RANDOM WALKS AND PERCOLATION IN A HIERARCHICAL LATTICE

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Abstract: We present some mathematical results on random walks on a class of countable ultrametric spaces called hierarchical lattices, in particular transience-recurrence properties. The motivations come from studies on populations (e.g. branching particle systems) that have a hierarchical organization. We also give some results on (long-range) percolation in such spaces, and transience-recurrence of simple random walks on percolation clusters. We make comparisons with corresponding models on Euclidean spaces.