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Topological magnons in frustrated quantum magnets

Tuesday, 10 December 2019 13:30 (30 minutes)

I present an overview of recent research into topological magnons in frustrated quantum magnets. By way of illustration, I discuss the case of triplon excitations in the Shastry-Sutherland magnet SrCu2(BO3)2. We provide a detailed inelastic neutron scattering data showing the bulk triplon spectrum and its evolution in small magnetic fields. A theoretical analysis of these data based on an interacting hard-core boson model characterizes the main anisotropies in this system and reveals the importance of triplon interactions. We highlight the Berry curvature and triplon band topology in this quantum magnet and discuss future perspectives on this and other systems.

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