SEMINAR

Date: December 13, 2022, Tuesday
Time: 03:00 PM

VENUE:
Human Genetics Unit (HGU) Conference Room
(2nd Floor, A.N. Kolmogorov Bhavan), ISI Kolkata

TITLE:
HOMOLOGY OF SYMMETRIC SEMI-ALGEBRAIC SETS

SPEAKER:
Saugata Basu
Purdue University, USA

ABSTRACT:

Studying the homology groups of semi-algebraic subsets of $\mathbb{R}^n$ and obtaining upper bounds on the Betti numbers has been a classical topic in real algebraic geometry beginning with the work of Petrovskii and Oleinik, Thom, and Milnor. In this talk I will consider semi-algebraic subsets of $\mathbb{R}^n$ which are defined by symmetric polynomials and are thus stable under the standard action of the symmetric group $\mathfrak{S}_n$ on $\mathbb{R}^n$. The homology groups (with rational coefficients) of such sets thus acquire extra structure as $\mathfrak{S}_n$-modules leading to possible refinements on the classical bounds. I will also mention some algorithmic consequences and connections with a homological stability conjecture.

Joint work (separately) with Daniel Perrucci and Cordian Riener.

ALL ARE CORDIALLY INVITED