On the quantum phase transition in a non-equilibrium quantum field theory

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Abstract

In non-equilibrium quantum mechanics, the quantum phase transition is a non-equilibrium process in which a point particle is either trapped in the phase of a non-equilibrium quantum field theory or is excited by a quantum field theory. We show that a quantum phase transition can occur in the presence of a cross-over current. However, in the presence of a cross-over current, the quantum phase transition is unstable and must be used with care. We discuss the implications of this conclusion for the possibility of a phase transition in the context of the quantum phase transition in a non-equilibrium field theory.