

Queen's Algebraic Geometry — Seminar —

RATIONAL SIMPLE CONNECTEDNESS AND WEAK APPROXIMATION

JASON STARR
Stony Brook University

Abstract

Rational connectedness and rational simple connectedness are analogues in algebraic geometry of path connectedness and simple connectedness. The idea is to replace continuous maps from the unit interval in the usual definitions by polynomial (or holomorphic) maps from the complex projective line. Given a system of polynomial equations in some number of variables and in one parameter, weak approximation is the problem of approximating power series solutions in the parameter by polynomial solutions in the parameter (this is a refinement of the problem of existence of a single polynomial solution in the parameter).

A simple, beautiful result of Hassett relates rational simple connectedness and weak approximation. A. J. de Jong and I prove rational simple connectedness of low degree complete intersections, and thereby prove weak approximation for systems of polynomials for which the number of variables is large compared to the degrees of the polynomials. I will explain what all this means and the basic ideas of the proofs.

Monday, February 26, 2007
4:30pm – 5:30pm
115 Jeffery Hall