



MANHATTAN ALGEBRA DAY

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Growth of primitive elements in free groups

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CUNY Graduate Center, Room 9205

2:20 pm

Abstract:

In the free group F_k , an element is said to be primitive if it belongs to a free generating set. But how do “most” primitive elements look like? We give a somewhat surprising result: It turns out that most primitives are words which are “obviously” primitive, namely, words which, up to conjugation, contain one of the letters exactly once.

This also solves a question from the list ‘Open problems in combinatorial group theory’ [Baumslag-Myasnikov-Shpilrain 02]. Let $p_{k,N}$ be the number of primitive words of length N in F_k . We show that for $k > 2$, the exponential growth rate of $p_{k,N}$ is $2k - 3$.

Based on joint work with Conan Wu.