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Spectroscopic signatures of domain walls in multiferroic $ErMnO_3$[1]

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We investigated the spectroscopic response of stripe- and vortex-containing $ErMnO_3$ in order to uncover the dynamic signatures of the domain walls. We quantify Born effective charge and polarization differences using the lattice behavior, analyze the local rare earth environment from the f-manifold excitations, and reveal how shifts in the charge transfer excitations impact the band gap. These findings are unified with a discussion of hybridization and domain wall density effects.

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