

Electronic Supplementary Information on the New Journal of Chemistry
publication entitled

**A reusable fluorescent sensor from electrosynthesized water-soluble
oligo(1-pyrenesulfonic acid) for effective detection of Fe³⁺**

Nannan Jian^{§a}, Kaiwen Lin^{§a}, Bin Guo^b, Ge Zhang^a, Ximei Liu^c, Lie Zou^c,
Baoyang Lu^{*c}, Jingkun Xu^{*a,d}

*^aSchool of Chemistry & Chemical Engineering, Jiangxi Science &
Technology Normal University, Nanchang 330013, Jiangxi, PR China;*

*^bCollege of Science, Nanjing Forestry University, Nanjing 210037,
Jiangsu, PR China;*

*^cSchool of Pharmacy, Jiangxi Science & Technology Normal University,
Nanchang 330013, Jiangxi, PR China;*

*^dSchool of Chemistry and Molecular Engineering, Qingdao University of
Science and Technology, Qingdao 266042, Shandong, PR China.*

*: Corresponding authors. Email: lby1258@163.com
and xujingkun1971@yeah.net

§These authors contributed equally to this work.

The file includes:

Fig. S1 ^1H NMR of 1-pyrenesulfonic acid.

Fig. S2 Chronoamperometric curves of 0.01 mol L^{-1} 1-pyrenesulfonic acid on a Pt working electrode in BFEE at different applied potentials as indicated ($\Delta E = 0.05 \text{ V}$) for 500 s.

Fig. S3 SEM images of (A) dedoped and (B) doped oligo(1-pyrenesulfonic acid) films. Magnification: $\times 50\,000$.

Fig. S4 FT-IR spectra of 1-pyrenesulfonic acid (a) and oligo(1-pyrenesulfonic acid) (b).

Fig. S5 The degradation properties of oligo(1-pyrenesulfonic acid) from 300 to 1100 K.

Fig. S6 The fluorescence emission spectra of 1-pyrenesulfonic acid ($1.00 \times 10^{-3} \text{ M}$) in the deionized water with successive addition of Fe^{3+} : (1) blank; (2) $3.00 \times 10^{-6} \text{ M}$; (3) $5.17 \times 10^{-4} \text{ M}$; (4) $1.26 \times 10^{-3} \text{ M}$; (5) $1.85 \times 10^{-3} \text{ M}$; (6) $2.58 \times 10^{-3} \text{ M}$; (7) $2.73 \times 10^{-3} \text{ M}$; (8) $2.88 \times 10^{-3} \text{ M}$; (9) $3.03 \times 10^{-3} \text{ M}$; (10) $3.18 \times 10^{-3} \text{ M}$; (11) $3.32 \times 10^{-3} \text{ M}$; (12) $3.47 \times 10^{-3} \text{ M}$; (13) $4.21 \times 10^{-3} \text{ M}$; (14) $5.98 \times 10^{-3} \text{ M}$; (15) $9.38 \times 10^{-3} \text{ M}$; (16) 1.01×10^{-2} ; (17) $1.19 \times 10^{-2} \text{ M}$; (18) $1.60 \times 10^{-2} \text{ M}$; (19) $2.05 \times 10^{-2} \text{ M}$. Inset: The $\log(I_0/I)$ of 1-pyrenesulfonic acid sodium salt vs. $[\text{Fe}^{3+}]$. Excitation was 350 nm.

