Ahlfors-Khas'minskii duality for fully nonlinear PDEs, and geometric applications

Leandro F. Pessoa

Universidade Federal do Piauí

leandropessoa@ufpi.edu.br

Abstract

In this talk we will present a duality principle for nonlinear equations, which give a unifying potential-theoretic framework for various maximum principles at infinity appearing in the literature (Ekeland, Omori-Yau, Pigola-Rigoli-Setti), and discuss on their interplay with properties coming from stochastic analysis on manifolds. The duality involves an appropriate version of these principles formulated for viscosity subsolutions of fully nonlinear inequalities, called the Ahlfors property, and the existence of suitable exhaustion functions called Khas'minskii potentials. Applications involving the geometry of submanifolds, as well as the stability of these maximum principles when we remove polar sets.

Joint work with Luciano Mari (Università degli studi di Torino).