

Abstract Submitted  
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**Manipulation of the dynamics of many-body systems via quantum control methods**<sup>1</sup> JULIE DINERMAN, LEA SANTOS, Yeshiva University — We investigate how dynamical decoupling methods may be used to manipulate the transport behavior of quantum many-body systems. These methods consist of sequences of unitary transformations designed to induce a desired dynamics. The systems considered for the analysis are one-dimensional spin-1/2 models, which, according to the parameters of the Hamiltonian, may be in the integrable or non-integrable limits, and in the gapped or gapless phases. Given a system in a certain regime, we develop control sequences that lead to an effective evolution typical of a system in the opposite regime, that is, a chaotic chain evolves as an integrable one and a system in the gapless phase behaves as a gapped one.

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Julie Dinerman  
Yeshiva University

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