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## On the stable cohomology of the IA-automorphism groups of free groups

*Tuesday 19 September 2023 09:00 (55 minutes)*

By combining Borel's stability and vanishing theorem for the stable cohomology of  $GL(n, \mathbb{Z})$  with coefficients in algebraic  $GL(n, \mathbb{Z})$ -representations and the Hochschild-Serre spectral sequence, we study the stable twisted cohomology of the automorphism group  $\text{Aut}(F_n)$  of the free group  $F_n$  of rank  $n$  and the stable rational cohomology of the IA-automorphism group  $\text{IA}_n$  of  $F_n$ . We propose a conjectural algebraic structure of the stable rational cohomology of  $\text{IA}_n$ , and consider some relations to known results and conjectures. If time permits, we also consider a conjectural structure of the stable rational cohomology of the Torelli groups of surfaces. This is a joint work with Mai Katada.

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