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Inverted Umbrella-type Chiral Non-coplanar Ferrimagnetic Structure in $Co(NO_3)_2$

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Abstract : The low-dimensional magnetic systems tend to reveal exotic spin liquid ground states or form peculiar types of long-range order. Among systems of vivid interest are those characterized by the triangular motif in two dimensions. The realization of either ordered or disordered ground state in a triangular, honeycomb, or kagome lattices is are dictated by the competition of exchange interactions, also being sensitive to anisotropy and the spin value of magnetic ions. While the low-spin Heisenberg systems may arrive at a spin liquid long-range entangled quantum state with emergent gauge structures, the high-spin Ising systems may establish the rigid non-collinear structures. This study presents the case of chiral non-coplanar inverted umbrella-type ferrimagnet formed in cobalt nitrate $Co(NO_3)_2$ below T

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