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Title:	Flexible and Semi-flexible Amide-Hydrazide Decorated Fluorescent Covalent Organic Frameworks as On-Off pH Responsive Proton Scavengers
Authors:	Das, Prasenjit (/jspui/browse?type=author&value=Das%2C+Prasenjit) Mandal, Sanjay K. (/jspui/browse?type=author&value=Mandal%2C+Sanjay+K.)
Keywords:	Luminescence Fluorescence
Issue Date:	2021
Publisher:	ACS Publications
Citation:	ACS Applied Materials & Interfaces, 13(12), 14160–14168.
Abstract:	One of the desired ways to improve robustness and crystallinity in the covalently linked reticular frameworks is through the incorporation of varied and key functionalities in these promising materials. In this work, we have strategically constructed a series of triazine-based amide-hydrazide linked COFs (CON, CONN, and CONNCO) by combining the flexible tri(4-formylphenoxy)cyanurate with semi-flexible 4-amino-N-(4-aminophenyl)benzamide, semi-flexible 4-aminobenzo-hydrazide, or flexible 4-amino-N-(4-aminobenzoyl)benzo-hydrazide linkages, respectively. The incorporation of an amide or a hydrazide functionality is the key to improving the crystallinity of the framework through strong intra- and interlayer H-bonding. The structural characterization of these COFs has been done with the help of numerous analytical methods. All three COFs exhibit good thermal and chemical stability in acid and base verified by PXRD and N ₂ sorption studies. Their intra- and interlayer H-bonding control the rotation in eclipsed layers, which follows emissive nature. Their stability, linkage functionality, and wettability in water have been judiciously used in fluorescent on-off pH responsive proton scavenging. The protonation-deprotonation of the imine N and N–H bond of the amide or hydrazide linkage adorned in the pore walls of three COFs plays a vital role for such an outcome.
Description:	Only IISER Mohali authors are available in the record.
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