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Organosulfonate Anions as Linkers for Both Structurally Dynamic and/or Structurally Robust Coordination Solids. G.K.H. Shimizu, B.D. Chandler, L.J. May, S.A. Dalrymple, Dept. of Chemistry, Univ. of Calgary, Calgary, Alberta, T2N 1N4, Canada.

Coordination compounds may be employed for modular synthesis of extended solids. The fundamental advantages of this approach are greater diversity of both structure and function. Our research has focused on the use of metal sulfonate interactions as the “glue” to assemble the organic spacers and metal ions. Sulfonate anions are typically regarded as weakly coordinating entities and so their use in the construction of alleged “zeolite analogues” might at first seem counterintuitive. However, although each individual metal-oxygen interaction is weaker, the sulfonate group has the ability to bind to metals in a multitude of bridging coordination modes. The result is that, through cooperative supramolecular interactions, stable extended solids are certainly attainable.

This talk will present a number of sulfonate solids which include both highly rigid and robust frameworks that demonstrate gas uptake¹ and ion exchange² but also structurally flexible solids, which, despite dynamic architectures, demonstrate selective inclusion.³

1. A.P. Côté, G.K.H. Shimizu, *Chem. Eur. J.* 2003, 9, 5361.
2. S.A. Dalrymple, G.K.H. Shimizu, *Chem. Eur. J.* 2002, 8, 3010.
3. L.J. May, G.K.H. Shimizu, *Chem. Mater.* 2005, in press.