

Critical two-point functions for long-range random walk and long-range self-avoiding walk in high dimensions

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Abstract

We consider long-range random walk and long-range self-avoiding walk on \mathbb{Z}^d whose one-step distribution is given by D . Suppose $D(x)$ decays as $|x|^{-d-\alpha}$ with $\alpha > 0$. In this talk, I present that the critical two-point functions for long-range random walk when the dimension is larger than $(\alpha \wedge 2)$ and long-range self-avoiding walk when the dimensions is larger than $2(\alpha \wedge 2)$. Note that the upper-critical dimension for long-range self-avoiding walk is $2(\alpha \wedge 2)$. The talk is based on a work joint with Akira Sakai.