

Geometry Seminar
March 11, 2008, Tuesday, 6:00 p.m.
Room 613, Courant Institute
251 Mercer Street, New York

Topological complexity of transcendental sets

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Abstract

First introduced by Khovanskii, the notion of Pfaffian functions offers, over the reals, a framework in which the number of isolated solutions of a system of equations can be effectively bounded in terms of certain discrete parameters of the system. This suggests that sets defined using Pfaffian functions are not too pathological: e.g. their homology groups are finite-dimensional. In this talk, I will discuss the various methods used to establish explicit upper bounds on Betti numbers of Pfaffian sets. The methods used are more elaborate than in the semi-algebraic case, because Pfaffian sets are intrinsically more complicated to represent. Of particular note is the use of a homology spectral sequence to relate the homology of the image of a map with the homology of its various fibered powers.

For further information contact {pach,pollack}@cims.nyu.edu, or visit our website: http://www.math.nyu.edu/seminars/geometry_seminar.html