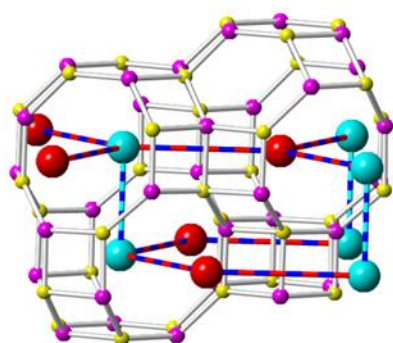


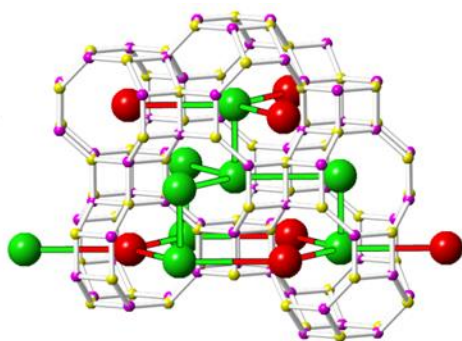
## Synthesis and structural characterization of small-pore ABC-6 family zeotypes.

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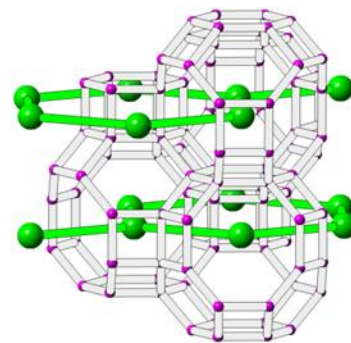
In zeotype nomenclature, ABC-6 refers to a family of structures where the 3-dimensional structure can be described in terms of the layer stacking of a non-connected array of planar rings comprised of six tetrahedral units (T6-rings)<sup>1</sup>. These T6-ring layers are related by translations within the ab layers such that a sequence of A-B-C layer positions can describe the many known members of the ABC-6 family. A notable member of this family is the Chabazite framework, with the 6-layer sequence AABCC, one of the best industrial catalysts for methanol-to-olefin catalysis. Here, the synthesis and structural characterization of ABC-6 zeotypes will be discussed including the 5-layer ZnAPO-57 and 7-layer ZnAPO-59 (AFV and AVL frameworks respectively)<sup>2</sup>. Structure solution was achieved from powder X-ray diffraction data using a variety of tools from direct-methods to the use of hypothetical zeolite database and other computational prediction methods as a starting point.



ZnAPO-57 (AVL)  
AABCC



ZnAPO-59 (AFV)  
ABBACCA



ZnAPO-67 (LEV)  
AABCCABBC

<sup>1</sup>Ch. Baerlocher, L.B. McCusker, D.H. Olson, D. H. Atlas of Zeolite Framework Types 6th Ed. Elsevier, 2007.

<sup>2</sup>R. W. Broach, N. Greenlay, P. Jakubczak, L. M. Knight, S. R. Miller, J. P. S. Mowat, J. Stanczyk and G. J. Lewis, *Microporous Mesoporous Mater.*, 2014, 189, 49–63