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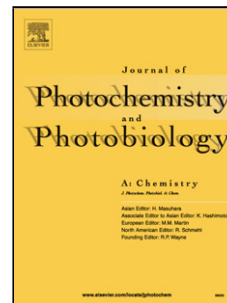
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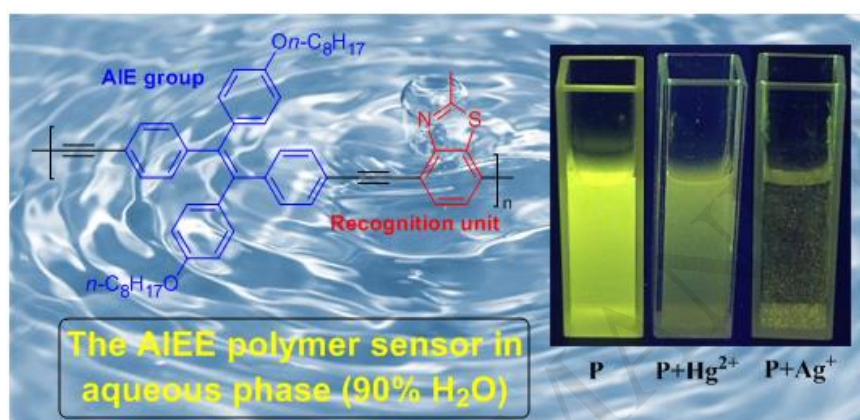
# A novel AIEE polymer sensor for detection of $\text{Hg}^{2+}$ and $\text{Ag}^+$ in aqueous solution

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## Graphical abstract



## Highlights:

- A novel AIE-active chromophore **M-1** was designed and synthesized.
- The AIEE polymer sensor **P1** can exhibit “turn-off” response toward  $\text{Hg}^{2+}$  and  $\text{Ag}^+$ .
- The selectivity of **P1** can be observed by naked eyes under 365 nm UV lamp.

**Abstract:** A novel AIEE (aggregation-induced emission enhancement)-active conjugated polymer incorporating thiazole and tetraphenylethene (TPE) was designed and synthesized *via* Pd-catalyzed Sonogashira coupling reaction. The polymer shows typical AIEE phenomena, and emits green fluorescence in the mixed solvent of tetrahydrofuran (THF) and water, reaching a maximum fluorescence intensity when the fraction of water is 90%. In the aqueous phase ( $f_w = 90\%$ ), the polymer sensor exhibits “turn-off” fluorescence quenching responses towards  $\text{Hg}^{2+}$  and  $\text{Ag}^+$  over other cations, such as  $\text{Li}^+$ ,  $\text{K}^+$ ,  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Ba}^{2+}$ ,  $\text{Zn}^{2+}$ ,  $\text{Cd}^{2+}$ ,  $\text{Co}^{2+}$ ,  $\text{Ni}^{2+}$ ,  $\text{Pb}^{2+}$ ,  $\text{Cu}^{2+}$ ,  $\text{Al}^{3+}$  and  $\text{Fe}^{3+}$ . The obvious fluorescence change (bright yellow to weak emission) can be clearly observed by the naked eyes.

**Keywords:** AIEE, polymer,  $\text{Hg}^{2+}$ ,  $\text{Ag}^+$ , aqueous phase

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