

Abstract Submitted
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Predicted mobility edges in one-dimensional incommensurate optical lattices¹ JOHN BIDDLE, University of Maryland, SANKAR DAS SARMA — Localization properties of non-interacting quantum particles in one-dimensional incommensurate lattices are investigated with an exponential short-range hopping that is beyond the minimal nearest-neighbor tight-binding model. Energy dependent mobility edges are analytically predicted in this model and verified with numerical calculations. The results are then mapped to the continuum Schrödinger equation, and an approximate analytical expression for the localization phase diagram and the energy dependent mobility edges in the ground band is obtained.

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