



# ODTU-Bilkent Algebraic Geometry

## Manin's Conjecture and Stacks

By

**Ratko Darda**  
(Sabancı)

**Abstract:** Given a system of polynomial equations, one may ask how many solutions it has in the rational numbers. If there are infinitely many, we further ask about the number of solutions of bounded "size." The answer depends heavily on the geometry of the variety defined by the system. When the variety is Fano—meaning that the top wedge power of the tangent bundle is ample—the "correct" mathematical framework is provided by Manin's conjecture, which predicts the asymptotic number of rational points of bounded height.

Another important conjecture in a similar spirit is Malle's conjecture, which predicts the number of Galois extensions of the rational numbers with bounded discriminant.

We explain how both conjectures can be viewed as special cases of a single conjecture concerning the number of rational points of bounded height on stacks. We then discuss some recent advances, including the positive characteristic. This talk is based on joint work with Takehiko Yasuda.

**Date:** 9 May 2025, Friday

**Time:** 15:40 (GMT+3)

**Place:** Zoom

This is an online seminar. To request the Zoom link, please send a message to [sertoz@bilkent.edu.tr](mailto:sertoz@bilkent.edu.tr)