1064-22-2 **David Fisher***, 1310 East Hunter Avenue, Bloomington, IN 47401. *Coarse Geometry of Solvable Groups.*

I will describe recent progress on classifying groups up to quasi-isometry with emphasis on the case of solvable groups. A quasi-isometry is a map that is bilipschitz at large enough scales but that may distort small distances arbitrarily. To view finitely generated groups as metric spaces, it is natural to take quasi-isometries, rather than isometries, as morphisms. In the early 1980's Gromov initiated a program to classify groups up to quasi-isometry.

I will discuss recent progress on this program in joint work with Eskin, Peng and Whyte. A key ingredient is a notion of coarse differentiation, which allows us to take derivatives of quasi-isometries despite the fact that quasi-isometries need not be continuous. The other major ingredient is an understanding of the geometry of solvable groups. (Received September 13, 2010)