

Supplementary information

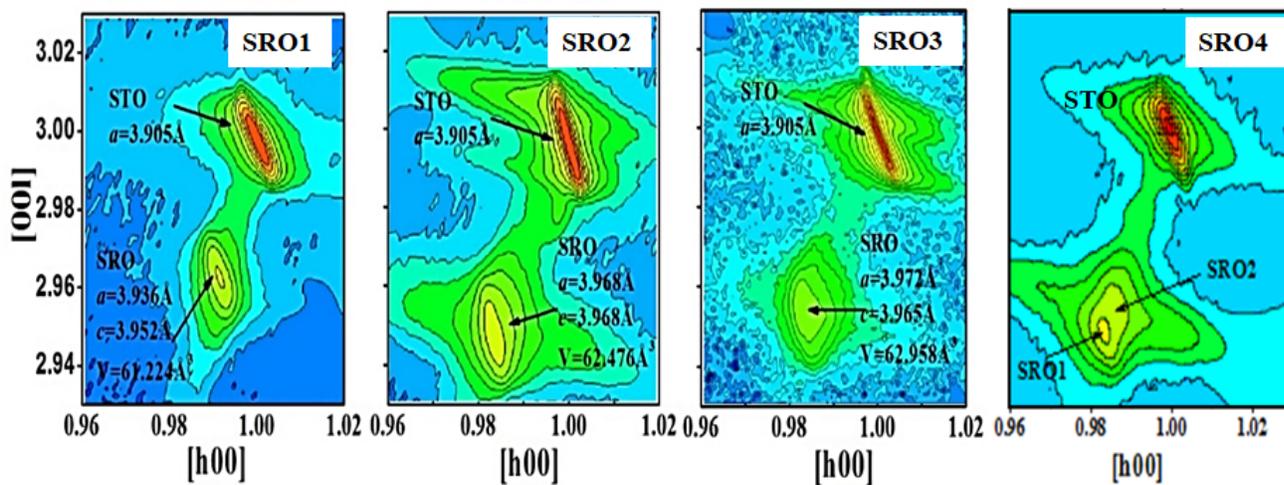


Figure S1. X-ray reciprocal space mapping (RSM) of SRO1-4 films around (103) planes of STO substrate.

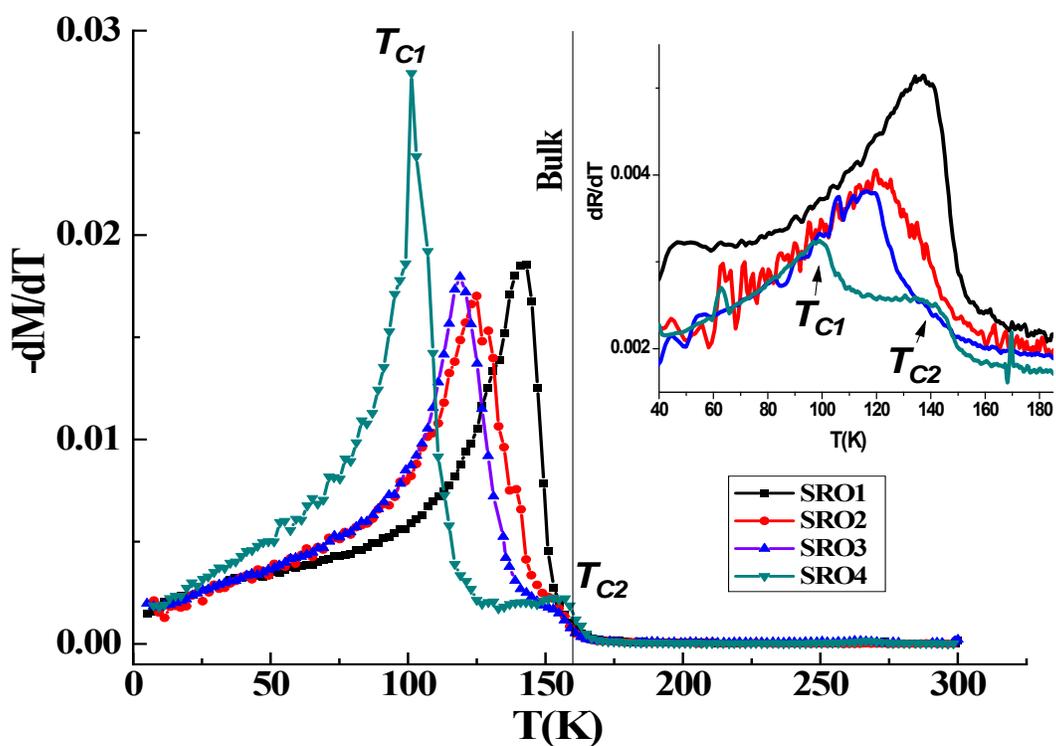


Figure S2. The in-plane dM/dT curves of the SRO1–4 films show, in addition to the primary ferromagnetic transition T_{c1} , a clear secondary shoulder corresponding to T_{c2} , which is also observed in the dR/dT vs. T curves.

