

748th ASRC Seminar

Date: Mar. 4 (Mon), 10:30~

Location: Room 103, ASRC Bldg.

Speaker: Dr. Junichiro Kishine

(The Open University of Japan)

Title: Cavity optomechanics of topological spin textures in magnetic insulators

Abstract:

Collective dynamics of topological magnetic textures can be thought of as a massive particle moving in a magnetic pinning potential. We demonstrate that inside a cavity resonator this effective mechanical system can feel the electromagnetic radiation pressure from cavity photons through the magneto-optical inverse Faraday and Cotton-Mouton effects. We estimate values for the effective parameters of the optomechanical coupling for two spin textures: a Bloch domain wall and a chiral magnetic soliton lattice. Most interestingly, we find a level attraction regime for the soliton lattice, which is tunable through an applied magnetic field. In this presentation, I will review these results based on Ref.[1]

【文献】

[1] I. Proskurin, A.S. Ovchinnikov, J. Kishine, R.L. Stamps, Physical Review B 98 (22), 220411 (2019).

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