Abstract Submitted
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New structural phase transitions in $PbMBO_4$ complex oxides: Raman spectroscopy and x-ray diffraction studies[1] PATRICIA KALITA, ANDREW CORNELIUS, Dept. of Physics and Astronomy, University of Nevada Las Vegas, Las Vegas, NV, USA, KRISTINA LIPINSKA, OLIVER HEMMERS, Harry Reid Center for Environmental Studies, University of Nevada Las Vegas, NV, USA, STANISLAV SINOGEIKIN, Geophysical Lab., Carnegie Institution of Washington, Washington, DC, USA, M. MANGIR MURSHED, THORSTEN GESING, Chemische Kristallographie fester Stoffe, Universität Bremen, Bremen, Germany, HARTMUT SCHNEIDER, Inst. of Crystallography, University of Koeln, Koeln, Germany — Complex oxides with the mullite crystal structure belong to the most important phase in both traditional and advanced ceramics. Mullites are built of infinite chains of edge-sharing MO_6 octahedra, bridged by various oxide groups. Interest in metal borates stems from their useful nonlinear optical properties. New complex oxides in the mullite family $PbMBO_4$ (M= Fe, Mn, Al) were synthesized and characterized. Using Raman spectroscopy and synchrotron x-ray diffraction at elevated pressure we demonstrate new structural phase transitions.

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