

Abstract Submitted
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Anderson localization in 2D using point-like disorder W. MORONG, W. SHIRLEY, B. DEMARCO, University of Illinois — Anderson localization is a general phenomenon that has been seen in a variety of media, and particularly in ultracold atomic gases with speckle disorder in one and three dimensions. However, observation of localization in a two-dimensional geometry has been elusive. We show that a major cause of this difficulty is the relatively high percolation threshold of a speckle potential in 2D, resulting in strong classical localization, and propose instead a point-like disorder that can avoid this percolation limit. Required disorder strength in this potential is examined, going beyond the weak-scattering approximation, and realistic experimental setups that could observe this localization are discussed.

William Morong
University of Illinois, Urbana-Champaign

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