Dephasing and the steady state in quantum many-particle systems[1] THOMAS BARTHEL, ULRICH SCHOLLWÖCK, Institute for Theoretical Physics C, RWTH Aachen, Germany — We discuss relaxation in many-particle systems. For integrable systems, the time-evolution from an arbitrary initial state can lead, for a given finite subsystem, to a definite steady state. We give an explicit derivation of the steady state ensemble and devise sufficient prerequisites for the dephasing to take place. We also find surprisingly simple scenarios, in which dephasing is ineffective and discuss the dependence on dimensionality and criticality. It also follows that, after a quench of system parameters, entanglement entropy will become extensive.

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