Approximation 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 projective curve has a nontrivial solution provided the degree of the polynomial is less than than the number of variables. In 2001 Graber, Harris, and Starr generalized this result by proving that every rationally connected variety over the function field of a curve has a rational point. We can recast this in geometric terms: If $f: X \rightarrow B$ is surjective map from a smooth projective variety to a curve with rationally connected fibers, then $f$ admits a section. Once we know that a section exists, we can ask approximation questions about the sections: Can we find a section through a prescribed set of points? With prescribed Taylor series at those points? Our results depend on the singularities occurring in the fibers of $f$. (joint with Y. Tschinkel)

Thursday, March 6, 2008, 4:00 pm
Mathematics and Science Center: W201

Refreshments will be served in the Department Lounge at 3:30PM