1043-57-168   **Marc Roeder***, Departement of Mathematics, NUI Galway, Galway, Ireland. *"Geometric"*
Resolutions of Bieberbach Groups.

A torsion-free crystallographic group G is called Bieberbach group. Such a group acts freely on $\mathbb{R}^n$ and corresponds to a flat Riemannian manifold. The action of G on $\mathbb{R}^n$ is determined by the behavior on a fundamental domain which in turn gives rise to a cell complex. Using this geometric interpretation, we obtain free resolutions which are particularly well-suited for computer calculations.

This talk will outline the construction of such a "geometric" resolution, discuss performance and limitations, and finally mention an associated problem of geometry. (Received August 26, 2008)