

Abstract Submitted
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Quantum transport in linear chains under periodic perturbations DANIEL THUBERG, SEBASTIÁN REYES, Facultad de Física, Pontificia Universidad Católica de Chile, Avda. Vicuña Mackenna 4860, Macul, Santiago, Chile, SEBASTIAN EGGERT, Department of Physics, Univ. Kaiserslautern, Erwin Schroedinger Str., D-67663 Kaiserslautern, Germany — Quantum transport properties across a time dependent impurity in a linear chain are studied theoretically using the Floquet formalism. We obtain the exact reflection coefficient for a wide range of parameters. Our results compare well with known approximations in the high frequency regime. Furthermore, at lower frequencies we observe new features and a significant departure from the approximated predictions. Below a well defined frequency the impurity couples waves of differing k -values. As a result, the impurity not only splits the incident wave into a transmitting and a reflecting part of the same wave number k , but also waves of differing k emerge from the perturbed site. The amplitude of these waves is also obtained.

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