

Mapping class group algorithms

Johanna Mangahas, University at Buffalo

The Nielsen-Thurston classification of the homeomorphisms of a surface generalizes the classification of elements of $SL(2, \mathbb{Z})$. In this talk I'll describe a simple mechanism leading to an algorithm for Nielsen-Thurston classification (joint work with T. Koberda) which was successfully mirrored to give a classification algorithm in the related setting of automorphisms of free groups (joint work with M. Clay and A. Pettet). I hope to fit these into a broader picture of tools that have been useful for building the computational theory of mapping class groups.