INDIAN STATISTICAL INSTITUTE

Theoretical Statistics and Mathematics Unit, Kolkata

SEMINAR

Date: June 13, 2024
Time: 02:00 PM

VENUE:

L- 2

(4th Floor, A.N. Kolmogorov Bhavan), ISI Kolkata

TITLE:

The Borsuk-Ulam Theorem

SPEAKER:

Kishalay Sarkar

Stat-Math Unit, ISI Kolkata

ABSTRACT:

This seminar will cover the proof of Borsuk-Ulam theorem, which states that, Any odd continuous map from S^n to S^n has an odd degree.
The proof will use basic aspects of Homology Theory, more specifically Homology with coefficients from the Abelian group \mathbb Z/2\mathbb Z . The proof idea involves the construction of a long-exact sequence of homologies(called the transfer sequence) arising out of a 2-sheeted covering triple (\tilde X,X,p).In particular, the standard 2-sheeted covering p: S^n\to \mathbb{RP}^n with the covering map p sending each x\in S^n to its antipodal class [x]\in \mathbb {RP}^n.As a corollary we will derive a useful result which asserts that for any continuous map from S^n to \mathbb R^n, there is a point x_0\in S^n such that g(x_0)=g(-x_0).

ALL ARE CORDIALLY INVITED