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Wide Range Solid Solutions with Composite Modulated Structures

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Systems that form modulated structures are a fascinating class of materials, which lack lattice periodicity but may still be perfectly long-range ordered [1]. Such systems exist across the whole range of chemical disciplines from organic conductors to high-Tc superconductors and minerals. The importance of modulated structures has been recognised, but there have been few systematic studies across composition ranges of wide-range solid solutions that form composite modulated structures. Such a systematic investigations further our understanding of crystal chemical and structural aspects of modulated structures as well as the reasons for their existence. Examples for such wide-range solid solutions will be presented, with structures investigated using X-ray and neutron powder diffraction as well as transmission electron microscopy.

[1] *Withers, R. L., Schmid, S. & Thompson, J. G. (1998). Prog. Solid State Chem. 26, 1.*

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