Quantum quench dynamics in analytically solvable one-dimensional models ANIBAL IUCCI, University of Geneva, MIGUEL A. CAZALILLA, Centro de Fisica de Materiales, San Sebastian, Spain, THIERRY GIAMARCHI, University of Geneva — In connection with experiments in cold atomic systems, we consider the non-equilibrium dynamics of some analytically solvable one-dimensional systems which undergo a quantum quench. In this quench one or several of the parameters of the Hamiltonian of an interacting quantum system are changed over a very short time scale. In particular, we concentrate on the Luttinger model and the sine-Gordon model in the Luther-Emery point. For the latter, we show that the order parameter and the two-point correlation function relax in the long time limit to the values determined by a generalized Gibbs ensemble first discussed by J. T. Jaynes [Phys. Rev. **106**, 620 (1957); **108**, 171 (1957)], and recently conjectured by M. Rigol *et.al.* [Phys. Rev. Lett. **98**, 050405 (2007)] to apply to the non-equilibrium dynamics of integrable systems.

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