

Magnetic-field effects in three-leg frustrated spin tubes

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Quantum spin tube models (cylinder-type spin systems) have been theoretically studied since late 1990s [see e.g., Refs.1,2, and 3]. On the other hand, very recently, a few new tube-type magnets have been synthesized [4]. Motivated by the experimental data of these tube magnets and known results of spin tube models, we revisit and investigate a simple three-leg spin tube model making use of several analytical tools. In particular, we focus on the tube in the presence of an external magnetic field. It is predicted that a magnetic field induces two novel phases: a spin vector-chiral-ordered state and an inhomogeneous magnetized one [5,6]. In this workshop, I will discuss the mechanism of these new phases in detail.

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