TEMPLE UNIVERSITY

Department of Mathematics

Analysis Seminar

Room 617 Wachman Hall

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A Minkowski problem for nonlinear capacity

by Murat Akman

University of Connecticut

Abstract: The classical Minkowski problem consists in finding a convex polyhedron from data consisting of normals to their faces and their surface areas. In the smooth case, the corresponding problem for convex bodies is to find the convex body given the Gauss curvature of its boundary, as a function of the unit normal. The proof consists of three parts: existence, uniqueness and regularity.

In this talk, we study a Minkowski problem for certain measure, called p-capacitary surface area measure, associated to a compact convex set with nonempty interior and its p-harmonic capacitary function. We will discuss existence, uniqueness, and regularity of this problem under this setting and see connections with the Brunn-Minkowski inequality and Monge-Ampere equation.