INDIAN STATISTICAL INSTITUTE

Theoretical Statistics and Mathematics Unit, Kolkata

Thesis Proposal Seminar

Date: November 08, 2023, Wednesday
Time: 03:00 PM

VENUE:

L-infinity

(5th Floor, A.N. Kolmogorov Bhavan), ISI Kolkata

TITLE:

Harmonic functions on Riemannian Manifolds and Spectral projections on Damek-Ricci spaces

SPEAKER:

Utsav Dewan

Stat-Math Unit, ISI Kolkata

ABSTRACT:

In this talk firstly, we will consider the classical problem of restricted mean value property for harmonic functions on (1) bounded domains in Riemannian manifolds and (2) Hadamard manifolds of pinched negative sectional curvature. The main aim would be to obtain sufficient conditions in terms of the boundary behavior of bounded, continuous functions satisfying the restricted mean value property to be harmonic. This is based on a joint work with Prof. Kingshook Biswas.

Secondly, we will focus on estimating the size of the exceptional sets on the boundary at infinity of a non-positively curved Harmonic manifold of purely exponential volume growth where a positive harmonic function, or more generally, a positive superharmonic function blows up faster than a prescribed rate along radial limits.

Thirdly, we will see some sharp estimates of the operator norm of the spectral projections associated to the Laplace-Beltrami operator on Damek-Ricci spaces, in terms of the spectral parameter. Such a result can be referred to as a restriction estimate, in the celebrated genre of Fourier restriction on non-Euclidean manifolds. This is based on a joint work with Prof. Mithun Bhowmik.

ALL ARE CORDIALLY INVITED