

Supporting Information

Monolayer Molecular Probes for Efficient Detection of Trace Amount Cyanide Anions

Fei Wu,^a Shangbi Zhao,^a Linna Zhu^{*a}

^aChongqing Key Laboratory for Advanced Materials and Technologies of Clean Energy, Faculty of Materials and Energy, Southwest University, Chongqing 400715, P.R. China.

Corresponding Author: Linna Zhu, Faculty of Materials and Energy, Chongqing, China, E-mail address: lnzhu@swu.edu.cn. Tel.: +86 23 68254957.

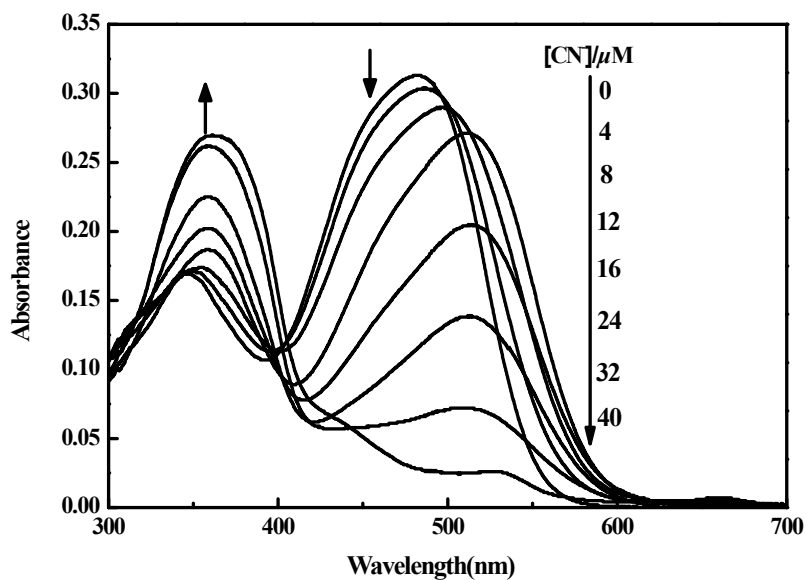


Figure S1. Absorption spectra change of P1 (5 μM) in the presence of increasing concentrations of CN⁻ (0-40 μM) in THF solution.

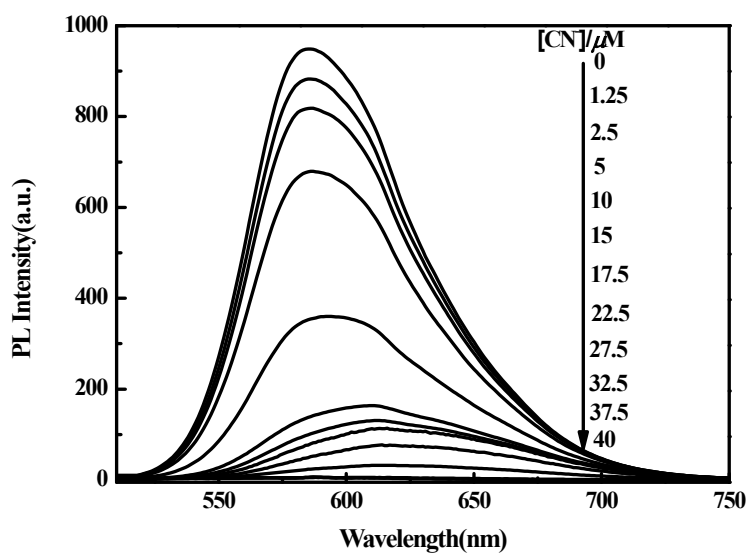


Figure S2. Fluorescence titration of P1 ($5 \mu\text{M}$) to cyanide ions in THF solution. Inset shows the NIR emission color changes before and after addition of CN^- .

