



Showcasing research of Dr. A.Carretero-Genevri^er and co-workers from Montpellier Electronic Institute (IES), Materials Science Institute of Barcelona (ICMAB), Institute Laue-Langevin (ILL) and Nanoscience Institute of Aragon.

Crystal engineering and ferroelectricity at the nanoscale in epitaxial 1D manganese oxide on silicon

Novel room-temperature ferroelectric $\text{Sr}_{1+\delta}\text{Mn}_8\text{O}_{16}$ hollandite-like oxide nanowire thin film can be integrated with silicon technology by a simple chemical method. The combination of scanning transmission electron microscopy with crystallographic computing reveal a natural symmetry breaking mechanism due to the ordering of Sr atoms giving rise to a ferroelectricity and piezoelectricity. $\text{Sr}_{1+\delta}\text{Mn}_8\text{O}_{16}$ nanowires show a piezoelectric coefficient d_{33} value of 22 ± 6 pC/N, a flexible manipulation and an easy transfer to flexible substrates.

As featured in:



See Adrián Carretero-Genevri^er *et al.*, *Nanoscale*, 2021, 13, 9615.