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**Soren Galatius\*** ([galatius@stanford.edu](mailto:galatius@stanford.edu)), Department of Mathematics, Stanford University,  
Stanford, CA 94107. *Stable homology of automorphism groups of free groups.*

Let  $F_n$  denote a free group on  $n$  generators, and let  $\text{Aut}(F_n)$  denote its automorphism group. The natural inclusion  $\text{Aut}(F_n) \rightarrow \text{Aut}(F_{n+1})$  induces a morphism in group homology  $H_k(\text{Aut}(F_n)) \rightarrow H_k(\text{Aut}(F_{n+1}))$ , and Hatcher-Vogtmann proved that this "stabilization" map is an isomorphism for  $n > 2k+1$ . Thus there is a "stable range" in which  $H_k(\text{Aut}(F_n))$  is independent of  $n$ . We calculate  $H_k(\text{Aut}(F_n))$  in this stable range. The proof uses graphs and Culler-Vogtmann's "outer space" and also uses tools from homotopy theory; in particular an analogue of the Pontrjagin-Thom construction adapted to graphs. (Received September 20, 2007)