



19th Bhagavatula Ramamurthy and Smt. Bhagavatula Saradama Memorial Lecture-2025

School of Mathematics and Statistics,
University of Hyderabad

Chair: Prof. Saroj Panigrahi
Dean, School of Mathematics and
Statistics,
University of Hyderabad

Date & Time:
February 28, 2025 (Friday) | 2:00 PM

Venue:
Central Seminar Hall (East Campus)

SPEAKER



Prof. Neena Gupta,
**Theoretical Statistics and Mathematics
Unit, Indian Statistical Institute, Kolkata**

About the speaker

Prof. Neena Gupta earned her Ph.D. from the Indian Statistical Institute, Kolkata in 2012, where she is now a professor. She received the prestigious Shanti Swarup Bhatnagar Prize in Mathematical Sciences in 2019. She received the Nari Shakti Puraskar from the President of India for the year 2021, and the DST-ICTP-IMU Ramanujan Prize in 2021. She has won the Infosys Prize 2024 in Mathematical Sciences. Most recently she has been selected to deliver the AWS-AMS Noether Lecture in January 2025 at the annual meeting of the American. She is a fellow of the Indian Academy of Sciences, Bangalore and the Indian National Science Academy, New Delhi.

Title of the talk

On the Abhyankar-Sathaye Epimorphism Conjecture

Abstract

A special case of the Embedding problem asks whether any embedding of the affine $n-1$ -space in affine n -space is rectifiable. For $n=2$, the famous Epimorphism Theorem of Abhyankar-Moh and Suzuki asserts an affirmative solution in characteristic zero and the Segre-Nagata examples shows that embedding of a line in an affine plane in positive characteristic need not be rectifiable. The Abhyankar-Sathaye Conjecture asserts that any embedding of the affine $n-1$ -space in affine n -space is rectifiable for any integer $n \geq 3$. The problem is open in general. When $n=3$, any linear plane was shown to be a coordinate by A. Sathaye (in characteristic zero) and P. Russell (in general). In recent decades some of the central problems on affine spaces crucially involved the settling of questions of the type: (i) whether a specified linear polynomial H in $k[X_1, \dots, X_n]$ is a hyperplane and (ii) whether linear hyperplanes of a certain form are coordinates. Problem (i) for certain specified linear polynomials defined by M. Koras and P. Russell was crucial for the Linearization Problem. Again, central to the speaker's researches around the ZCP was the settling of Problems (i) and (ii) for a generalized version of certain linear polynomials defined by T. Asanuma. Note that Problem (ii) is a special case of the Abhyankar-Sathaye Conjecture. In this talk we shall present certain new families of linear hyperplanes where the Abhyankar-Sathaye Conjecture holds. They arose from joint works with Parnashree Ghosh and Ananya Pal.