Electronic Supplementary Material (ESI) for Nanoscale
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Supporting Information

Reversible Photo-Chem-Electrotriggered Three-State Luminescence Switching Based on Core-Shell Nanostructures

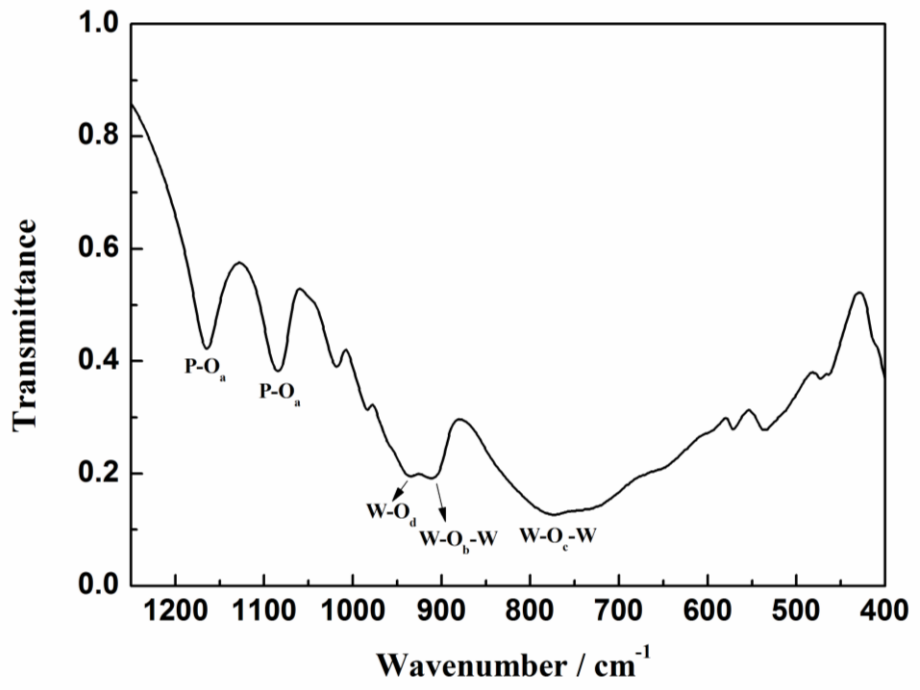

Fig. S1 IR absorption spectrum of Na-POM powder in KBr pellet.

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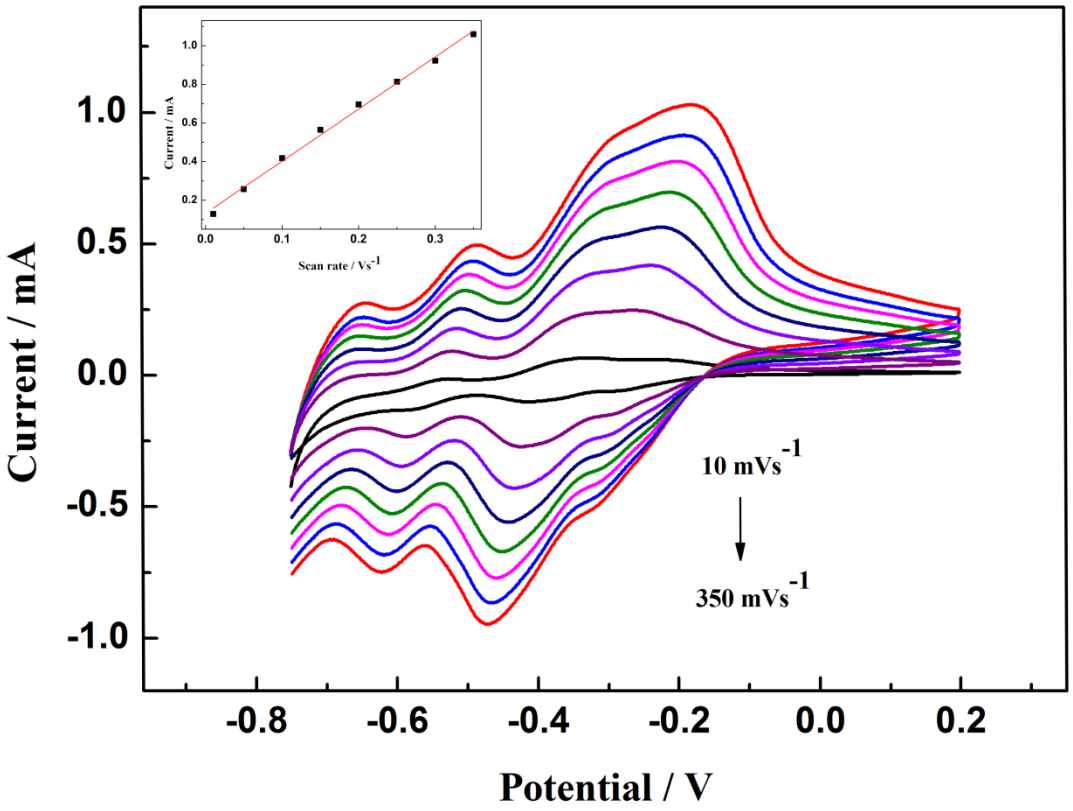

