



6th Symposium on Analysis and PDEs

Purdue University, June 1–4, 2015

Matias Delgadino, University of Maryland-College Park

June 1, 5:00–5:25pm

The Relationship Between the Obstacle Problem and Minimizers of the Interaction Energy.

The repulsion strength at the origin for repulsive/attractive potentials determines the minimal regularity of local minimizers of the interaction energy. If the repulsion is like Newtonian or more singular than Newtonian (but still locally integrable), then the local minimizers must be locally bounded densities (and even continuous for more singular than Newtonian repulsion). This can be achieved by first showing that the potential function associated to a local minimizer solves an obstacle problem and then by using classical regularity results for such problems.