Title: Uniformity of the late points of random walk on $\mathbb{Z}_n^d$ for $d \geq 3$.

Abstract: Let X be a simple random walk in $\mathbb{Z}_n^d$ and let t_{cov} be the expected amount of time it takes for X to visit all of the vertices of $\mathbb{Z}_n^d$. For $\alpha \in (0,1)$, the set $\mathcal{L}_\alpha$ of α-late points consists of those $x \in \mathbb{Z}_n^d$ which are visited for the first time by X after time αt_{cov}. Oliveira and Prata (2011) showed that the distribution of $\mathcal{L}_1$ is close in total variation to a uniformly random set. The value $\alpha = 1$ is special, because $|\mathcal{L}_1|$ is of order 1 uniformly in n, while for $\alpha < 1$ the size of $\mathcal{L}_\alpha$ is of order $n^{d-\alpha d}$. In joint work with Jason Miller we study the structure of $\mathcal{L}_\alpha$ for values of $\alpha < 1$. In particular we show that there exist $\alpha_0 < \alpha_1 \in (0,1)$ such that for all $\alpha > \alpha_1$ the set $\mathcal{L}_\alpha$ looks uniformly random, while for $\alpha < \alpha_0$ it does not (in the total variation sense). In this talk I will try to explain the main ideas of our proof and what are the next steps in this direction.