



INDIAN STATISTICAL INSTITUTE

Theoretical Statistics and Mathematics Unit, Kolkata

LECTURE

Date: May 22, 2023, Monday
Time: 01:30 PM

MODE: Online

Join Zoom Meeting

<https://us05web.zoom.us/j/83634443417?pwd=RkpmbW1jOGpRZ0hLY1R0NTBDN0daZz09>

Meeting ID: 836 3444 3417
Passcode: mj79bg

TITLE:

On the triviality of a family of linear hyperplanes

SPEAKER:

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ABSTRACT:

Let k be a field, m a positive integer, V an affine subvariety of A^{m+3} defined by a linear relation of the form $x_1^{r_1} \cdots x_m^{r_m} y = F(x_1, \dots, x_m, z, t)$

A the coordinate ring of V and $G = X_1^{r_1} \cdots X_m^{r_m} Y - F(X_1, \dots, X_m, Z, T)$.

We exhibit several necessary and sufficient conditions for V to be isomorphic to A^{m+2} and G to be a coordinate in $k[X_1, \dots, X_m, Y, Z, T]$, under a certain hypothesis on F . Our main result immediately yields a family of higher-dimensional linear hyperplanes for which the Abhyankar-Sathaye Conjecture holds.

We also describe the isomorphism classes and automorphisms of integral domains of type A under certain conditions. These results show that for each integer $d \geq 3$, there is a family of infinitely many pairwise non-isomorphic rings which are counterexamples to the Zariski Cancellation Problem for dimension d in positive characteristic.

This is a joint work with Neena Gupta.

ALL ARE CORDIALLY INVITED