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Joint work with H. HE (BNU) and S. LIN (Paris 6)

Yaglom theorems for 2-dim and 4-dim critical branching random walks

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Abstract: We consider a discrete-time branching simple random walk in Z^d where each particle independently makes simple random walk and produces a random number of children so that the offspring law is of mean 1 and of finite variance. The classical Yaglom theorem says that conditioned on the survival up to time n, the number of alive particles at time n is of order n. When $d = 2$, we study this critical branching random walk (CBRW) conditioned on hitting a given site at time n and when $d = 4$, we study the CBRW conditioned on hitting some far away site x. We will talk about Yaglom-type theorems in both cases.