

Queen's Algebraic Geometry — Seminar —

SMOOTH COMPLETE INTERSECTIONS WITH DEFINITE INTERSECTION FORM

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Abstract

Indefinite unimodular forms over the integers are completely determined by their rank, signature and type; in particular, for a fixed rank r , the number of integral indefinite unimodular forms is bounded above by $2r$. On the other hand, the number of definite unimodular forms grows very rapidly past rank 24 — for example, the numbers of definite unimodular forms of ranks 32 and 40 are bounded below by 10^7 and 10^{51} , respectively. Despite this, it seems to be a general principle that smooth projective varieties over the complex numbers with definite intersection form are 'rare'. In this talk, we confirm this principle in the case of smooth complete intersections, obtaining a complete list and identifying the lattices that appear. Beautifully, one of these is the famous E_8 lattice.

Monday 19 November 2012
16:30 – 17:30
319 Jeffery Hall