

MS19-P01 | HIGH-PRESSURE SYNTHESIS, CRYSTAL STRUCTURE, AND MAGNETIC PROPERTIES OF $\text{Ba}_3\text{CuOs}_2\text{O}_9$

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The triple perovskite $\text{Ba}_3\text{CuOs}_2\text{O}_9$ crystallizes into an orthorhombic structure (Cmcm) and shows a manifest antiferromagnetic transition at 47 K [1], while it crystallizes into a hexagonal structure ($P6_3/mmc$) when treated under a high-pressure and high-temperature condition (typically 6 GPa and 1100 °C). The change of structure gains a 1.3% increase in structural density. The hexagonal phase was quenched at ambient condition and the magnetic and electrical properties were investigated via measurements of the ac and dc magnetic susceptibilities, electrical resistivity, and specific heat capacity. The data indicated that the magnetic transition temperature increased to 290 K by the structure change. We discuss details of the magnetic and electrical properties of the newly synthesized hexagonal $\text{Ba}_3\text{CuOs}_2\text{O}_9$.

[1] H. L. Feng and M. Jansen *J Solid State Chem.* **258**, 776 (2018).