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Magnetic imaging of domains and walls in multiferroic ErMnO_3
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AWAY TEAM — Multiferroic hexagonal rare-earth manganites RMnO_3 ($R = \text{Ho} \dots$
Lu, Y, Sc) have generated great interest because of the coexistence of ferroelectric
and magnetic orders. Herein we conducted low temperature magnetic force mi-
croscopy (LT-MFM) studies on flux-grown ErMnO_3 single crystals. The ferroelec-
tric transition T_C is ~ 1300 K while antiferromagnetic transition T_N is ~ 80 K.
We observed intriguing behaviors of magnetic domains & walls in ErMnO_3 from
the temperature and magnetic field dependence of local magnetic contrast. In ad-
dition, we will present results of comparison between LT-MFM images and room
temperature piezoresponse force microscopy (PFM) images of the same sample to
understand the mechanism of cross-coupling between ferroelectricity & magnetism
in RMnO_3 .

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