Chiral and spin liquid states in the frustrated kagome lattice

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In the last years, much effort has been devoted to the study of topological phases in magnetic systems. Experimental results in Herbersmithite and related materials, where the magnetic ions form a kagome lattice, have been one of the main motivations for the large amount of theoretical work in the kagome lattice. These works include models with different interactions, such as further neighbour exchange couplings and Dzyaloshinskii-Moriya antisymmetric interactions. In this talk, we first discuss and review results on the classical ground state, which includes chiral phases, relevant to the quest of quantum chiral spin liquids. We then study the effect of thermal fluctuations in the boundaries of these phases, including the presence of the magnetic field. Most interestingly, these boundaries intersect in a highly frustrated point with particular characteristics. We also show that the inclusion of a Dzyaloshinskii-Moriya term in the staggered chiral phases induces non-trivial phases with broken symmetries and net chirality. We conclude with a brief overview of future work.