Berkeley-Stanford
Joint Algebraic Geometry Seminar

Tuesday, March 30, at Stanford

Joe Harris
Harvard
3:15–4:15, Rm. 383–N

The Enriques conjecture; or, How canonical is the canonical bundle?

Abstract: The question we're dealing with is this: Is there any way of associating to each smooth curve C of genus g — or at least to each C in an open subset of moduli — a line bundle on C, other than by taking powers of the canonical bundle? (The answer, by the way, is no: the canonical bundle is truly canonical.) This question was posed almost a century ago; a bogus proof was given by Franchetta in the '40s (as a result of which the statement is usually called *Franchetta's conjecture*), and a correct proof was given in the '80s by Harer and Mestrano, based on a topological argument of Harer's.

In fact, the statement is immediately implied by a stronger conjecture made by Enriques decades earlier. Enriques claimed (or suggested; it's not always clear) an analogous statement for the Severi variety, namely that the only ways of choosing a line bundle on a general plane curve C of degree d and genus g are combinations of the canonical bundle K_C and the hyperplane bundle $\mathcal{O}_C(1)$.

In this talk I'll discuss a little of the history of the Enriques conjecture, and variants of it; but the main purpose of the talk will be to give a proof of the conjecture that Deepee Khosla and I found recently.

Mark de Cataldo
Stony Brook
4:45–5:45, Rm. 383–N

The Hodge theory of algebraic maps

Abstract: I will discuss joint work with Luca Migliorini on new structures on the cohomology of projective manifolds.

There will be a dinner afterward.

This seminar alternates between Stanford and Berkeley. To organize transportation from Berkeley to Stanford, please contact David Eisenbud and Tom Graber.

`http://math.stanford.edu/~vakil/seminar0304/bs.html`