ASYMPTOTICS FOR FREE GROUP ACTIONS

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ABSTRACT. Let $\mathcal{T}$ be the universal covering tree of a finite connected metric graph G. The fundamental group of G is a free group F, and F acts freely and isometrically on $\mathcal{T}$. Consider the number of lattice points in F of distance at most T from a given base vertex $o \in \mathcal{T}$, i.e. $N(T) = \#\{x \in F : d_{\mathcal{T}}(o, ox) \leq T\}$. Guillopé established the asymptotic behaviour for $N(T)$ as $T \to \infty$ for certain metric graphs. Time permitting, we consider two variations on this asymptotic theme: counting only the lattice points in F that lie inside a given sector of $\mathcal{T}$; and restricting the group elements to a non-trivial conjugacy class in F. This is joint work with Richard Sharp.

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