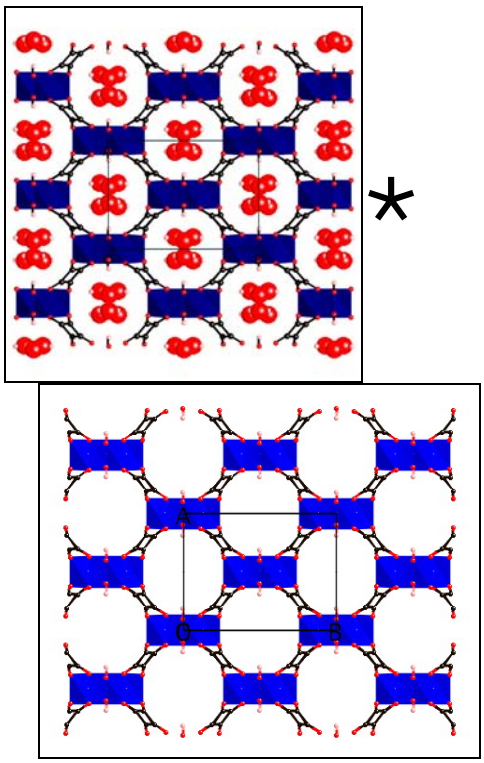
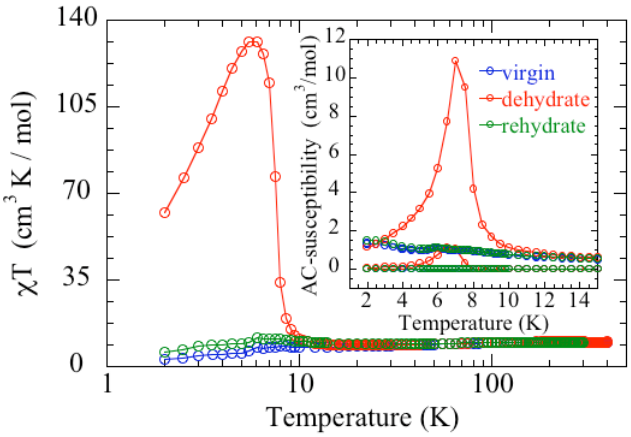
Host-Guest Interplay in Magnetic Metal-Organic Frameworks

Mohamedally Kurmoo
Laboratoire DECOMET, Institut de Chimie de Strasbourg, Université de Strasbourg, CNRS-UMR7177, 4 rue Blaise Pascal, Strasbourg 67000.
E-mail: kurmoo@unistra.fr

Considerable success has been evidenced in the last two decades in the development of magnets based on molecular units. These may be purely Inorganic, and Organic and in addition they can be Organic-Inorganic hybrids, where either or both can be moment carriers. The critical temperatures have surpassed that of room temperature in some cases, the magnetization at saturation approaching nearly 100 emu/g and the coercive field can be in excess of 50 kOe. These promising parameters have given some confidence that real applications can be envisaged in increasing the memory density based on one bit per molecule.
With such a promising development we have been interested in adding additional functions in the hope of making multifunctional materials. One such area deals with Magnetism and Porosity. In this talk I will present some of the advances made and in particular, in showing how the Host-Guest interplay in a novel class of Metal-Organic Frameworks.





Crystal structures of the hydrated and dehydrated forms of $Co_3(OH)_2(squarate)_2$ and the temperature dependence of its magnetization. All the properties are reversible upon dehydration and hydration.