

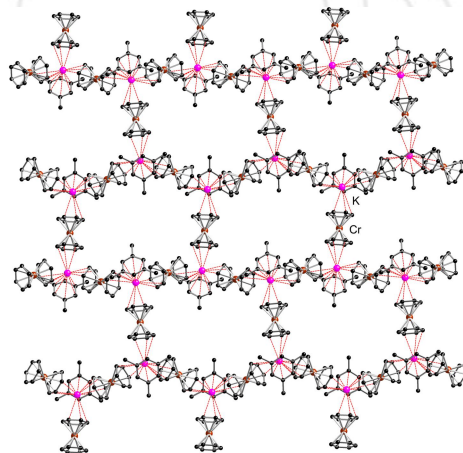


# Application of s-Block Molecular Aggregates in the Controlled Assembly of Solid-State Materials

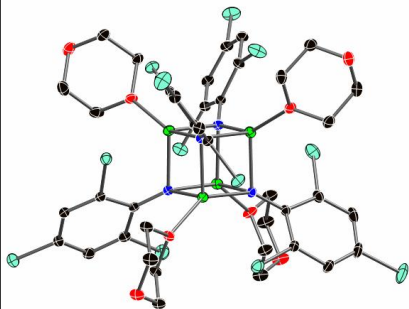
**Kenneth W. Henderson**

*Department of Chemistry and Biochemistry, University of Notre Dame*

Ferrocene has been used as a ditopic linker to construct polymers via cation- $\pi$  interactions. This is a novel method for the directed assembly of polymers. Alkali metal amides have been found to be useful docking sites to build cation- $\pi$  polymers. In turn, these complexes provide valuable models to probe the nature of these unusual interactions. Furthermore, periodic networks constructed using this strategy are of interest for future applications such as directional magnetic materials.



Highly robust metal-organic frameworks have been prepared containing the lightweight metal magnesium. This work includes the formation of porous materials that are useful for small molecule storage. Chiral framework materials have also been prepared and are being studied for their use in the separation of racemic mixtures of organic molecules and also as hosts to conduct asymmetric reactions.



The rare class of magnesium imides has been expanded. It has been discovered that these unusual compounds are readily prepared using highly acidic primary amine substrates. Moreover, this work has revealed that these complexes have a rich aggregation chemistry that has yet to be fully uncovered.

