

RUST TO RICHES: THE PHYSICS OF MAGNETIC VORTICES IN $\alpha\text{-Fe}_2\text{O}_3$

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Vortices are among the simplest topological structures and occur whenever a flow field 'whirls' around a one-dimensional core. Although ubiquitous elsewhere, vortex formation in crystals is very rare. I will discuss the observation by X-ray photoelectron emission microscopy of antiferromagnetic vortices and anti-vortices in $\alpha\text{-Fe}_2\text{O}_3$ epitaxial films. Remarkably, vortices imprint as merons (half skyrmions) onto an ultra-thin ferromagnetic cobalt layer, hinting at a new information storage paradigm.

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