

*Multifunctional materials for sensing of metal ions and small molecules*

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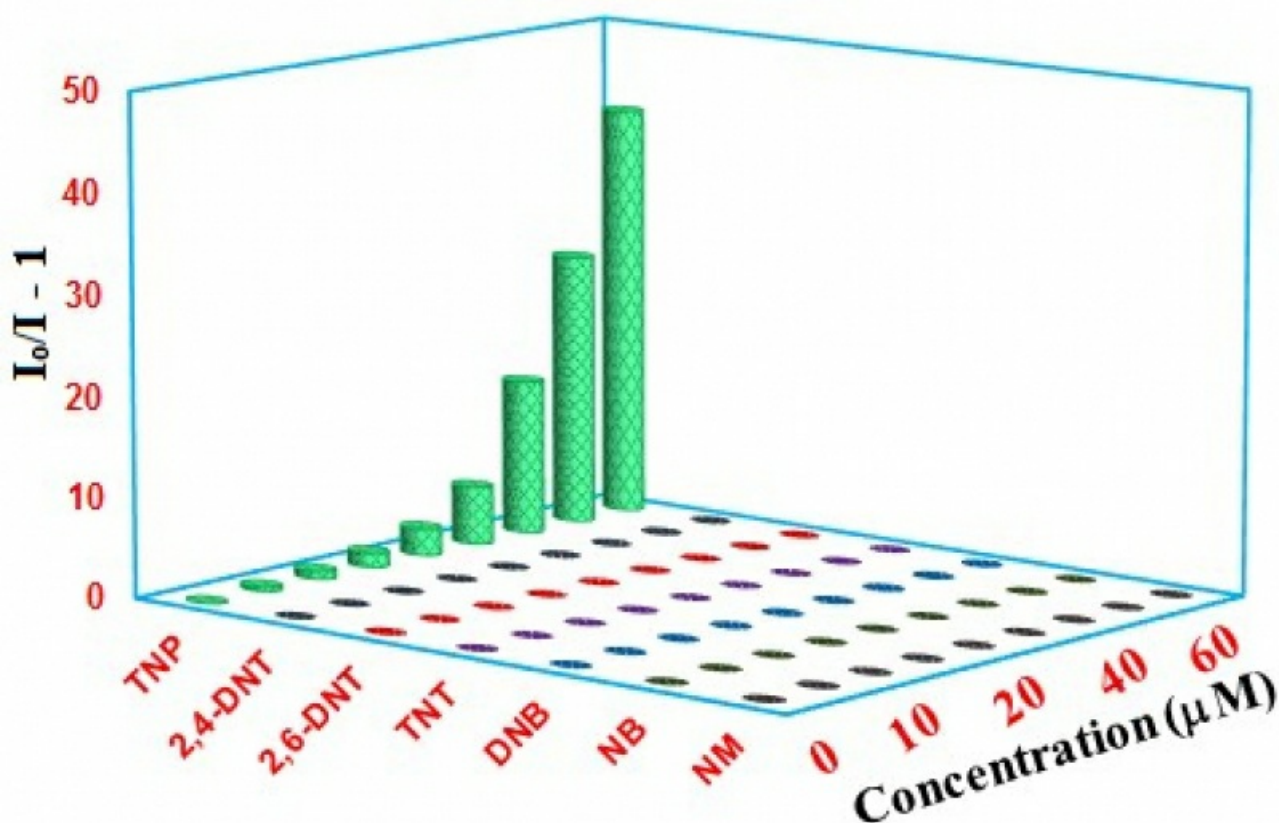
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For the past decade, design and development of porous Metal Organic Frameworks (MOFs), considered as substitutes for totally inorganic Zeolites, have provided thousands of examples for their structural diversity and for their potential in various applications ranging from sensing, catalysis, gas/vapor sorption for storage and separation, drug delivery, ion exchange, magnetism, etc. [1-2]. However, examples of MOFs as multifunctional porous materials are in huge demand [3]. For our continued contribution to this emerging field, we have designed a series of new ligands to make multifunctional MOFs in high yields for showcasing their versatile applications in several areas. In this talk, I will discuss their multi-functionality in selective sensing of several toxic metal ions and small molecules, such as nitroaromatic compounds and aniline, utilizing fluorescence spectroscopy as well as fluorescence microscopy, wherever possible. Among the results obtained in this study, notable porous materials are found to be the best for sensing of (a) Cu(II) ion and (b) picric acid at the ppb level in water.

[1] Issue No. 5 of the 38th volume of the Chem. Soc. Rev. (2009).

[2] Issue No. 2 of the 112th volume of the Chem. Rev. (2012).

[3] C. He, D. Liu, W. Lin, (2015). Chem. Rev., 115, 11079.



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