# INDIAN STATISTICAL INSTITUTE

Theoretical Statistics and Mathematics Unit, Kolkata

## Number Theory Seminar

**Date: November 14, 2024**
**Time: 03:00 PM**

**VENUE:**

**L- infinity**

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

**TITLE:**

## The shifted convolution of divisor functions in function fields

**SPEAKER:**


## Anurag Sahay

University of Purdue, USA


## ABSTRACT:


*We will discuss ongoing work with Alexandra Florea, Matilde Lalín, and Amita Malik on the shifted convolution problem for divisor functions in function fields. This involves studying the average value of $d(f) d(f+h)$ where $h$ is a fixed polynomial (having possibly large degree $m$) in $\mathbb{F}_q[T]$ and $f$ runs over all monic polynomials in $\mathbb{F}_q[T]$ of degree $n$, where $n$ goes to infinity. Our techniques mirror the classical approach of Estermann in the integer setting. The main new ingredient is a functional equation for the Estermann function (equivalently, a Voronoi summation formula for the divisor function) that was not previously available in function fields. If time permits, we will discuss a related result involving the shifted convolution of the norm-counting functions of quadratic extensions. The talk should be accessible to those unfamiliar with function fields.*


**ALL ARE CORDIALLY INVITED**