METASTABILITY OF REVERSIBLE CONDENSED ZERO RANGE PROCESSES ON A FINITE SET

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Let $r : S \times S \to \mathbb{R}_+$ be the jump rates of a irreducible random walk on a finite set S, reversible with respect to some probability measure m. For $\alpha > 2$, let $g : \mathbb{N} \to \mathbb{R}_+$ be given by $g(0) = 0$, $g(1) = 1$, $g(k) = (k/k-1)^\alpha$, $k \geq 2$. Consider a zero-range process on S in which a particle jumps from a site x, occupied by k particles, to a site y at rate $g(k)r(x,y)$. Let N stand for the total number of particles. In the stationary state, as $N \uparrow \infty$, all particles but a finite number accumulate on one single site. We show in talk that in the time scale $N^{1+\alpha}$ the site which concentrates almost all particles evolves as a random walk on S whose transition rates $R(x,y)$ are a multiple of the capacities of the underlying random walk: $R(x,y) = C_0 \mathrm{Cap}_S(x,y)$.