

Poster Presentation

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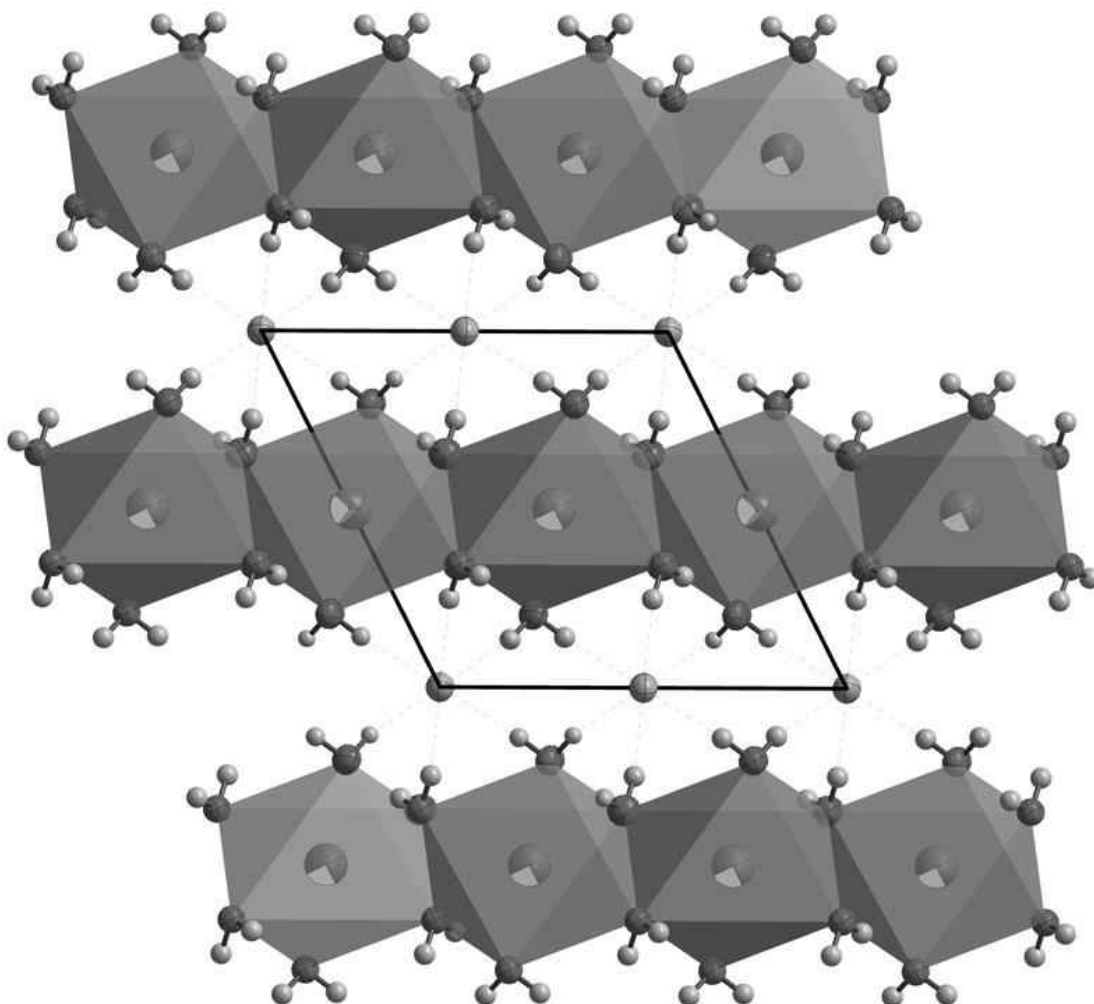
Hydrates of Silver(I) Fluoride and Zinc Chloride

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Hydrates of transition metal halides are routinely used in a wide range of applications as for example catalysts, electrolytes or heat storage materials[1]. The structural variety ranges from relatively simple structures with isolated coordination polyhedra to complex polymeric frameworks. Surprisingly, many of their crystal structures are still unknown. This is partially due to difficulties of growing and handling single crystals since the hydrates are often highly hygroscopic and deliquescent at ambient temperature. In order to prepare and systematically investigate these compounds by X-ray diffraction, the crystals have to be grown, selected and measured at low temperatures. Using a self-made device[2] to select and transfer the crystals while maintaining the cooling, we were able to grow suitable crystals and determine the structures of $\text{AgF}\cdot 2\text{H}_2\text{O}$ (trigonal bipyramidal coordination of Ag^+ by 4 H_2O and one F^-), $\text{AgF}\cdot 4\text{H}_2\text{O}$ (octahedral coordination of Ag^+ by 6 H_2O) and $\text{ZnCl}_2\cdot 3\text{H}_2\text{O}$ (octahedral coordination of Zn^{2+} by 6 H_2O and tetrahedral coordination by 4 Cl^-).

[1] W. Voigt, D. Zeng, *Pure Appl. Chem.* 2002, 74, 1909–1920., [2] M. Veith, H. Bärnighausen, *Acta Crystallogr. Sect. B Struct. Crystallogr. Cryst. Chem.* 1974, 30, 1806–1813.



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