

Maria Giovanna Mora: Explicit minimizers for anisotropic Coulomb energies

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Nonlocal interaction energies play a pivotal role in describing the behavior of large systems of particles, in a variety of applications. Traditionally, the focus of the mathematical literature on nonlocal energies has been on radially symmetric potentials, which model interactions depending on the mutual distance between particles. The mathematical study of anisotropic potentials, despite their natural occurrence in modeling interactions where a preferred direction of interaction is present, has on the other hand been very limited until recently. In this talk we will consider a general class of anisotropic energies of Coulomb type in three dimensions and give a complete characterization of their minimizers, under the sole assumption of non-negativity for the Fourier transform of the interaction kernel.