Title:	Nanoporous Zn-Based Metal-Organic Framework Nanoparticles for Fluorescent pH Sensing and Thermochromism
Authors:	Das, Prasenjit (/jspui/browse?type=author&value=Das%2C+Prasenjit) Mandal, S.K. (/jspui/browse?type=author&value=Mandal%2C+S.K.)
Keywords:	fluorescence microscopy fluorescent pH sensing luminescent MOF nanoparticles nanoporous Zn-MOF
Issue Date:	2020
Publisher:	American Chemical Society
Citation:	ACS Applied Nano Materials, 3(9) pp. 9480-9486.
Abstract:	Dual-functional porous metal-organic framework (MOF) nanoparticles have generated a great platform for developing various types of luminescent sensors because of their inconceivable structural diversity and tunable properties. We report the dual-functional nature of autofluorescent nanoporous Zn-MOF nanoparticles possessing exceptional thermal and chemical stability for the detection of wide-range pH (1 to 11) and temperature (micro, -15 °C to +50 °C; and macro, up to +400 °C). The fluorescent switch on-off response was observed at basic and acidic pH, respectively, which is correlated with the quantum yield and lifetime dual-read out process. On the other hand, intramolecular charge transfer and rotation or nonradiative decay play a prominent role for temperature sensing. The mechanism of pH sensing has been established by an acidic TNP-sensing experiment at different pH. The macro range temperature is monitored by fluorescence microscopy in the DAPI and FITC region. To the best of our knowledge, this is the first example of a dual-responsive luminescent probe for both pH and temperature sensing
URI:	https://pubs.acs.org/doi/10.1021/acsanm.0c02132 (https://pubs.acs.org/doi/10.1021/acsanm.0c02132) http://hdl.handle.net/123456789/3317 (http://hdl.handle.net/123456789/3317)
Appears in Collections:	Research Articles (/jspui/handle/123456789/9)

Files in This Item:

File	Description	Size	Format	
Need to add pdf.odt (/jspui/bitstream/123456789/3317/1/Need%20to%20add%20pdf.odt)		8.63 kB	OpenDocument Text	View/Open (/jspui/bitstream/12345

Show full item record (/jspui/handle/123456789/3317?mode=full)
(/jspui/handle/123456789/3317/statistics)