

RANDOM MARKOV PROPERTY FOR RWDRE

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We are interested in Random Walks in Dynamic Random Environments. The main difficulty in the study of these systems is the strong mutual interaction between the walker and its environment. We propose a criterion that, when satisfied, allows to decompose the random walker trajectory into iid increments and in turn to establish limit theorems. The criterion concerns the environment and involves constructing a random field satisfying what we call a Random Markov Property, as well as decorrelation estimates. We apply this criterion to correlated environments such as boolean percolation on $\mathbb{Z}^d \times \mathbb{N}$ and renewal chains that are iid in space. Based on joint work with J. Allasia, R. Baldasso et A. Teixeira.