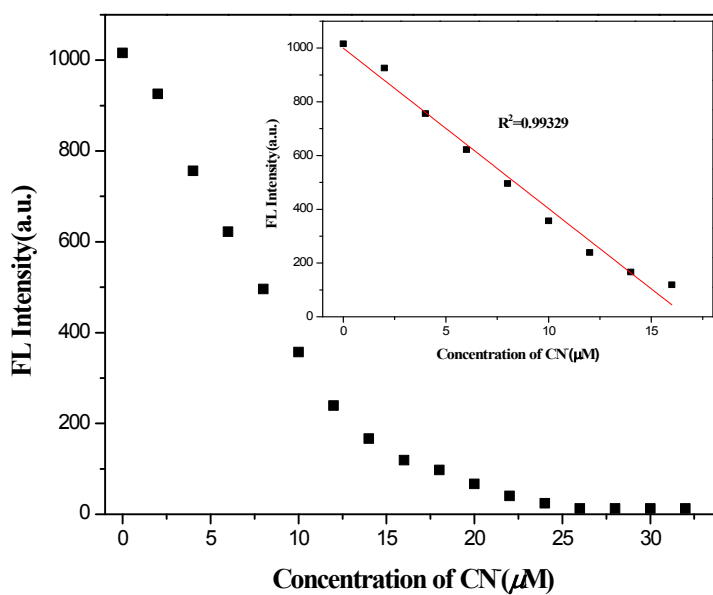


Figure S3. Plots of fluorescence intensity at 590 nm of P1 ($5 \mu\text{M}$) with the addition of CN^- in THF. $\lambda_{\text{ex}} = 500 \text{ nm}$. Slits: 3 nm/5 nm. Inset: fluorescence intensity at 590 nm as a linear function of CN^- concentration from 0 to $16 \mu\text{M}$.

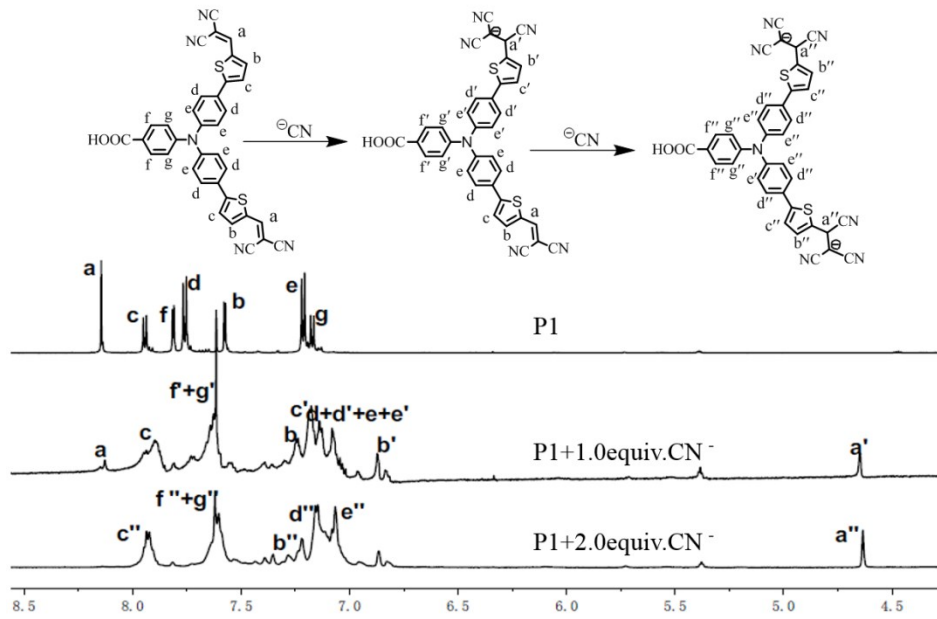


Figure S4. Partial ^1H NMR spectral changes upon the addition of cyanide anion to P1 in CD_3CN .

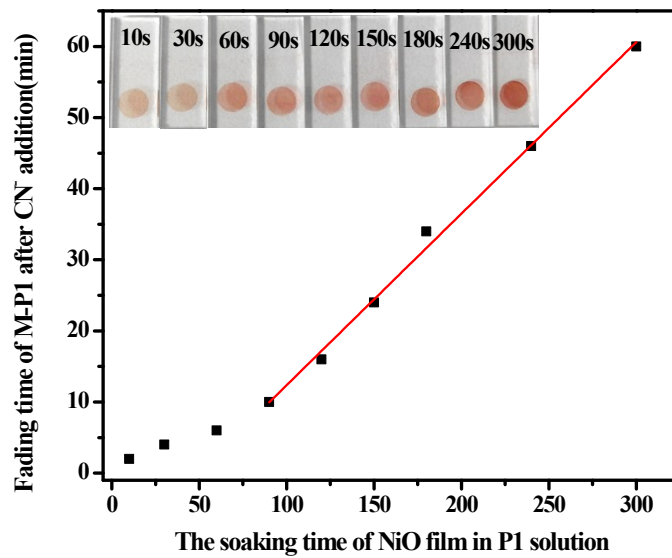


Figure S5. Fading time of M-P1 after treatment of CN^- versus the soaking time of NiO film in P1

solution. Inset shows the film colors of M-P1 under different soaking time of NiO film.

