

Dehn filling of groups and spaces

Jason Manning
University of Buffalo

Hyperbolic Dehn filling is a construction of Thurston, in which a cusped hyperbolic manifold is given an incomplete metric which is then completed to a hyperbolic metric on a closed manifold obtained from the cusped one by gluing on solid tori. Variations on this construction in 3-manifold topology include the Gromov-Thurston 2π theorem and the Agol-Lackenby 6π Theorem. Some time in 2004 Fujiwara asked if there was a purely group-theoretic version of this theorem.

A bit later Osin (and independently Groves and myself) gave such group theoretic Dehn filling theorems in the context of relatively hyperbolic groups. Recently, these group theoretic Dehn filling theorems have been brought to bear on 3-manifold theory, but in a quite different way than the original construction. This will be an expository talk.