

## **Fast Nielsen-Thurston Classification**

Dan Margalit, Georgia Tech

In joint work with Balazs Strenner and Oyku Yurttas, we consider two algorithmic questions concerning the mapping class group. The first is the Nielsen-Thurston classification problem: given a mapping class, determine if it is periodic, reducible, or pseudo-Anosov (and if it is periodic find the order, if it is reducible find the reducing curves, and if it is pseudo-Anosov find the stable and unstable laminations and the stretch factor). The second problem is the conjugacy problem (or even more: the conjugacy search problem). We show that both problems have polynomial time solutions.