A Room-Temperature Ferroelectric Ferromagnet in a 1D Tetrahedral Chain Network


Ferroelectricity and coupled ferromagnetism in a 1D FeO$_4$ tetrahedral chain network of a brownmillerite SrFeO$_{2.5}$ epitaxial thin film are presented. The result provides a new paradigm for designing low-dimensional MO$_x$ networks, which is expected to benefit the realization of macroscopic ferro-ordering materials including ferroelectric ferromagnets.