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Cosmic Strings Meet Multiferroics: Understanding topological defects in spontaneous symmetry breaking phase transitions
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Jumping from the expanse of galactic scales to land in the laboratory might seem a gargantuan task. Common to both, however, is the the concept of symmetry breaking and in particular the formation of topological defects. Here I discuss the formation of topological defects in multiferroic YMnO₃ whose ferroelectric behavior enables the direct imaging of these defects. I also show how this material can be used to study the Kibble-Zurek model of topological defect formation in the early universe and give quantitative insights on the number of domains formed during the spontaneous symmetry breaking phase transition.