Queen's Algebraic Geometry
— Seminar —

A Solution to the Waring Problem for Monomials

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Abstract

The Waring Problem for Polynomials asks: given a homogeneous form F of degree d in the polynomial ring $k[x_0, \ldots, x_n]$ where k an algebraically closed field of characteristic 0, what is the shortest representation of F as a sum of dth powers of linear forms?

The spectacular theorem of Alexander and Hirschowitz, determining the dimensions of the higher Secant Varieties of the Veronese Varieties, answers this question for the *general* form of degree d. Unfortunately, it is impossible to tell if any given form F is *general*, in this sense. So, the question has remained open to determine the length of this shortest representation for a given form F. In this talk, I will explain what the answer is for monomials and indicate other theorems that we have recently proved. This is a report on joint work with E. Carlini and M.V. Catalisano.

Monday 16 January 2012
15:30 – 16:30
319 Jeffery Hall