

Kolloquium über Reine Mathematik

Einladung zu einem Vortrag

Dienstag, 21. November 2017

17 Uhr s.t., Geom H4

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Singularities and counting points

Abstract:

Given a polynomial equation $f(x_1, \dots, x_n) = 0$ (with coefficients in \mathbb{Z}), it is natural to ask how many integer solutions modulo m it has (for $m \geq 2$), and more precisely how the number of solutions depends on m . In the 80s, Igusa obtained a surprising result when $m = p^r$, for a fixed prime p and varying r , namely that the corresponding generating function (the "Poincaré series") is a rational function.

A (seemingly) completely different problem consists in describing the singularities of the hypersurface in \mathbb{C}^n defined by the equation $f = 0$. It has been known for some time that these two problems are related, but some deeper connections (notably Igusa's Monodromy Conjecture) are still open. In my talk, I will give a geometric explanation for this connection, which in particular provides a new proof of Igusa's rationality result.

Vor dem Vortrag (ab 16.30 Uhr) stehen im Raum 327 Kaffee und Tee bereit.