Institut f. Analysis und Zahlentheorie

Zahlentheoretisches Kolloquium

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Seminarraum Analysis-Zahlentheorie (NT02008), Kopernikusgasse 24/II

Counting points of given degree via the height zeta function

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Abstract: Let $X = \mathrm{Sym}^d \mathbf{P}^n := \mathbf{P}^n \times \cdots \times \mathbf{P}^n / \mathfrak{S}_d$ where the symmetric d-group acts by permuting the d copies of $\mathbf{P}^n$. Manin's conjecture gives a precise prediction for the number of rational points on X of bounded height in terms of geometric invariants of a resolution of X and the study of Manin's conjecture for X can be derived from the geometry of numbers in the cases $n > d$ and for $n = d = 2$. In this talk, I will explain how one can use the fact that $\mathbf{P}^n$ is an equivariant compactification of an algebraic group and the height zeta function machinery in order to study the rational points of bounded height on X in new cases that are not covered by the geometry of numbers techniques. This might in particular be an interesting testing ground for the latest refinements of Manin's conjecture.

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