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Bismuth Perovskites: $\mathbf{Bi_2Mn_{4/3}Ni_{2/3}O_6}$ JOHN CLARIDGE, University of Liverpool, HELEN HUGHES, MATTHEW SUCHOMEL, MATHIEU ALLIX, MATTHEW ROSSEINSKY — Materials in which dielectric and magnetic properties are coupled are of interest for multiple state memory and information storage applications, and fundamentally in terms of the mechanisms for coupling these properties. In studies of Bi^{3+} A site perovskites, we have isolated a number of interesting and structurally complex phases. $Bi_2Mn_{4/3}Ni_{2/3}O_6$ is a very unusual material as it adopts the perovskite structure with Bi^{3+} on the A site – there has only been one previous example of perovskite stable to ambient pressure synthesis, $BiFeO_3$. Structurally the material is very interesting – it is very slightly incommensurate, it can be described in terms of the 3+2 dimmensional space group Ibmm(0-p0,q00)mm.ss ($\sqrt{2}a_p$ x $2a_p$ x $\sqrt{2}a_p$; p,q $\sim$ $1/2$). This modulation is responsible for suppressing the polarisation apparent in single crystal diffraction studies with conventional q-resolution. The modulation can be thought of as arising due to the need to accommodate three distinct cations on the octahedral site and the asymmetric low coordination number environment preferred by Bi^{3+}.

John Claridge
University of Liverpool

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