

Columbia University

Algebraic Geometry Seminar

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MODULI SPACES AND THE MINIMAL MODEL PROGRAM

We consider weighted pairs, consisting of a projective variety and an effective divisor with rational coefficients. For example, take a configuration of points on the projective line, and assign to each a nonnegative number no greater than one. Using the log minimal model program to describe the limiting degenerate pairs, one can construct compact moduli spaces of weighted stable pairs. The limits that arise depend on the choice of the weights, and varying the weights yields a collection of moduli spaces, often related by explicit birational modifications. These modifications themselves often admit elegant interpretations in terms of the log minimal model program, as applied to the moduli spaces. We compare moduli spaces of weighted pairs to compactifications of configurations of linear subspaces arising from Geometric Invariant Theory, and to compactifications of moduli of pointed rational curves studied by Kapranov, Losev, and Manin. Finally, we will state some results on higher dimensional examples like plane curves.

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2:30pm
Mathematics 417