

THE SPECTRAL MINIMUM FOR RANDOM DISPLACEMENT MODELS

GUNTER STOLTZ

stolz@vorteb.math.uab.edu

Department of Mathematics
University of Alabama at Birmingham
University Station
Birmingham AL 35294, USA

Consider a one-dimensional Schrödinger operator with potential V given as follows: Fix a *single site potential* f which is supported in an interval of length less than 1. Construct V by placing a translate of f into each unit interval $[n, n + 1]$ for integer n , where otherwise the positions of each translate are arbitrary. Which configuration of single sites minimizes the spectral minimum of the Schrödinger operator with potential V ? This question is equivalent to finding the spectral minimum of the random displacement model. We conjecture that the minimum is realized through *pair formation* of the single sites. We provide a partial proof of this conjecture and additional numerical evidence for its correctness. This is joint work with Jason Lott.