

1176-35-327

**Daniela De Silva\***. *On free boundary problems.*

In this talk, we will present an overview of techniques and results concerning the regularity theory for Free Boundary Problems (FBP), that is problems in which one must solve a PDE and along the way find out the region in which the PDE holds. FBP naturally arise in a variety of applications and research in this area has been very fruitful and active for several decades. Using the Bernoulli one-phase problem as a basic elliptic model, we will highlight main contributions and open questions often originating from a striking resemblance with the regularity theory for minimal surfaces. We will further consider parabolic problems, including the classical Stefan problem. If times permits it, we will describe so-called thin free boundary problems, in which the free boundary occurs on a lower dimensional subspace, and that arise in connection with non-local phenomena. (Received January 25, 2022)