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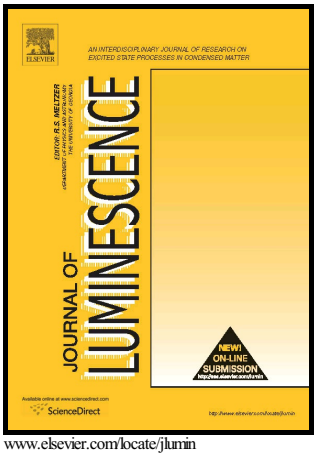

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Synthesis, characterization and performance of a magnetic-emissive nanoplatform based on organic dye and molecular sieve

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Abstract

This paper reported a recyclable nitrite sensing platform based on a core-shell hybrid structure. Here superamagnetic Fe_3O_4 nanoparticles were used as core, a silica molecular sieve was applied as supporting shell and two rhodamine-based chemosensors were used as sensing probe, respectively. These composite samples were discussed by means of electron microscopy images, porous structure analysis, magnetic study, IR spectra and thermal stability. They showed emission turn off effect towards nitrite. Further analysis suggested that they followed a static sensing mechanism towards nitrite through an additive reaction. Their sensing behavior followed Demas quenching equation against nitrite concentration with limit of detection as low as 0.35 μM. Their superamagnetic nature enabled their recyclability after finishing nitrite sensing. These used samples could be regenerated by sulphamic