



Theoretical Statistics and Mathematics Unit

Indian Statistical Institute

203 B.T. Road, Kolkata - 700108

Number Theory Talk

Date: August 13, 2026

Time: 2:30 PM

VENUE:

L-Infinity, 5th Floor, A.N. Kolmogorov Bhavan, ISI Kolkata

SPEAKER:

Akshat Mudgal

University of Warwick, UK

TITLE:

Counting solutions to the quadratic determinant equation

ABSTRACT:

Given positive integers h, N , we are interested in counting the number of solutions $T(h, N)$ to the equation $x_1 x_2 - x_3 x_4 = h$, with $x_1, \dots, x_4$ being integers in the interval $[-N, N]$. This is equivalent to counting 2×2 integer matrices with bounded height and fixed determinant. The problem of estimating $T(h, N)$ has recently been analysed by various authors, including Afifurrahman and Ganguly—Guria. In this talk, I will survey these developments and mention some joint work with Jon Chapman concerning asymptotic formulae for $T(h, N)$.

ALL ARE CORDIALLY INVITED

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