

## Crystallographic studies on Ru and Ir-based $\text{SrB}_{1-x}\text{M}_x\text{O}_3$ -type Perovskites

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Strontium ruthenate and iridate perovskites are of great interest due to their potential technological importance related to their exotic physical properties. Despite the chemical simplicity of the perovskite structure there are a number of examples where the precise structure is unknown or where different researchers have proposed different structures for the sample material. Understanding the relationship between the structure and physical properties is a significant barrier to the development of these types of materials. Two series of oxides of the type  $\text{SrRu}_{1-x}\text{B}_x\text{O}_3$  and  $\text{SrIr}_{1-x}\text{B}_x\text{O}_3$  ( $B$  = transition metals) have been synthesized using solid state methods, and selected members of these have been structurally characterized using combination of synchrotron X-ray and neutron diffraction methods and their physical properties investigated. Neutron data were critical to establish precise and accurate structures of a number of these materials including  $\text{Sr}_2\text{FeIrO}_6$ ,  $\text{SrRu}_{0.8}\text{Ni}_{0.2}\text{O}_3$  [1] and  $\text{SrIr}_{0.8}\text{Ni}_{0.2}\text{O}_3$ .

[1]. I. Qasim, B. J. Kennedy, Z. M. Zhang, M. Avdeev and L. Y. Jang, *J Phys-Condens Mat*, 2011, 23.