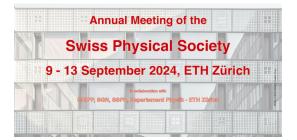
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[101] Coupled magnetism and ferroelectricity in magnetic high entropy oxide

Tuesday 10 September 2024 14:00 (15 minutes)

Using low energy Muons spin rotation spectroscopy, measurement of dc/ac magnetic susceptibility and measurement of capacitance, we show that epitaxially grown Nd-based perovskite high entropy oxides exhibit significant ferromagnetism, spin-glass behaviour, high dielectric constant at RT and a temperature-dependent ferroelectric hysteresis that are intricately coupled to each other. X-ray absorption spectroscopy at 3d transition metal edges indicates a mixed valence state - possibly originating from the off-centring of the B-sitesthat helps to explain these properties. These materials could be useful for exploiting magnetostriction and other related properties leading to next-generation sensors.

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