Coarse geometry of quasi-transitive graphs.

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Coarse geometry consists in studying the large-scale structure of a space. A central concept is the notion of *quasi-isometry* : intuitively, two metric spaces are quasi-isometric to each other if their metrics are the same, up to a rescaling by some constant factor. In particular, notions from coarse geometry turn out to be particularly relevant when studying the geometric properties of finitely generated groups, as every two different Cayley graphs of a given finitely generated group are quasi-isometric to each other.

Recently, a new area of research emerged that aims at studying the interplay between coarse geometry and graph theory, called *Coarse graph theory*. In this talk, I will focus on *quasi-transitive* graphs, i.e., graphs which have only a finite number of vertices, up to the application of an automorphism. Intuitively, quasi-transitive graphs have to be thought as graphs with "many symmetries", and this class of graphs is particularly interesting to study as it generalizes the class of vertex-transitive graphs and the class of Cayley graphs. In particular, we will see that every quasi-transitive locally finite graph which excludes a minor is quasi-isometric to some planar graph, and that every locally finite graph which is quasi-isometric to some planar graph is k-planar for some $k \in \mathbb{N}$. We will also discuss about a few other related recent questions and results.

This is joint work with Louis Esperet.