

2025 Distinguished Lecture Series Presents

ROBERT LAZARSFELD

May 20th to 22nd, 2025

BIRATIONAL COMPLEXITY OF ALGEBRAIC VARIETIES

These lectures will focus on a circle of ideas loosely centered around the theme of measuring the “complexity” of algebraic varieties from the perspective of birational geometry.

LECTURE 1 // MAY 20 AT 3PM

How irrational is an irrational variety?

Recall that an algebraic variety X is said to be rational if it contains a Zariski open subset isomorphic to a Zariski open subset of projective space. There has been a great deal of recent activity and progress on issues of rationality, but most varieties aren't rational. I will survey a body of work concerned with a complementary question, namely measuring and controlling “how irrational” a non-rational variety might be. The talk will be aimed at a general mathematical audience.

LECTURE 2 // MAY 21 AT 3PM

Measures of association between algebraic varieties

I will discuss some joint work with Olivier Martin that attempts to measure “how far from birationally isomorphic” two varieties X and Y of the same dimension may be. The idea is to study the minimal complexity (in various senses) of correspondences between them.

LECTURE 3 // MAY 22 AT 3PM

Further developments and open problems

I will survey some further developments on these matters, and discuss some of the many open problems that present themselves.



STONY BROOK UNIVERSITY

RESEARCH AREA

- Algebraic geometry, commutative algebra

VISIT

- May 20 to 22, 2025

LOCATION

- MS 6627/Zoom

UCLA Mathematics College | Physical Sciences

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