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Synthesis and Characterization of β Nickel Niobate TIMOTHY MUNSIE, ANNA MILLINGTON, Department of Physics and Astronomy, McMaster University, HANNA DABKOWSKA, Brockhouse Institute for Materials Research, McMaster University, JIM BRITTEN, Department of Chemistry, McMaster University, GRAEME LUKE, Department of Physics and Astronomy, McMaster University — Members of the niobate family (ANb_2O_6 , A=Ni, Co, Fe, Mn) are known to crystallize in the columbite structure with zig-zag chains of the metallic and typically magnetic cation, giving rise to a quasi-one-dimensional magnetic system. In our attempts to synthesize NiNb_2O_6 in its columbite structure, we discovered a previously unreported allotrope, β - NiNb_2O_6 , with a completely different crystalline structure, magnetic environment and magnetic properties. This talk will discuss the difficulties with respect to synthesis via the optical floating zone (OFZ) technique, the results of our structural refinement utilizing single crystal x-ray diffraction, and both magnetic and transport measurements of this materials physical properties.

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