SCALING LIMITS OF TRAP MODELS

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Let $\{G_N : N \geq 1\}$, $G_N = (V_N, E_N)$, be a sequence of finite graphs, where V_N represents the set of vertices and E_N the set of unoriented edges. Let $\{W_x^N : x \in V_N\}$ be a sequence of positive numbers.

We examine the evolution of a continuous time random walk $\{X_t^N : t \geq 0\}$ on V_N which waits a mean $W^N(x) = W_x^N$ exponential time at site x and then jumps to one of its neighbors with equal probability. The value of W_x^N is interpreted as the depth of the trap at x. We prove that in the ergodic scale the process converges to an heterogeneous K-process.