Topological Spin Textures in Chiral Magnets
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Chiral magnets are a series of magnets with broken inversion symmetry. A new type of spin interaction therein, the Dzyaloshinskii-Moriya interaction, stimulates the formation of many novel topological spin textures. One typical example is the magnetic skyrmion, whose nontrivial topology enables unique dynamical property and thermal stability, and gives out promise on future magnetic memory devise. In this talk, I will comprehensively review the skyrmion physics. Also I will present three other relevant spin textures we discovered. One is the target skyrmion we recently observed, both theoretically and experimentally, in ultra-small nanodisks of chiral magnets. Zero-field target skyrmions and their polarization switch will be discussed. Putting in heterostructures, we also found a new type of topological configuration dubbed the Hopfion therein. Finally, I will discuss emergent topology driven by thermal fluctuations.