

Stanford Algebraic Geometry — Seminar —

RATIONAL HOMOLOGY SPHERES AND AUTOMORPHIC FORMS

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Abstract

Let K be an imaginary quadratic field. Modular forms for K are related to the cohomology of arithmetic 3-manifolds. By using the Galois representations associated to such forms we produce an explicit tower of rational homology three spheres with certain properties, answering a question of Cooper. Along the way we give the world's most complicated proof that the modular curve $X_0(1)$ has genus zero. (Joint work with Nathan Dunfield)

Friday, October 28

3:15 p.m.

Room 383-N

<http://math.stanford.edu/~vakil/s0506/>