

Title. Nonamenable subforests of multi-ended quasi-pmp graphs

Abstract. In the last thirty years, amenability of probability measure preserving (pmp) Borel actions of countable groups has been well understood, largely due to the theory of cost available for pmp countable Borel equivalence relations. On the other hand, very little is known in the quasi-pmp (measure-class preserving) setting, where cost does not yield desirable results. Moreover, since nonamenable groups, such as F_2 , can have free amenable quasi-pmp actions, the behavior in this setting has been regarded as particularly mysterious. In this talk, I will present a construction of a nonamenable subforest of multi-ended quasi-pmp Borel graphs. This, together with a result of Tserunyan and Tucker-Drob, witnesses nonamenability of quasi-pmp actions, whose orbit equivalence relations admit such graphings. The main technique is a weighted cycle-cutting algorithm, which yields a weight-maximal spanning forest. We also introduce a random version of this forest, which generalizes the Free Minimal Spanning Forest, to capture nonunimodularity in the context of percolation theory. This is joint work with Ruiyuan Chen and Anush Tserunyan.