Title:	Ferroelectric-like response from the surface of SrTiO3 crystals at high temperatures
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Abstract:	Since SrTiO3 has a high dielectric constant, it is used as a substrate for a large number of complex physical systems for electrical characterization. Since SrTiO3 crystals are known to be non-ferroelectric/non-piezoelectric at room temperature and above, SrTiO3 has been believed to be a good choice as a substrate/base material for PFM (Piezoresponse Force Microscopy) on novel systems at room temperature. In this paper, from PFM-like measurement using an atomic force microscope on bare crystals of (110) SrTiO3 we show that ferroelectric and piezoelectric-like response may originate from bare SrTiO3 at remarkably high temperatures up to 420 K. Electrical domain writing and erasing are also possible using a scanning probe tip on the surface of SrTiO3 crystals. This observation indicates that the role of the electrical response of SrTiO3 needs to be revisited in the systems where signature of ferroelectricity/piezoelectricity has been previously observed with SrTiO3 as a substrate/base material.
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