Stanford Department of Mathematics Colloquium

Approximation and density results for varieties of low degree

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Abstract

In the 1930's, C.C. Tsen showed that a homogeneous polynomial over the function field of a complex curve has a nontrivial solution, provided the degree of the polynomial is less than the number of variables. We can express this in geometric terms: if $f : X \to B$ is a fibration of hypersurfaces of small degree over a curve then f admits an algebraic section. In 2001 Graber, Harris, and Starr generalized this by recasting the key hypothesis in geometric terms: the fibers should be 'rationally connected'.
In this talk, we will address geometric questions (with an arithmetic flavor) about the sections. Are they dense in the total space of the fibration? Can we find a section through a prescribed set of points or with a prescribed initial part for its Taylor expansion at these points? This is joint work with Y. Tschinkel.

Thursday, January 15
4:15 p.m.
Bldg. 380, Room 380-W.

http://math.stanford.edu/coll/0809/