Contribution ID: **19** Type: **Talk**

【662】Topological Magnons and Edge States in Antiferromagnetic Skyrmion Crystals

Thursday 29 August 2019 14:30 (15 minutes)

Antiferromagnetic skyrmion crystals are spatially periodic noncollinear magnetic phases predicted to exist in antiferromagnets with Dzyaloshinskii-Moriya interactions. We show for the first time that their bulk magnon band structure, characterized by nonzero Chern numbers, is topologically nontrivial and that they support topologically-protected chiral magnonic edge states. Of particular importance for experimental realizations, magnonic edge states appear within the first bulk magnon gap, at the lowest possible energies they can exist and where magnon-magnon interactions are reduced. Thus, antiferromagnetic skyrmion crystals show great promise as novel platforms for topological magnonics.

[1] S. A. Díaz, J. Klinovaja, and D. Loss, arXiv:1812.11125; Phys. Rev. Lett. (accepted).

Authors: DÍAZ, Sebastián (University of Basel); KLINOVAJA, Jelena (University of Basel); LOSS, Daniel (University of Basel)

Presenter: DÍAZ, Sebastián (University of Basel)

Session Classification: Skyrmions in magnetic materials

Track Classification: Skyrmions in magnetic materials