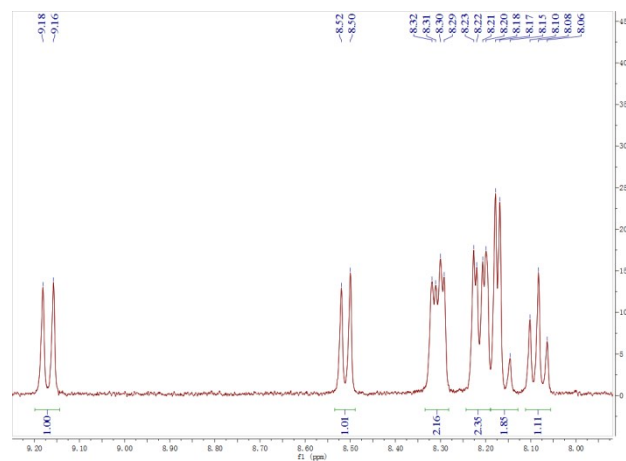


Fig. S1

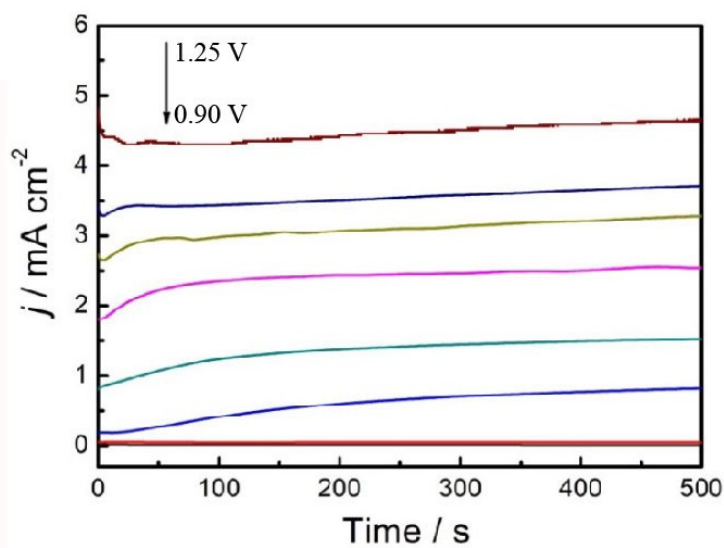


Fig. S2

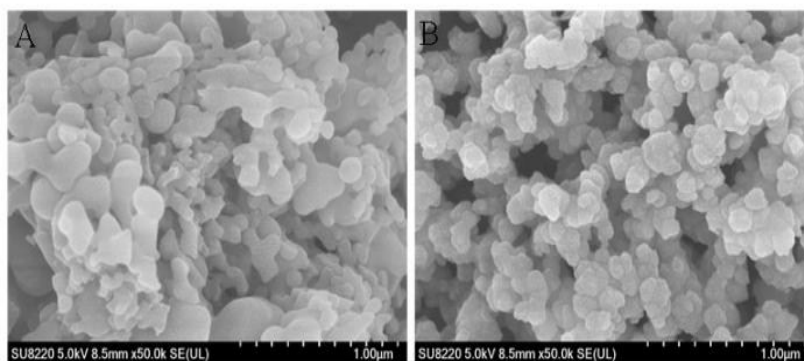


Fig. S3

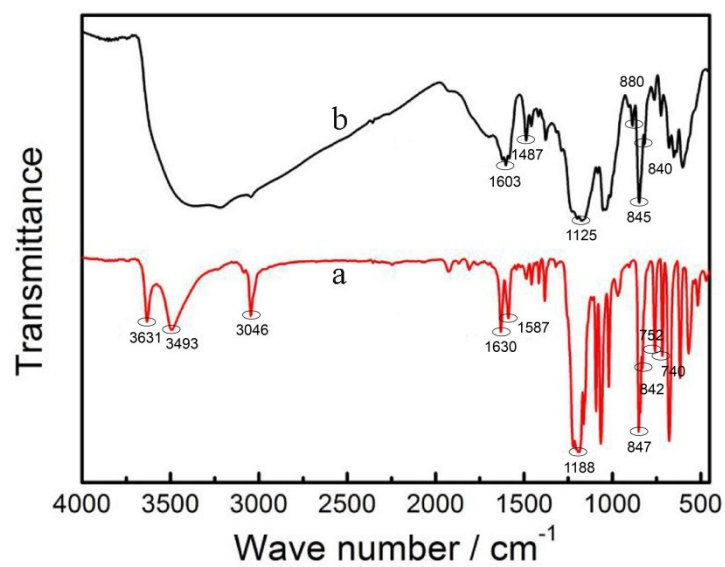


Fig. S4

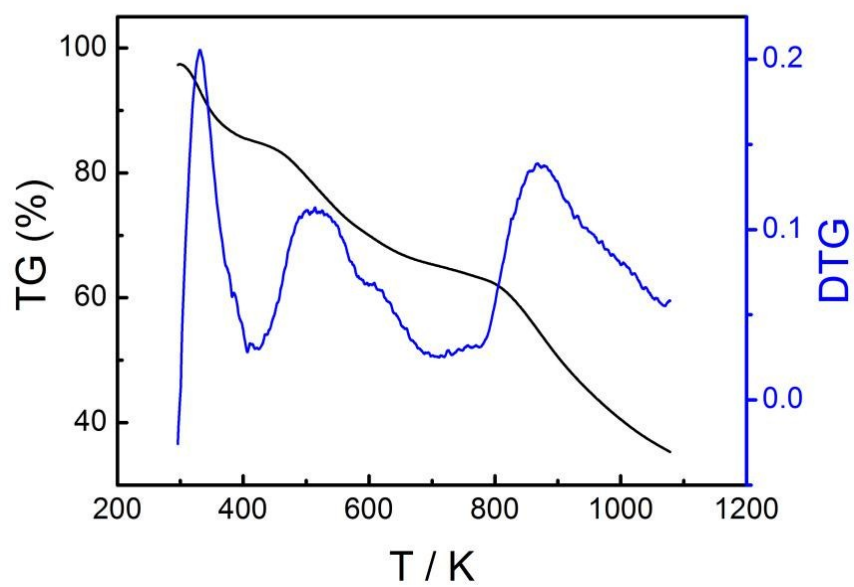


Fig. S5

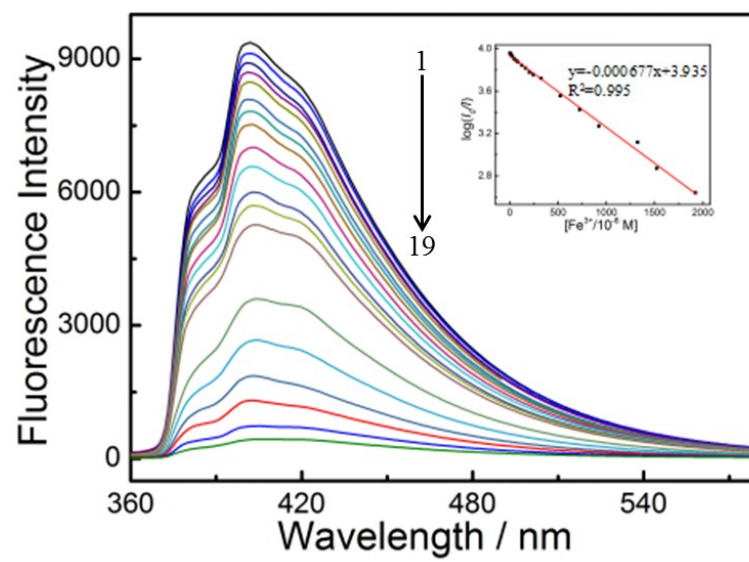


Fig. S6