

EINLADUNG

zum Vortrag
von

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Tailoring the chirality of magnetic domain walls by interface engineering

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Abstract:

The rich physics of chiral spin textures includes strongly asymmetric response of left-handed versus right-handed spin structures under applied current, and extremely high domain wall mobility in response to very low critical current density [1,2]. These properties make chiral magnetic materials promising candidates for the development of new spintronics applications. How one might control the magnetic chirality of domain walls and change it between right-handed, left-handed, or achiral, has remained a key question in this field.

Using spin-polarized low energy electron microscopy, we found a new type of chiral domain wall structure in perpendicularly magnetized systems [3]. Moreover, we discovered that subtle adjustment of a non-magnetic spacer layer allows us to tailor the chirality of magnetic [Co/Ni]_n multilayers. By introducing magnetic chirality as a new degree of freedom, this finding raises rich possibilities to influence the dynamic properties of magnetic domain walls.

References

- [1] K.-S. Ryu, et al. Nature Nanotech. 8, 527 (2013)
- [2] S. Emori, et al. Nature Mater. 12, 611 (2013)
- [3] G. Chen et al. Phys. Rev. Lett. 110, 177204 (2013)

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