

Abstract Submitted
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Numerical studies of variable-range hopping in one-dimensional systems¹ A. S. RODIN, M. M. FOGLER, UCSD — We report on our recent numerical study [1] of hopping transport in disordered one-dimensional systems. A fast new algorithm, based on Dijkstra shortest-path algorithm, is devised to find the lowest-resistance path through the hopping network at arbitrary electric field. Probability distribution functions of individual resistances on the path and the net resistance are calculated and fitted to compact analytic formulas. Qualitative differences between statistics of resistance fluctuations in Ohmic and non-Ohmic regimes are elucidated. The results are compared with prior theoretical and experimental work on the subject.

[1] A. S. Rodin and M. M. Fogler, Phys. Rev. B 80, 155435 (2009).

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M. M. Fogler
UCSD

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