

Seminar Title:

Orbit counting in conjugacy classes for free groups acting on trees

Abstract:

Let G be a finite connected metric graph where the degree of each vertex is at least three. We assume that the lengths of closed geodesic paths do not lie in a discrete subgroup of \mathbb{R} . The universal cover of G is an infinite tree \mathcal{T} . We use $d_{\mathcal{T}}(\cdot, \cdot)$ to indicate the metric that \mathcal{T} inherits from G . The fundamental group of G is a free group F and this group acts freely and isometrically on \mathcal{T} .

Let \mathfrak{C} be a non-trivial conjugacy class of the group F . Consider the counting function $N_{\mathfrak{C}}(T)$ given by

$$N_{\mathfrak{C}}(T) = \#\{x \in \mathfrak{C} : d_{\mathcal{T}}(o, ox) \leq T\},$$

where $o \in \mathcal{T}$ is a given base vertex. In this talk we shall establish the asymptotic behaviour of $N_{\mathfrak{C}}(T)$ as $T \rightarrow \infty$. This is joint work with Richard Sharp.