Fig. S2 CVs of ITO/PAH/Na-POMs@PYDS/PDDA electrode at different scan rates (from inner to outer): 0.01，0.05, 0.1, 0.15, 0.2, 0.25, 0.3 and 0.35 v/s in 0.1 M HAc-NaAc buffer solution (pH = 4.5). Inset: plot of peak current (Ip) vs. scan rate.

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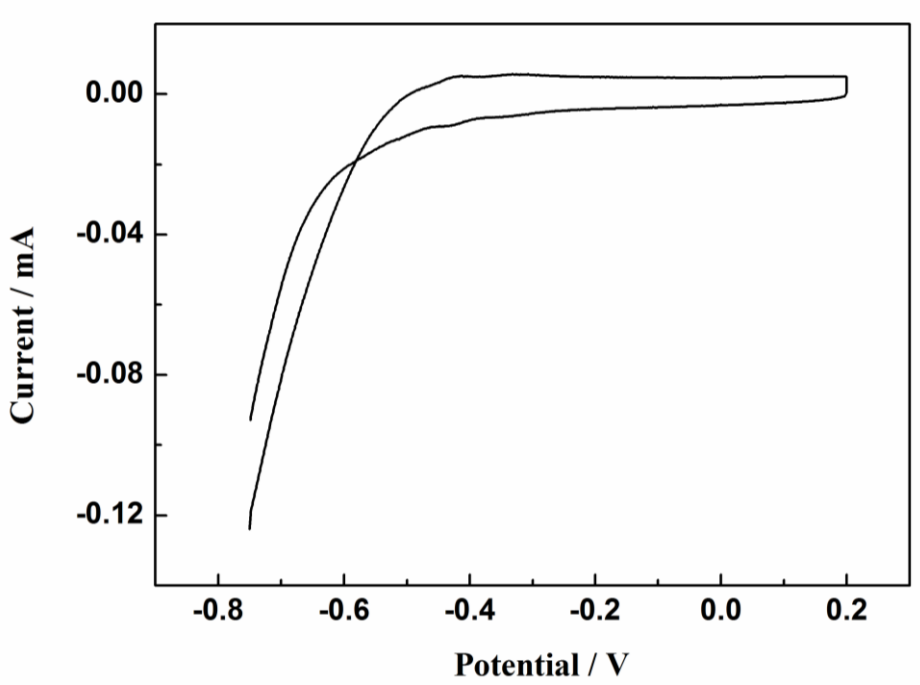

Fig. S3 Cyclic voltammograms of ITO/PAH/PYDS/PDDA electrode at 100 mVs^{-1} in 0.1 M HAc-NaAc buffer solution (pH = 4.5).

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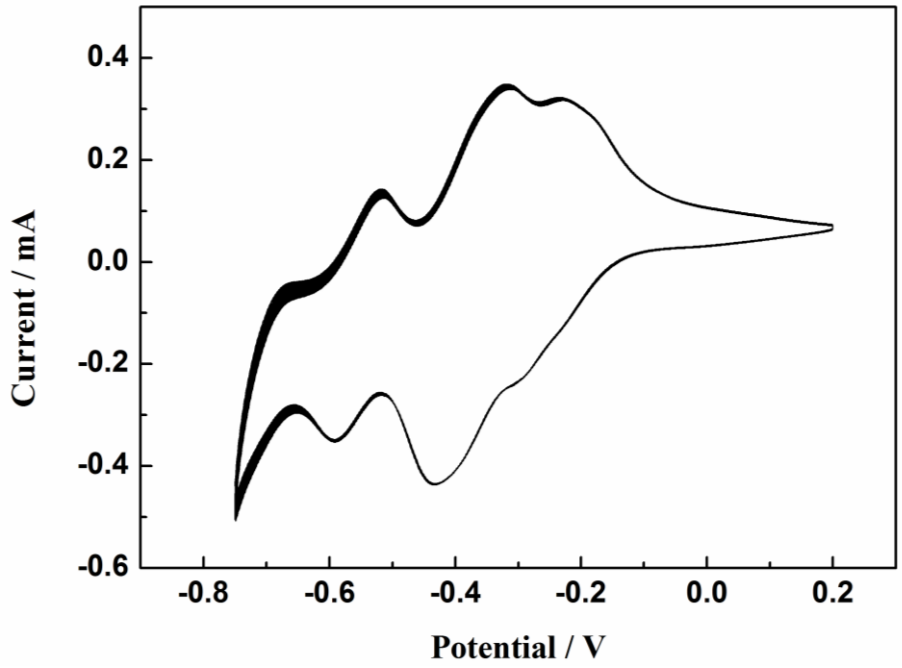

