Felix Klein Seminar

UNIVERSITY OF NOTRE DAME
Department of Mathematics

Speaker: Jan-Li Lin
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Thursday, October 27, 2011
2:00 PM
125 Hayes-Healy Hall

Title: On the dynamics of maps on toric varieties

Abstract:

The goal of the talk is to introduce my work on computing the dynamical degrees for monomial maps.

The tool I used to study monomial maps is the theory of toric varieties. First, we look at the dynamics of automorphisms on toric varieties. The structure of the automorphism group of a smooth toric variety is obtained by Demazure. Using Demazure's theorem, together with a result of Gromov-Yomdin, one can show that there does not exist any automorphism on smooth projective toric varieties with positive topological entropy. This means, automorphisms on toric varieties are "uninteresting" from dynamics point of view.

Next, we will turn our attention to monomial maps, which are rational maps defined on projective spaces. For a dynamical system given by a rational map on the projective space, one can define the degrees of the map. The asymptotic growth of the degrees under iterates can be measured by the dynamical degrees. They form an interesting family of invariants for the dynamical system. A recent result of mine (also independently obtained by Favre-Wulcan) computes the dynamical degrees of a monomial maps. The proof is based on the intersection theory on toric varieties. As a corollary, we also compute the topological entropy of monomial maps.