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Non-reciprocal magnons in non-centrosymmetric MnSi

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Spin waves in chiral magnetic materials are strongly influenced by the Dzyaloshinskii-Moriya interaction, resulting in intriguing phenomena like nonreciprocal magnon propagation and magnetochiral dichroism. We studied the nonreciprocal magnon spectrum of the archetypical chiral magnet MnSi and its evolution as a function of magnetic field in all magnetic phases. Using inelastic neutron scattering, the magnon energies and their spectral weights are determined quantitatively after deconvolution with the instrumental resolution [1,2].

[1] T. Weber, J. Waizner, G. S. Tucker, R. Georgii, M. Kugler, A. Bauer, C. Pfleiderer, M. Garst, and P. Böni, Phys. Rev. B 97, 224403 (2018).
[2] T. Weber, J. Waizner, G. S. Tucker, L. Beddrich, M. Skoulatos, R. Georgii, A. Bauer, C. Pfleiderer, M. Garst, and P. Böni, AIP Advances 8, 101328 (2018).

Primary author: Dr WEBER, Tobias (Institut Laue-Langevin (ILL))

Co-authors: BAUER, Andreas (Technische Universität München); PFLEIDERER, Christian; BEDDRICH, Lukas (Heinz Maier-Leibnitz Zentrum (MLZ)); SKOULATOS, Markos (TUM); GARST, Markus (Institut für Theoretische Festkörperphysik, Karlsruhe Institute of Technology, D-76131 Karlsruhe, Germany); BÖNI, Peter (Technische Universität München); GEORGII, Robert

Presenter: GEORGII, Robert

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