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An exact chiral spin liquid with non-Abelian anyons HONG YAO, STEVEN KIVELSON, Department of Physics, Stanford University — We establish the existence of a "chiral spin liquid" (CSL) as the exact ground state of the Kitaev model on a decorated honeycomb lattice, which is obtained by replacing each site in the familiar honeycomb lattice with a triangle [1]. This state spontaneously breaks time reversal symmetry but preserves other symmetries. There are two topologically distinct CSL's separated by a quantum critical point. Interestingly, vortex excitations in the topologically nontrivial CSL (Chern number ± 1) obey non-Abelian statistics.
[1] Hong Yao and Steven A. Kivelson, Phys. Rev. Lett. in Press.

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