

Regularity theory for obstacle problems and the boundary Harnack

In this talk, I will present obstacle problems and boundary Harnack inequalities, and the relation between them. The obstacle problem is one of the most classical free boundary problems, which are PDE problems that study interfaces. The boundary Harnack is an inequality that states that all harmonic functions that vanish in a subset of the boundary of a domain vanish at the same order, i.e. that the speed at which harmonic functions approach zero only depends on the geometry of the domain. I will explain both concepts and how the boundary Harnack is a key tool in understanding the regularity of the interface in some obstacle problems. Based on a joint work with Xavier Ros-Oton.