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Teichmüller Theory Seminar

A McCarthy-type theorem for linearly growing outer automorphisms of a free group

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Abstract

In his proof of the Tits alternative for the mapping class group of a surface, McCarthy also proved that given any two mapping classes σ and τ, there exists an integer N such that the group generated by $\langle \sigma^N, \tau^N \rangle$ is either free of rank two or abelian. An analogous statement for two-generator subgroups of a linear group is false, due to the presence of the Heisenberg group. In the setting of $Out(F_n)$, whether or not such a statement is true remains open, though there are many partial results. In this talk I will give an overview of the problem in the context of the analogy among the three families of groups, survey previous work, and give some of the ideas in my proof of a McCarthy-type theorem for linearly growing outer automorphisms. Time permitting I will discuss the uniform version and the relationship to questions of uniform exponential growth for subgroups of $\mathrm{Out}(F_n)$.

Wednesday, 6 December 2017, 4pm

Smith Hall 204