

Surfaces of minimal capacity and the Plateau problem

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In this talk, we will introduce a novel family of free boundary problems that arise in the study of variational problems with topological constraints in their level sets. Our two main examples are the classical problem surfaces of minimal capacity spanning a given wire frame and the Allen-Cahn approximation to solutions of the Plateau problem. We will focus in the regularity issues of these models emphasizing in the geometric structure of the singular set of the free boundaries arising in them. Based on joint works with Michael Novack and Anna Skoborogatova.

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