

# **Imprinted Non-collinear Spin Textures**

**Robert Streubel**

*Materials Sciences Division, Lawrence Berkeley National Laboratory (LBNL), USA*

Chiral magnetic spin textures, such as vortices, chiral bubbles, Skyrmions and chiral Neel walls, are topologically non-trivial solitary objects with fundamentally intriguing properties and potential applications as magnetic storage and logic devices. However, neither configuration is a ground state in conventional extended magnetic films. Vortices are stabilized in soft-magnetic nano- and micro patterns and as thermally excited states in extended films. Chiral bubbles, Neel walls and Skyrmions typically nucleate in systems with inversion symmetry breaking due to an emergent vector spin exchange, known as Dzyaloshinskii-Moriya interaction (DMI).

In this talk, I will present an alternate route to design imprinted non-collinear spin textures by vertically stacking patterned magnetic films with distinct properties and interlayer exchange coupling. I will address recent theoretical and experimental works covering both static and dynamic aspects. Tailoring the strength of interlayer exchange coupling allows to tune the directionality of modifications and may serve as a tool to probe DMI and topology detecting e.g. the gyration frequency.