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Nonequilibrium thermal transport and its relation to linear response CHRISTOPH KARRASCH, RONI ILAN, JOEL MOORE, UC Berkeley — We study the real-time dynamics of spin chains driven out of thermal equilibrium by an initial temperature gradient $T_L \neq T_R$. We demonstrate that the nonequilibrium energy current saturates fast to a finite value if the linear-response thermal conductivity is infinite, i.e. if the Drude weight D is nonzero. Our data suggests that a nonintegrable dimerized chain might support such dissipationless transport ($D > 0$). We show that the steady-state value of the current for arbitrary $T_L \neq T_R$ is completely determined by the linear conductance. Inhomogeneous systems exhibiting different bulk parameters as well as Luttinger liquid boundary physics induced by single impurities are discussed shortly.

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