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Temperature and Pressure Induced Phases in a New Family of Promising Ferroic Crystals. M. Bujak^{1,2}, R. Angel¹, ¹Dept. of GeoSciences, Virginia Tech, Blacksburg, VA 24061, USA, ²Permanent address: Inst. of Chemistry, Univ. of Opole, Oleska 48, 45-052 Opole, Poland.

Halogenoantimonates(III) and halogenobismuthates(III) with organic cations are a new group of ferroic crystals. The structures of these materials consist of organic cations within anionic frameworks. Their physical properties can be adjusted by the choice of organic cation and by the form of anionic sublattice. They thus form one of the most convenient systems for designing and studying new materials. There appear to be two mechanisms involved in the phase transitions in these crystals. At ambient temperature the cations typically exhibit large reorientation motions which become frozen on decreasing temperature. These changes of the cationic sublattices are usually associated with changes in the hydrogen bonding. There are also significant distortions of the anionic groups. The low-temperature and high-pressure single-crystal X-ray diffraction results on selected halogenoantimonates(III) and halogenobismuthates(III) are presented.

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