Abstract Submitted
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Emergence of a 2d macro-spin liquid in a highly frustrated 3d quantum magnet[1] TYCHO SIKKENK, Utrecht University, KRIS COESTER, TU Dortmund, STEFAN BUHRANDT, LARS FRITZ, Utrecht University, KAI SCHMIDT, FAU Erlangen-Nurnberg — The classical Ising model on the frustrated 3d swedenborgite lattice has disordered spin liquid ground states for all ratios of inter- and intra-planar couplings. Quantum fluctuations due to a transverse field give rise to several exotic phenomena. In the limit of weakly coupled kagome layers we find a 3d version of disorder by disorder degeneracy lifting. For large out-of-plane couplings 1d macro-spins are formed, which realize a disordered macro-spin liquid phase on an emerging 2d triangular lattice. We speculate about a possibly exotic version of quantum criticality that connects the polarized phase to the macro-spin liquid.

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