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Metamaterial Concepts for Light Waves and for Spin Waves

Optical metamaterials with a hyperbolic light dispersion recently paved the way to novel devices, e. g., for light wave guiding [1], perfect imaging [2], or spontaneous emission enhancement [3]. Interestingly, spin waves travelling in thin ferromagnetic films—under certain conditions—exhibit such a hyperbolic dispersion, which offers the possibility to build the aforementioned metamaterial devices also for spin waves. In this talk I discuss, both, our recent progress in the area of optical metamaterials [4] and how we transfer metamaterial concepts to the research area of spin-wave optics [5].