Analysis and Differential Geometry
Seminar

Weighted X-ray mapping properties on the Euclidean and Hyperbolic Disks

Joey Zou
Northwestern University

Abstract: We discuss recent works studying the sharp mapping properties of weighted X-ray transforms and weighted normal operators. These include a C^\infty isomorphism result for certain weighted normal operators on the Euclidean disk, whose proof involves studying the spectrum of a distinguished Keldysh-type degenerate elliptic differential operator; we also describe mapping properties for the weighted normal operator in terms of Sobolev-type spaces adapted to this distinguished differential operator. In addition, we discuss ongoing work which applies these results to the X-ray transform on the hyperbolic disk by using a projective equivalence between the Euclidean and hyperbolic disks. Joint works with N. Eptaminitakis, R. K. Mishra, and F. Monard.

Friday, September 29, 2023, 11:00 am
Atwood 240

Mathematics
Emory University