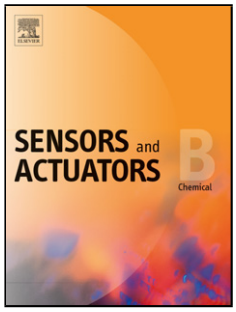

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Selective response of pyrylium-functionalized nanozeolites in the visible spectrum towards volatile organic compounds

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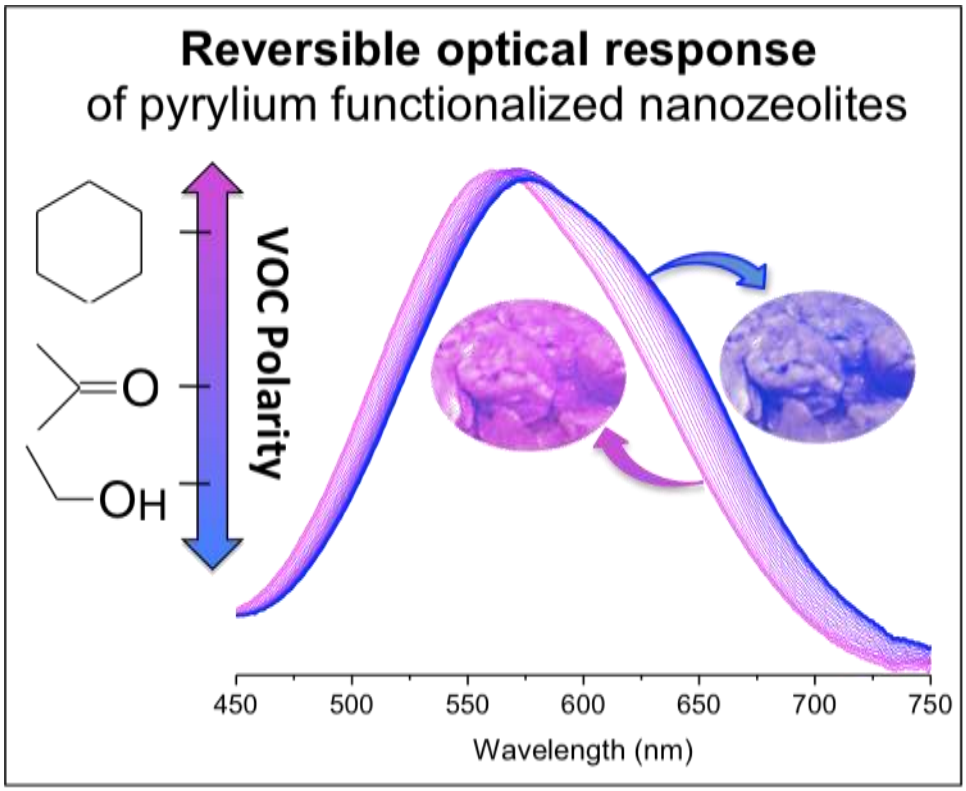
Graphical abstract



Highlights

- Optical detection of volatile organic compounds with nanozeolites functionalized with pyrylium salts.
- Lewis acid sites of the nanozeolites responsible for adsorption of pyrylium salt.
- Pyrylium-functionalized nanozeolites with high selectivity based on the basicity of the VOCs.
- Selective response and reversibility of pyrylium-functionalized nanozeolites for VOCs.

Abstract: An optical detection of volatile organic compounds (VOCs) using nanosized zeolites functionalized with pyrylium salts is presented. Nanosized zeolite crystals firstly are functionalized with pyrylium salt (para-dimethylamino-2,4,6-triphenylthiopyrylium tetrafluoroborate, PNS). Then the optical response of the pyrylium-functionalized nanozeolites towards volatile organic compounds is investigated. Two possible modes of