Fig. S4 100 consecutive CV cycles of ITO/PAH/Na-POMs@PYDS/PDDA electrode at 100 mVs^{-1} in 0.1 M HAc-NaAc buffer solution (pH = 4.5).

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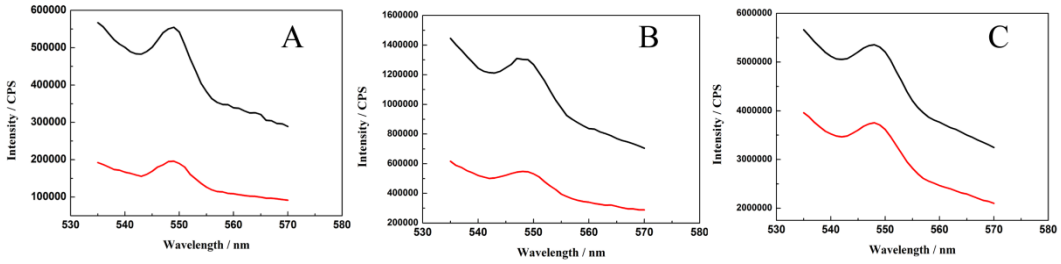

Fig. S5 Fluorescence switching of ITO/PAH/Na-POMs@PYDS/PDDA (A), ITO/(PAH/Na-POMs@PYDS)$_3$/PDDA (B), and ITO/(PAH/Na-POMs@PYDS)$_5$/ PDDA (C) electrodes under alternating applied potential with 0 V (black lines) and -0.6 V (red lines). The experiments were performed in a 0.1 M HAc-NaAc buffer solution (pH = 4.5).

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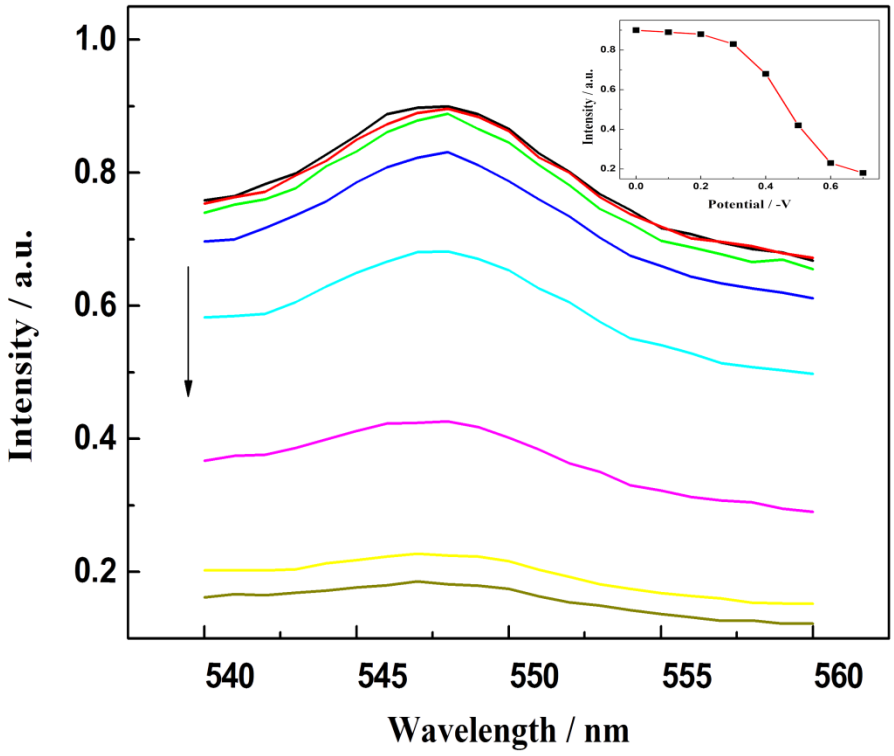

Fig. S6 Luminescence spectra of the Na-POMs@PYDS film at applied different potential (from top to bottom: 0, -0.1, -0.2, -0.3, -0.4, -0.5, -0.6 and -0.7 V).

