COUNTING WITH RANDOM WALKS

BAPTISTE LOUF

Abstract. We are interested in an enumerative problem, namely counting geometric objects called combinatorial maps, which can be parametrized by two numbers: their size, and a topological parameter called the genus. We are interested in an asymptotic estimation of the number of these objects when both the size and the genus go to infinity. The original motivation is to use these counting estimates to study the geometry of random maps in large genus and their hyperbolic behaviour. While enumeration in one parameter is a very well studied topic with many powerful tools available, this problem is a case of bivariate enumeration, is a rather new topic with very few results known at the moment. Our method consists in studying a recurrence formula for these maps and modeling it by a random walk, forgetting completely about the combinatorics of the model.

[Joint work with Andrew Elvey-Price, Wenjie Fang and Michael Wallner]

Université de Bordeaux
Email address: baptiste.louf@math.u-bordeaux.fr