

Skyrmion dynamics in MnSi

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Using the instruments ThALES (ILL), LET (RAL), TASP (PSI), and MIRA (TUM) we mapped out and performed a longitudinal polarisation analysis of the magnon spectra in the skyrmion phase of MnSi. The magnons comprise a multitude of branches showing distinctive characteristics which depend on the direction of the reduced momentum transfer q . For q pointing out of the skyrmion plane, non-reciprocal dynamics can be observed, while q directions inside the plane show quasi-continuous modes emerging from backfoldings into the first magnetic Brillouin zone. Our general theoretical model for skyrmion dynamics perfectly describes our data (Figure: preliminary analysis).

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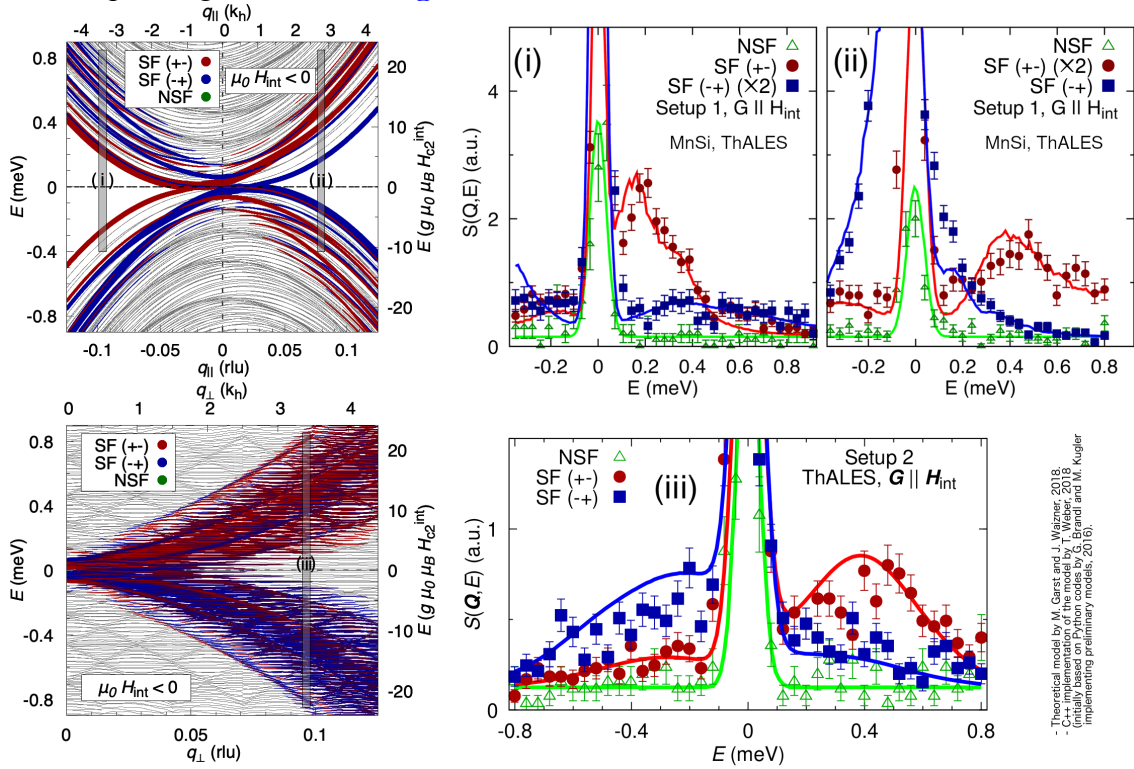


Figure: Polarisation-dependent inelastic scattering in the skyrmion phase of MnSi. Top (bottom) row: Reduced momentum transfer outside (inside) the skyrmion plane.