

# Frustrated spins on the Swedenborgite lattice: spin liquids, order-by-disorder, and disorder-by-disorder

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Within this talk I will discuss the physics of spins on the swedenborgite lattice, which is a specific three dimensional stack of kagome layers. In a first part I will discuss the physics associated with classical Heisenberg spins, which show a rich phase diagram including a classical spin liquid regime as well as an order-by-disorder transition towards a nematic phase. Relations to experiments will also be pointed out. In a second part, I will discuss the Ising spins on the same lattice. We show that in the case with quantum fluctuations one finds both an instance of disorder-by-disorder as well as the emergence of a classical dimer model, which provides an instance of a mapping of a three dimensional quantum model to a two dimensional classical model.