

Neutron Diffraction Study of Gas Adsorption and Separation in Metal-Organic Frameworks

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Porous metal-organic frameworks (MOFs) have shown great potential for many adsorption-related applications, including storage and separation of fuel gases (H_2 , CH_4 , C_2H_2 etc.). Neutron diffraction is a technique complementary to x-ray diffraction, in terms of characterizing the MOFs and investigating their gas adsorption structures. In some cases, neutron diffraction can provide unique information not available from x-ray. In this talk, I will highlight some of our recent works on gas storage and separation in newly developed MOFs (SiF₆ containing MOFs, UiO analogue MOFs etc.), where neutron diffraction was found to play a unique and powerful role, by providing highly valuable structural and mechanistic insights.