

# CRITERIA FOR BALLISTIC BEHAVIOR OF RANDOM WALKS IN RANDOM ENVIRONMENT

ALEJANDRO F. RAMÍREZ

ABSTRACT. It is conjectured that for a random walk on the hypercubic lattice  $\mathbb{Z}^d$  in a uniformly elliptic i.i.d. environment, when the dimension  $d \geq 2$ , transience in a given direction implies ballisticity in the same direction. Sznitman introduced ballisticity criteria, which are additional assumptions on the RWRE, which imply ballisticity and have been important to produce progress about this question. In particular the so called  $(T)$ ,  $(T')$  and  $(T)_\gamma$ , for  $\gamma \in (0, 1)$ , conditions. Most of the methods which show that the ballisticity conditions imply transience are based on renormalization techniques. In this talk, I will review some recent progress made in collaboration with Noam Berger, David Campos and Alexander Drewitz.

FACULTAD DE MATEMÁTICAS, PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE, CASILLA 306 -CORREO  
22, SANTIAGO, CHILE, TÉLÉPHONE: [56](2)354-5466, TÉLÉFAX: [56](2)354-4303, E-MAIL: ARAMIREZ@MAT.PUC.CL