

Abstract Submitted  
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**Sensitive detection of nitro aromatic explosives using novel polythiophene nanoparticles** SOUMITRA SATAPATHI, University of Massachusetts Lowell, B. HARIHARA VENKATARAMAN, University of Massachusetts Amherst, AKSHAY KOKIL, University of Massachusetts Lowell, LIAN LI, US Army Natick Soldier Research, Development & Engineering Center, Natick,, DHANDAPANI VENKATARAMAN, University of Massachusetts Amherst, JAYANT KUMAR, University of Massachusetts Lowell, CENTER FOR ADVANCED MATERIALS TEAM, UNIVERSITY OF MASSACHUSETTS LOWELL TEAM, UNIVERSITY OF MASSACHUSETTS AMHERST COLLABORATION — Fluorescent polythiophene nanoparticles were fabricated by surfactant assisted mini emulsion technique. The size distribution of the synthesized nanoparticles was characterized using dynamic light scattering (DLS) and scanning electron microscopy (SEM). The synthesized nanoparticles were also characterized using UV-Vis and fluorescence spectroscopy. Strong two-photon induced fluorescence was observed from these nanoparticles using 800 nm pulses from a femto second laser. The fluorescence response of these nanoparticles to nitro-aromatic explosives 2,4-dinitrotoluene and 2,4,6-trinitrotoluene in solution was investigated at different concentrations of the analytes. Strong fluorescence quenching was observed using both one photon and two-photon excitation source. The Stern Volmer constant is also higher.

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