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**Increasing skyrmion lattice stability: theory and experiment** ALEX KRUCHKOV, Ecole Polytechnique Federale de Lausanne (EPFL), JONATHAN WHITE, Paul Scherrer Institut (PSI), HENRIK RONNOW, IVICA ZIVKOVIC, Ecole Polytechnique Federale de Lausanne (EPFL) — Magnetic skyrmions are vortices of spins, considered to be topologically protected against perturbations, and envisaged as very possible next-generation information carriers due to their nanoscale size. In chiral ferromagnets they form a two-dimensional hexagonal array - the skyrmion lattice. A key challenge is that bulk skyrmions have been restricted so far to a tiny region in the temperature-field phase diagram. In this work we address theoretically the stability of the skyrmion lattice. We demonstrate that tuning anisotropy can lead to dramatic (20 times) enhancement of the skyrmion phase volume, which has been recently revealed in our experiment.

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