Fluorescent Film Sensor for Nitroaromatics Prepared via Grafting a Conjugated Polymer on a Glass Slide Surface[1]

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Abstract—A functionalized glass sensor (**G-P**) was prepared for detecting nitroaromatic compounds (NACs) by chemically immobilizing a conjugated polymer **P** on the surface of a glass slide. The monolayer film sensor had several advantages: the signal amplification effect of conjugated polymers, no leakage of sensing materials in solution, and good permeability for the analytes. Fluorescence quenching studies demonstrated that the sensor was highly sensitive to NACs. When the DNT concentration was 1.03×10^{-7} mol/L, the quenching efficiency ($1 - I/I_0$) of **G-P** reached 52.8%. Moreover, the excellent properties of reversibility, selectivity and sensitivity indicated the glass **G-P** might be a promising sensor in the field of explosives detection.

Keywords: conjugated polymers, functionalized glass, nitroaromatics, fluorescence quenching, sensor.

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