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POS-33 Standing helimagnons in MnSi thin films

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A number of recent calculations and experiments have identified that strain and finite size effects are important contributions that influence the stability of the magnetic textures in MnSi thin films. Both of these effects play an important role in MnSi films grown on Si substrates and have an important influence on the magnetic phase diagram. However, there continues to exist controversy over the interpretation of the phase diagram. With insights from ferromagnetic resonance, magnetometry, Hall effect and polarized neutron reflectometry in out-of-plane fields, a consistent picture emerges with the cone phase as the sole equilibrium phase below the saturation field. We present numerical modelling of spin-orbit torque induced ferromagnetic resonance experiments. Micromagnetic calculations reveal standing helimagnons and excitations of the surface twists in the film that explain the data.

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