

## Geometry, Topology and Dynamics Seminar

### *The Dehn function of $SL(n, \mathbb{Z})$*

Robert Young (IHES)

**Abstract:** The Dehn function is a group invariant which connects geometric and combinatorial group theory; it measures both the difficulty of the word problem and the area necessary to fill a closed curve in an associated space with a disc. The behavior of the Dehn function for high-rank lattices in high-rank symmetric spaces has long been an open question; one particularly interesting case is  $SL(n, \mathbb{Z})$ . Thurston conjectured that  $SL(n, \mathbb{Z})$  has a quadratic Dehn function when  $n \geq 4$ . This differs from the behavior for  $n=2$  (when the Dehn function is linear) and for  $n=3$  (when it is exponential). I have proven that it is quadratic when  $n \geq 5$ , and in this talk, I will discuss some of the background of the problem and sketch a proof that it is at most quartic when  $n \geq 5$ .

Wednesday, November 4 at 3:00 PM in SEO 612