Gastvortrag

Donnerstag, 10. Dezember 2015
15.00 Uhr
Hörsaal 414

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Intersection of polynomial orbits over finite fields

Abstract:

Motivated by results on intersections of orbits of D. Ghioca, T. J. Tucker, and M. E. Zieve in characteristic zero, we answer several natural questions about reductions of orbits modulo primes of polynomial dynamical systems defined over $\mathbb{Z}$ In particular, under certain restrictions, we give bounds for the frequency of the points in an orbit of the reduction modulo a prime p of an algebraic dynamical system that belong to a given algebraic variety. Our approach is based on recent explicit versions of Hilbert's Nullstellensatz and a new result about the reduction modulo prime numbers of systems of multivariate polynomials over the integers.

Moreover, we establish some links between these problems and the uniform dynamical Mordell-Lang conjecture. In this sense we present some upper bounds on the size of the intersection of an orbit in an algebraic dynamical system with a hypersurface for various cases when it is finite.

Einladender: Peter Hellekalek