REGENERATION TIME METHODS IN ONE-DIMENSIONAL PARTICLE SYSTEMS

ALEJANDRO F. RAMÍREZ

Abstract. The use of regeneration time techniques to prove the law of large numbers and central limit theorem for transient annealed multidimensional random walks in random environments has been very succesfully exploited during the last years. In this talk we discuss recent adaptations of these methods to one-dimensional interacting particle systems modelling growth phenomena. In particular we will find the fluctuations of the boundary of the one-dimensional stochastic combustion process, where particles move like simple symmetric random walks, branch at sites that where never visited before by any particle, and annihilate when they jump to a site which has a more than M particles, where M is a threshold parameter. We will also discuss a variant of this process, where particles perform simple exclusion movement. This talk is based in joint works with F. Comets and J. Quastel and with M. Jara and G. Moreno.

Facultad de Matemáticas, Pontificia Universidad católica de Chile, Casilla 306 -Correo 22, Santiago, Chile, Téléphone: [56](2)686-5466, Téléfax: [56](2)686-4303, e-mail: aramirez@mat.puc.cl

Date: March, 2006.