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[702] Mapping the magnon modes of a square skyrmion lattice

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Intriguing topological magnetic textures, such as skyrmion lattices (SkL), have significant potential for applications to spintronic and memory devices. This potential crucially relies on finding new materials and mechanisms for SkL stabilization. So far, theory has been driving investigations of centrosymmetric SkL's, with only a few bulk material examples, namely Gd₂PdSi₃, Gd₃Ru₄Al₁₂, GdRu₂Si₂, and EuAl₄. Neutron scattering is an ideal probe to understand the interactions leading to SkL formation in these materials, but is practically impossible owing to the large neutron absorption of Gd and Eu. I will present recent neutron spectroscopy on a newly discovered Ce-based square-SkL, which enables a quantitative understanding of SkL stabilization mechanisms in real materials.

Theoretical Work

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