

Poster Presentations

[MS18-P04] Structure and cation environments in the ferroelectric (Ag_xNa_{1-x})₂Nb₄O₁₁ solid solution

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Ag₂Nb₄O₁₁ is a recently-discovered ferroelectric oxide with a structure related to those of the minerals natrotantite (Na₂Ta₄O₁₁) and calciotantite (CaTa₄O₁₁) [1-3]. It has a rhombohedral structure with space group *R3c* and a Curie temperature of 144 °C above which it has space group *R3c*. The sodium-based analogue, Na₂Nb₄O₁₁, is not ferroelectric and has the monoclinic space *C2/c* [4]. Above 80 °C, it also has space group *R3c*. A solid solution can be formed with these two compounds as the end-members [5]. Data have been gathered from a variety of techniques and used to build a phase diagram for this system. Structural data from Rietveld refinements against X-ray and neutron diffraction data provide a detailed picture of the natrotantite structure and the changes in both the structure and the cationic environments across the solid solution.

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[2] Masó N, Woodward DI, Thomas PA, Várez A & West AR (2011). *J. Mater. Chem.* **21**, 2715-22.

[3] Woodward DI & Thomas PA (2011). *Appl Phys. Lett.* **98**, 132904.

[4] Masó N, Woodward DI, Várez A & West AR (2011). *J. Mater. Chem.* **21**, 12096-102.

[5] Woodward DI, Lees MR & Thomas PA (2012). *J. Solid State Chem.* **192**, 385-9.

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