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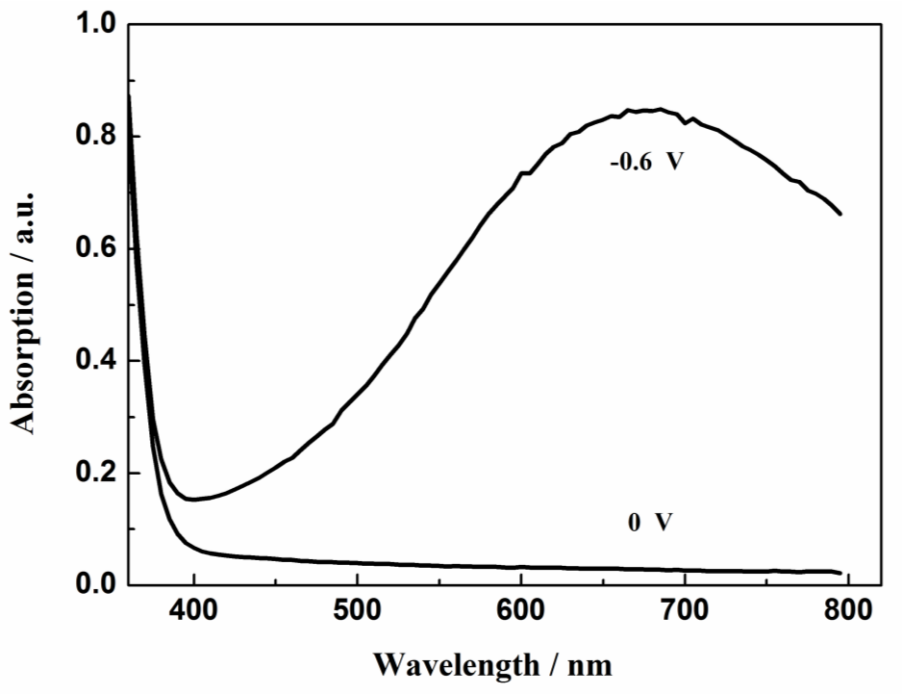

Fig. S7 Absorption spectra of Na-POMs on ITO electrode at applied potential of -0.6 V and 0 V in 0.1 M HAc-NaAc buffer solution (pH = 4.5).

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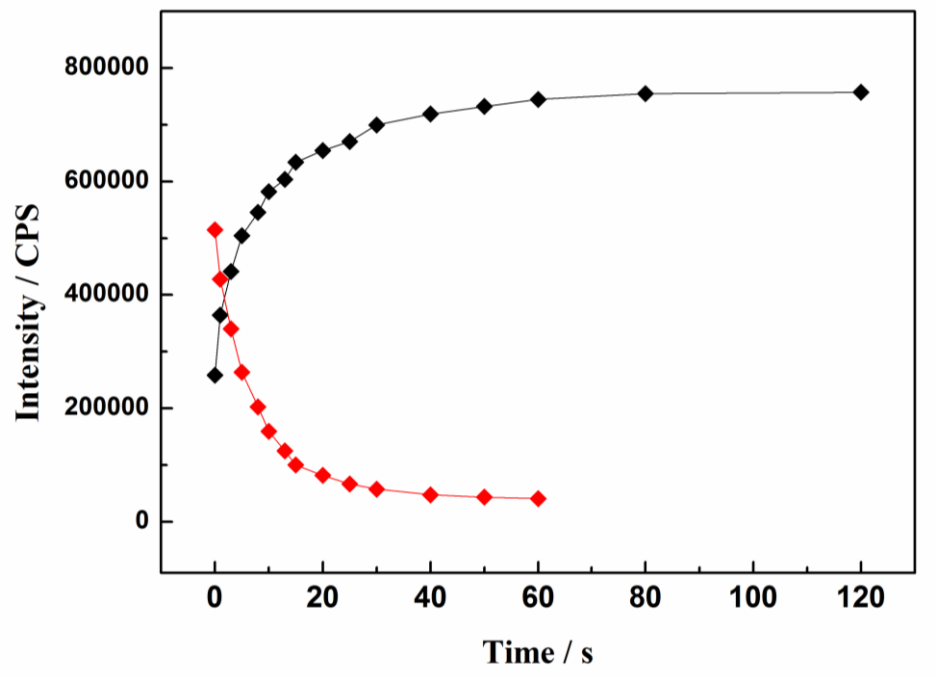

Fig. S8 Luminescence spectra of the Na-POMs@PYDS film at applied potential of -0.6 V (red curve) and 0 V (black curve) for different duration.

