

# Magnetic ordering in single films and multilayers with Dzyaloshinskii-Moriya interaction, influenced by static and dynamic magnetic field.

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Dzyaloshinskii-Moriya interaction (DMI) induces chirality in magnetic alignment. A characteristic magnetic texture, observed in a single ultrathin magnetic film with DMI, is a spin spiral[1], topologically similar to skyrmions. In multilayered systems possible magnetic configurations are even more complicated, as the chirality can appear also across the stack of films. In this work we use micromagnetic simulations to study both single films and multilayer systems of varying magnitude of DMI and magnetic anisotropy. We analyse an occurrence of possible competing textures, taking into account their energies. Moreover, we influence the systems with magnetic field, either static or dynamic, to study the material parameters of practical importance, being accessible experimentally: magnetic susceptibility, hysteresis curve, period of magnetic domain structure (for static field), ferromagnetic resonances, and dispersion relations (for rf-oscillating dynamic field).

## References:

[1] J.Kisielewski et al., *New Journal of Physics* 21 (2019) 093022

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