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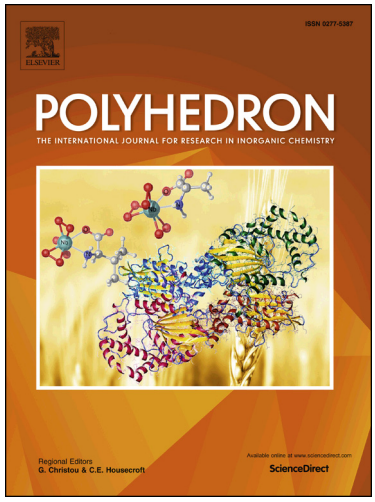

A Luminescent Cd(II)-MOF as Recyclable Bi-responsive Sensor for Detecting TNP and Iron(III)/Silver(I) with High Selectivity and Sensitivity

Jinsong Hu, Ke Wu, Shengju Dong, Mingdong Zheng

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ACCEPTED MANUSCRIPT

A Luminescent Cd(Ⅱ)-MOF as Recyclable Bi-responsive Sensor for Detecting TNP and Iron(III)/Silver(I) with High Selectivity and Sensitivity

Jinsong Hu*[a, b, c] Ke Wu[a] Shengju Dong[a] Mingdong Zheng*[a]

[a] *School of Chemical Engineering, Anhui University of Science and Technology, Huainan 232001, P. R. China;*

[b] *Key Lab of Novel Thin Film Solar Cells, Chinese Academy of Sciences Hefei Institute of Physical Science, Chinese Academy of Sciences;*

[c] *Key Laboratory of Photochemical Conversion and Optoelectronic Material, TIPC, CAS.*

E-mail: jshu@aust.edu.cn, Zhmd118@ahut.edu.cn

ABSTRACT: A new three dimensional framework $\{[Cd_2(BPDPE)_2(chdc)_2(H_2O)_2]\cdot 4H_2O\}_n$ (**1**) (BPDPE = 4,4′-bis(pyridyl)diphenyl ether H_2chdc =1,4-cyclohexanedicarboxylic acid) has been successfully synthesized and characterized. In this complex, the $chdc^{2-}$ adopts *tran*- configuration, was linked by three types of Cd ions to form wave-like 2D layer with hexagonal grids. The 2D layers are linked by meso-helical chains $Cd_n(BPDPE)_n$ to form a 3D framework. It is surprised find that complex **1** can highly sensitive sense 2, 4, 6-trinitrophenol (TNP) through luminescence quenching effect, the quenching constant is up to 2.794×10^5 M^{-1}. In addition, complex **1** also presents highly sensitive fluorescent sensor for detecting Fe^{3+} and Ag^+ ions. The quenching constants are 2.893×10^4 M^{-1} and

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