

TOPOLOGICAL MAGNON STATES & ORBITAL MAGNETIC MOMENT OF MAGNONS

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We discover that magnons, the quasiparticles of magnetically ordered materials, carry certain topological properties and magnetic moment beyond their spin magnetic moment. Our rigorous quantum theory uncovers the existing topological states and a magnonic orbital magnetic moment brought about by spin-orbit coupling. We propose experimental hallmarks of the topological properties and the orbital moment and conclude that its signatures are within reach of today's experiments.

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