

# Scaling exponents in directed polymers in random environment

Antonio Auffinger  
University of Chicago

Cornell Probability Seminar  
October 22, 2012

## Abstract

In a model of directed polymers in random environment, we place i.i.d. non-negative random variables on the nearest-neighbor edges of  $\mathbb{Z}^d$  and we study the associated Gibbs measure on simple random walk paths. A long-standing conjecture gives a relation between two “scaling exponents”: one describes the fluctuation of the point-to-point partition function and the other describes the typical maximum displacement of the random walk. This relation is sometimes referred to as the “KPZ scaling relation.” I will discuss work with Michael Damron, in which we give appropriate definitions of these exponents and a proof of the relation.