A variational approach to the Gamow and Hartree atomic models

Dario Mazzoleni

University of Pavia

We consider the minimization of energies arising from Gamow and Hartree atomic models. These energies are made as the sum of an attractive term, which is of spectral type (for example the first eigenvalue of the Dirichlet Laplacian) and a repulsive term (for example the Riesz energy). We show that, for a suitable range of parameters (namely, when the mass is small), the optimal shape exists and is a ball.

This is a joint project with C. Muratov and B. Ruffini.