Stanford Algebraic Geometry
— Seminar —

MODULI OF TWISTED SHEAVES AND AZUMAYA ALGEBRAS

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Abstract

We construct and describe moduli spaces of Azumaya algebras on a smooth projective surface. These spaces are the algebro-geometric version of the spaces of principal PGL_n-bundles and they also have strong connections to arithmetic. A geometric approach to the problem leads one to study moduli spaces of twisted sheaves. We show that these spaces are very similar to the moduli spaces of semi-stable sheaves. On the arithmetic side, we use the geometry of these moduli spaces to answer a classical question about the Brauer group of a function field K in two variables over a finite field, known as the "period-index problem": for which classes α in $Br(K)$ of order n does there exist a division algebra D of rank n^2 with $[D] = \alpha$?

Friday, December 5
3:15 p.m.
Room 383-N

http://math.stanford.edu/~vakil/seminar0304/