

Materials Science and Technology Division
Materials Theory Group

“Electromagnon resonances in helical magnets”

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Abstract

We investigate the magnetoelectric resonance due to one-electromagnon absorption processes, with a special focus on helical (cycloidal or screw) magnets. At the resonance, the interference of magnetic and electric responses invoke anomalous absorption process such as the nonreciprocal directional dichroism where absorption intensity depends on the electromagnetic wave propagation directions, and the natural circular dichroism where the rotation direction of a polarization of the transmitted electromagnetic wave is reciprocal. The results indicate that the presence of such interference effects is the direct evidence of the existence of electromagnons.

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