



**Conference on Many-Body-Localization:
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Algebraic Localization in Disordered One-dimensional Systems with Long-Range Hops

The transport of excitations in many physical systems can be mapped onto single-particle models with power-law hopping $\sim 1/r^a$. For randomly spaced particles these models present an effective disorder that leads to surprising localization properties. I will show that in one-dimensional systems all eigenstates are algebraically localized for any value of $a > 0$. Moreover, there is an effective duality between models with $a < 1$ and $a > 1$, which present similar localization properties.
