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Spatiotemporal correlation buildup after an interaction quench in the Luttinger model NILS O. ABELING, STEFAN KEHREIN, Institut f. Theoretische Physik, Goettingen University, Germany — We study the evolution of density-density correlations at different times and distances in the exactly solvable Luttinger model after a sudden quench from the ground state. We discuss the difference between correlations and susceptibilities, and how these results can be interpreted from the point of view of Lieb-Robinson bounds. For the correlation functions we specifically show that pre-quench entanglement in the ground state leads to algebraically decaying long distance tails outside the light cone.

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