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Spatially anisotropic kagome antiferromagnet with Dzyaloshinskii-Moriya interaction VLADIMIR A. ZYUZIN, GREGORY A. FIETE, University of Texas at Austin — We theoretically study the spatially anisotropic spin-1/2 kagome antiferromagnet with Dzyaloshinskii-Moriya (DM) interaction using a renormalization group analysis in the quasi-one-dimensional limit. We identify the various temperature and energy scales for ordering in the system. For very weak DM interaction, we find a low-temperature spiral phase with the plane of the spiral selected by the DM interaction. This phase is similar to a previously identified phase in the absence of the DM interaction. However, above a critical DM interaction strength we find a transition to a phase with coexisting antiferromagnetic and dimer order, reminiscent of one-dimensional antiferromagnetic systems with a uniform DM interaction. Our results help shed light on the fate of two dimensional systems with both strong interactions and significant spin-orbit coupling.

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