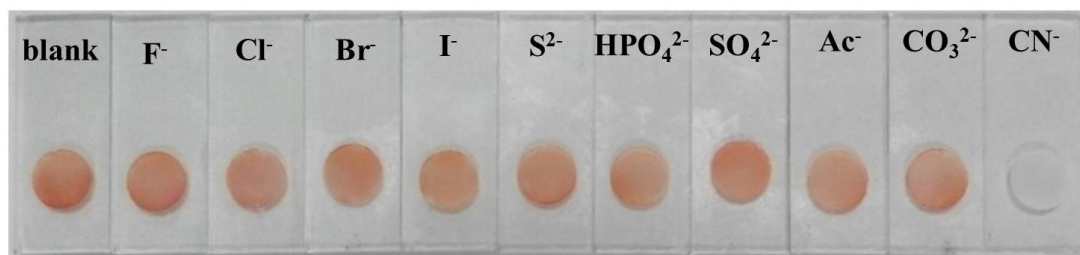
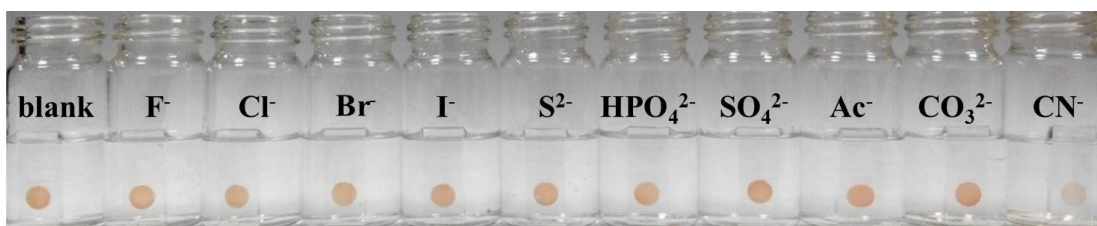


Figure S6. Photographs of M-P1 (on TiO_2 films) immersed into different anions solution. Upside: photos taken with M-P1 immersed in anion solution; downside: the glasses are taken out from the anions solution.

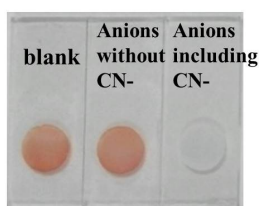
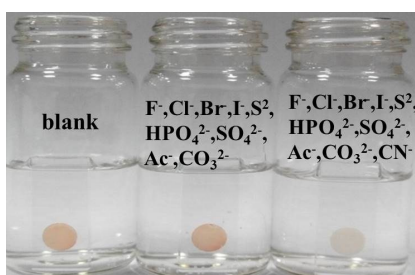


Figure S7. Photographs of M-P1 on TiO_2 films and its color change when soaked in the mixed anions solution in the presence and absence of CN^- .

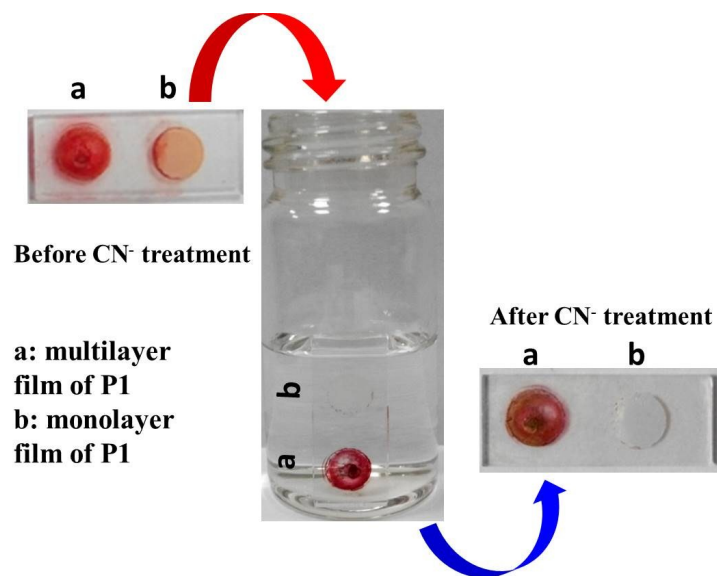


Figure S8. The monolayer and multilayer P1 before and after immersing into the CN⁻ solution. a) represents the multilayer P1, and b) shows the monolayer of P1.