1023-37-778   **Akshay Venkatesh***, Courant Institute of Mathematical Sciences, 251 Mercer Street, New York, NY 10012. *Flows on the space of lattices: work of Einsiedler, Katok and Lindenstrauss.*

A lattice is simply a grid (discrete subgroup of maximal rank) in $\mathbb{R}^n$. The space of all lattices in $\mathbb{R}^n$ is, however, quite complicated: it is a (noncompact) manifold equipped with a plethora of interesting structures. In a way, it can be considered a nonabelian analogue of the circle.

In this talk, we will consider the following question: Consider coordinate dilations on $\mathbb{R}^n$ (transformations like $(x, y) \mapsto (2x, y/3)$). How do they act on the space of lattices? In particular, if I give you a lattice, can you tell me whether the orbit under coordinate-dilations is dense?

I will explain some of the context of this problem and discuss its connection to number theory. I will then explain a beautiful result of Einsiedler, Katok, and Lindenstrauss about this question. (Received September 21, 2006)