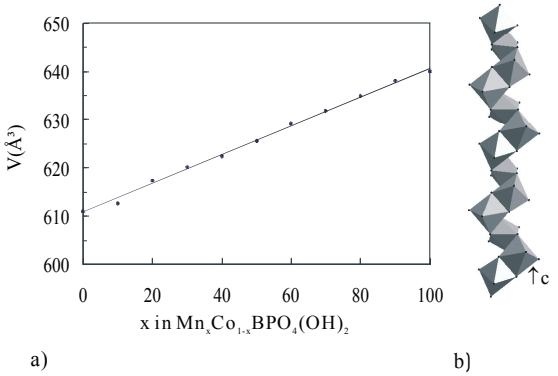

Figure 1. *a) Unit cell volume V versus nominal manganese content x in the system $Mn_xCo_{1-x}[BPO_4(OH)_2]$ b) Edge-sharing $M^{II}O_6$-octahedra wound around a 3_1 screw axis*

[1] Huang Y.-X.; Ewald B.; Schnelle W.; Prots Yu.; Kniep R., *Inorg Chem.* **2006**, 45, 7578

Keywords: borophosphates; hydrothermal growth; solid solutions

FA2-MS01-P20

$Sr_{10}(PO_4)_{5.5}(BO_4)_{0.5}(BO_2)$: A Strontium Borate-Phosphate Closely Related to the Apatite Crystal Structure.

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Strontium borate-phosphate $Sr_{10}(PO_4)_{5.5}(BO_4)_{0.5}(BO_2)$ was prepared from $SrCO_3$, $NH_4H_2PO_4$ and H_3BO_3 at high temperature (1150 – 1550 °C) and was found to be free of alkali metal compounds. X-ray structure determination was carried out on a single crystal obtained from the melt (space group $P\bar{3}$ No.147; a = 9.7973(8) Å, c = 7.3056(8) Å, V = 607.29(10) Å^3, Z = 1). $Sr_{10}(PO_4)_{5.5}(BO_4)_{0.5}(BO_2)$ is a derivative of the apatite crystal structure. Strontium sites are found to be fully occupied while $[PO_4]^{3-}$ tetrahedra are partly replaced by $[BO_4]^{5-}$ groups. The crystal structure contains Sr cations occupying the 6*g* (Sr1) and 2*d* (Sr2, Sr3) sites, isolated tetrahedral $[PO_4]^{3-}/[BO_4]^{5-}$ groups, and linear $[BO_2]^-$ groups located in the hexagonally shaped (trigonal antiprismatic) channels formed by Sr1 atoms and running along [001] (Figure 1). The space group of the present compound is reduced to $P\bar{3}$ because the orientation of the $[PO_4]/[BO_4]$ tetrahedra destroys the mirror plane characteristic for the apatite crystal structure ($P6_3/m$) [1].

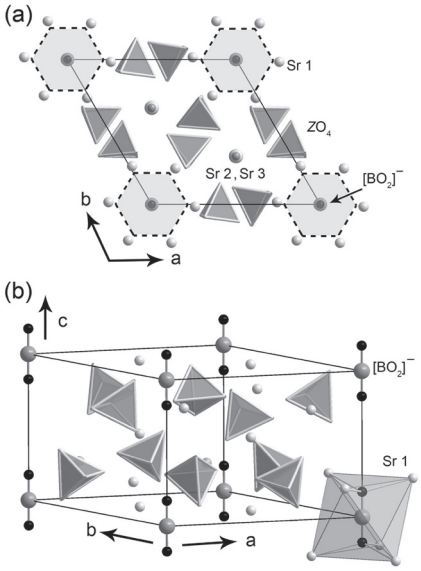

Figure. 1 *Crystal structure of $Sr_{10}(PO_4)_{5.5}(BO_4)_{0.5}(BO_2)$: (a) Projection along [001] showing the hexagonally shaped channels formed by Sr1 around the three-fold inversion axis ($Z = P_{0.95}B_{0.05}$). (b) Side view emphasizing the linear $[BO_2]^-$ groups and the corresponding trigonal antiprisma formed by Sr1.*

[1] Calvo C., Faggiani R., Krishnamurthy N., *Acta Crystallogr.,* **1975**, 31 B, 188.

Keywords: apatite; strontium borate-phosphate; crystal structure

FA2-MS01-P21

$NaSc[BP_2O_6(OH)_3][(HO)PO_3]$: Synthesis and Crystal Structure of the First Alkali Metal Scandium Borophosphate Hydrogenphosphate.

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Metal phosphates and borophosphates have received much attention because of their fascinating structural architectures and potential applications [1-2]. The combination of complex borophosphate anions together with (hydrogen) phosphate groups is rather rare and may generate a new class of materials with novel properties. The first alkali metal scandium borophosphate hydrogenphosphate, $NaSc[BP_2O_6(OH)_3][(HO)PO_3]$, was synthesized under mild hydrothermal conditions in the course of our investigations in alkali metal containing scandium borophosphates. The crystal structure was determined from single crystal X–ray data: monoclinic, space group $P2_1/c$ (No. 14), a = 5.0010(4) Å, b = 12.4271(9) Å, c = 15.8340(14) Å, β = 94.201(4)°, V = 981.41(11) Å^3 and Z = 2. The anionic partial structure of $NaSc[BP_2O_6(OH)_3][(HO)PO_3]$ contains isolated