Spin symmetry breaking in the Hartree-Fock electron gas.

David Gontier, CEREMADE

Abstract: In this talk, we study the transitionally invariant electron gas, in the Hartree-Fock approximation, and we focus on the spin properties of the gas. This model only has two parameters, namely the temperature and the density of the gas, and different phase transitions have been observed between paramagnetic state and ferromagnetic state, as these parameters varies. The goal of this talk is to prove the existence of such transitions, and to describe them. The Coulomb case will be discussed, as well as the case for other repulsive potential.

This is joint work with Mathieu Lewin.