Multiscale phenomena in molecular matter



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## An Fe-azole based chemosensors for detection of gas- and vapor-phase analytes

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There is currently a huge appeal for "chemosensors" based on metal–organic frameworks (MOFs) for the sensitive and selective detection of gas- and vapor-phase analytes for a range of applications including chemical threat alerts, medical diagnostics, and environmental monitoring. Here, We have developed a simple colorimetric molecular sensor that detects a wide range of volatile analytes and then applied it to the detection of toxic gases. The sensor consists of a mononuclear complex,  $[Fe(trz-tet)_2(H_2O)_4]\cdot 2H_2O$ , with a FeN<sub>2</sub>O<sub>4</sub> chromophore with monodentate triazole coordination that can be changed by diverse chemical interactions with analytes. The colour change for the sensor is a unique molecular fingerprint. Clear differentiation among 6 different chemicals, including 4 toxic industrial chemicals (TICs) within two minutes of exposure under vapor diffusion.

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