Condensed Matter Theory Center Seminar

Monday, April 18
11am-12pm
2205 Physics Building

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"Quantum liquid crystal phases and unconventional quantum magnetism in dipolar Fermi systems"

Quantum liquid crystal phases are novel states of matter whose symmetries under rotations and translations are between those of a liquid and a crystalline solid. This concept was introduced by Kivelson, Fradkin and Emery about 10 years ago and recently became clear, that it plays an important role in physics, e.g., high Tc superconductors, 2D electron gases. In this talk, I show that dipolar Fermi gases develop a particular type of liquid crystal phase, the nematic phase, and hence provide a clean playground for the study of strongly correlated electron systems. In particular, I describe two novel phases of matter, the biaxial-nematic phase, which exhibits non-Fermi liquid behavior, and the ferro-nematic phase which exhibits unconventional quantum magnetism.

All are welcome to attend.

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