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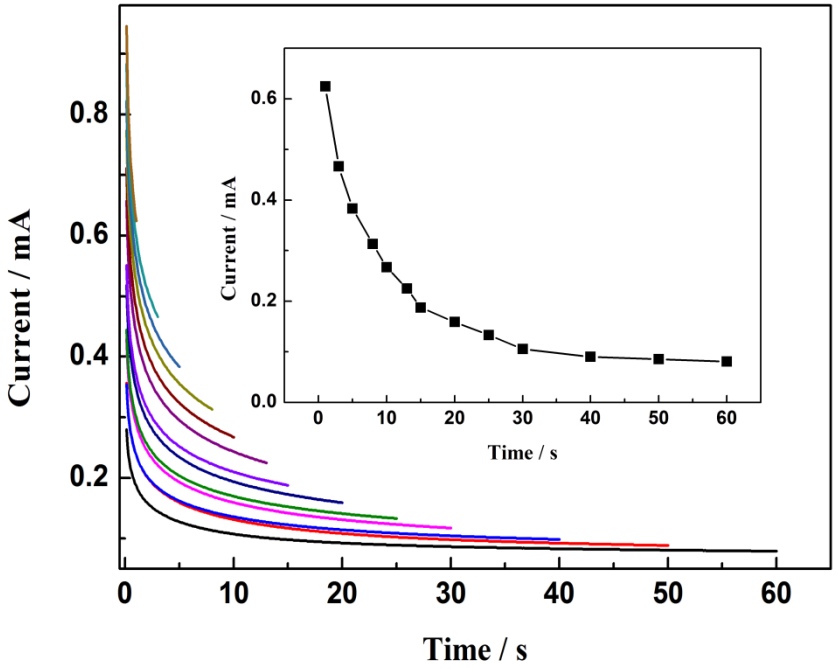

Fig. S9 I-t curves of the Na-POMs@PYDS film at applied potential of -0.6 V for different duration times.

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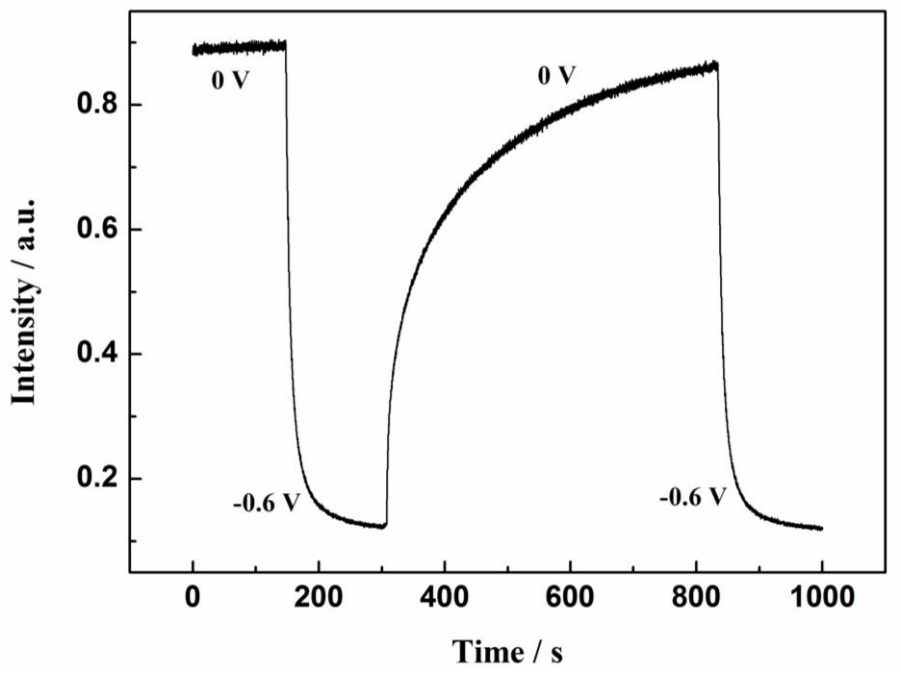

Fig. S10 Normalized fluorescence intensity against time for ITO/PAH/Na-POMs@PYDS/PDDA electrode on application of -0.6 V (OFF state) and 0 V (ON state).