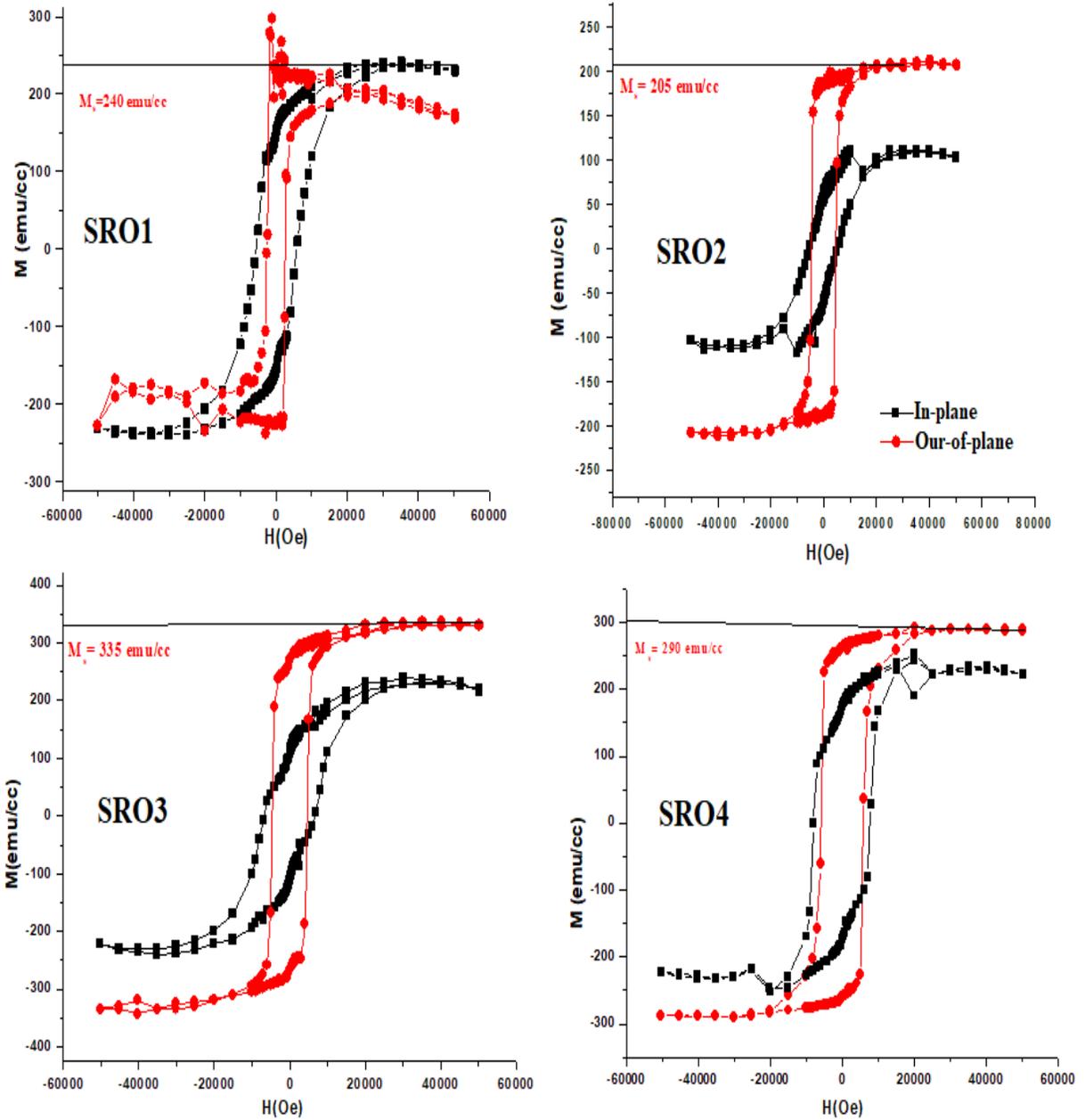


Figure S3. In-plane and out-of-plane M – H loops measured at 5 K for the SRO1–4 films indicate that the easy axis of magnetization lies along the out-of-plane direction.

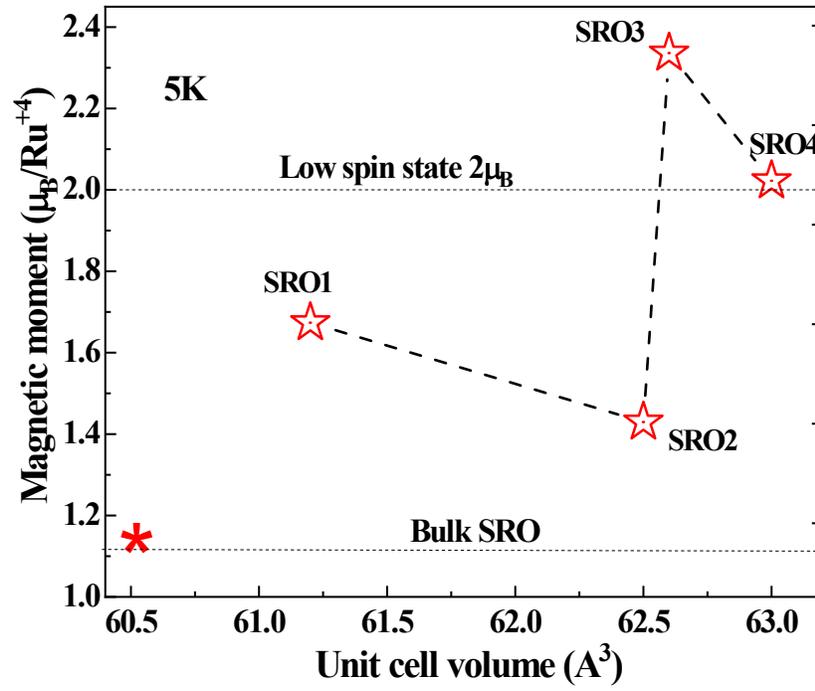


Figure S4. Saturation magnetization at 5 K for the SRO1–4 films.