

Abstract Submitted  
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**Quantum Walks on Trees with Disorder** STEVEN JACKSON<sup>1</sup>,  
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walks on trees have the potential for exponential speedup compared to classical  
algorithms. It has been argued that disorder may limit this potential, due to An-  
derson localization. We report on an extensive numerical analysis of quantum walks  
with disorder and find evidence of a localization transition for large disorder, but  
a quantum-to-classical transition for intermediate disorder. These results suggest  
that quantum walks may yet retain their speedup for high-dimensional graphs with  
weak disorder.

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