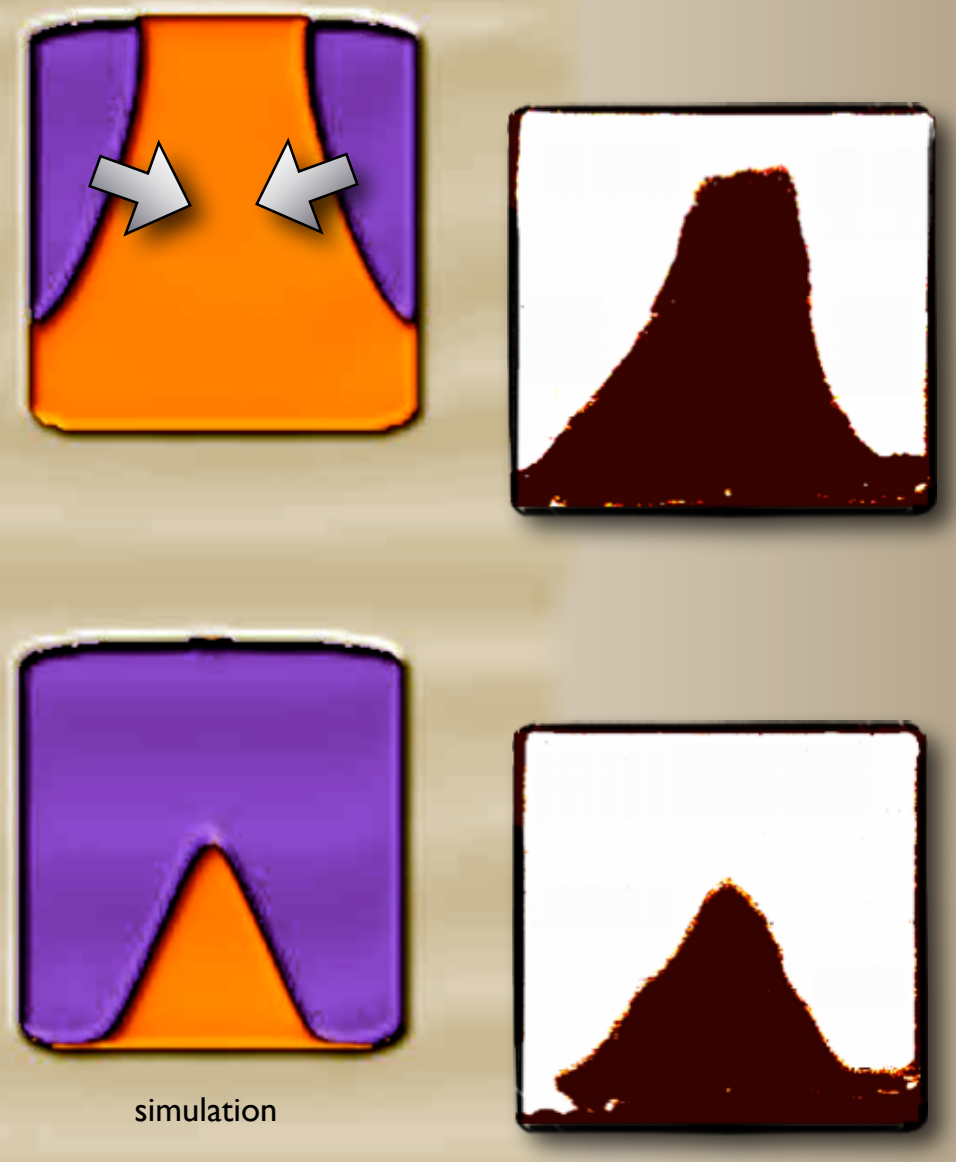

Strain Control of Domain Switching in Multiferroic Epitaxial $BiFeO_3$ Films

Multiferroics such as $BiFeO_3$ support both magnetic and electric order, enabling electric fields to control magnetism and vice versa. By growing a thin film of $BiFeO_3$ on a substrate with a slightly different lattice spacing, MRSEC researchers have strained the film and thereby changed the stability of the boundaries between domains of different electric polarization. In these images of a film switching from one polarization to another, the upper boundary is less stable than the lower boundary, so that the new (purple) domain eats up the original (orange) domain preferentially from the top. This strain-tuned domain wall stability provides a new means to control the multiferroic behavior of $BiFeO_3$.

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