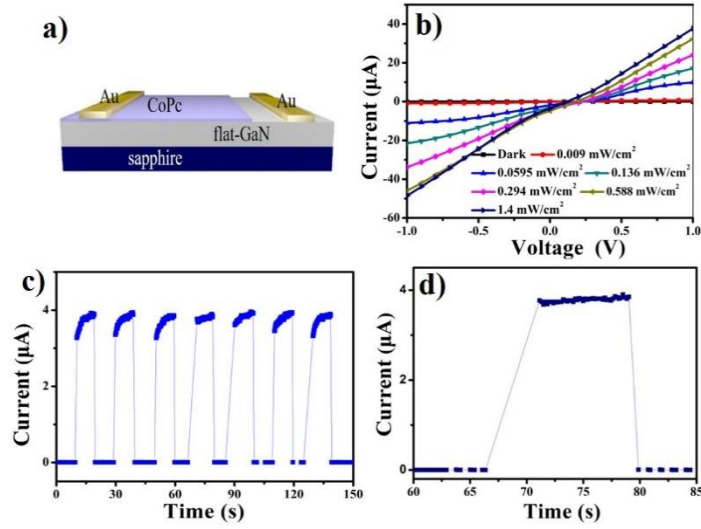


**Figure S4.** (a) Schematic of a PD device based on CoPc/flat-GaN p-n vertical heterojunction. (b) I-V curves of the PD under 365 nm light with different power density illumination. (c) Time-dependent on/off switching of the device under 365 nm light illumination, the light intensity is 1.4 mWcm$^{-2}$ and bias potential is 0 V. (d) The enlarged portion of one response and the recover process.