Examples of metal organic frameworks (MOFs) as multifunctional porous materials are in huge demand for their applications ranging from sensing, catalysis, gas/vapor sorption for storage and separation, drug delivery, etc.\textsuperscript{1,2} For our continued contribution\textsuperscript{3} 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 presentation, based on a new electron-deficient triazine-based dicarboxylate ligand 5-((4,6-diamino-1,3,5-triazin-2-yl)amino)isophthalic acid (H\textsubscript{2}ATAIA), a 3D MOF \{[Cd(ATAIA)].4H\textsubscript{2}O\}\textsubscript{n} (1) has been synthesized at two different temperatures and structurally characterized by numerous analytical techniques. This amine-functionalized fluorescent MOF has been applied for highly selective, sensitive and ultrafast detection of picric acid in water with a limit of 0.94 nM (or 0.2 ppb). Furthermore, in a prototype experiment the response to TNP vapor by 1 has shown similar results.