Abstract Submitted
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Quench dynamics in the one-dimensional sine-Gordon model: Quantum kinetic equation approach[1] MARCO TAVORA, ADITI MITRA, New York University — We study dynamics after a quantum quench in the one-dimensional sine-Gordon model in its gapless phase. We construct the Dyson equation to leading (quadratic) order in the cosine potential and show that the resulting quantum kinetic equation is atypical in that it involves multi-particle scattering processes. We also show that using an effective action, which generates the Dyson equation by a variational principle, the conserved stress-momentum tensor can be constructed. We solve the dynamics numerically by making a quasi-classical approximation that makes the quantum kinetic equation local in time while retaining the multi-particle nature of the scattering processes. We find that the boson distribution function reaches a steady-state characterized by an effective temperature in the long-wavelength limit. We present an analytic argument for the value of the effective temperature and the time-scales to reach this steady-state.

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