
FEDERICO FALDINO, University of Genova

On interacting KMS states in pAQFT: Stability, Relative Entropy and Entropy Production

In this talk, we analyze the stability and return to equilibrium properties of the interacting KMS states built by Fredenhagen and Lindner for a scalar field theory in the framework of perturbative Algebraic Quantum Field Theory [1]. In particular, we show that these properties hold for compactly supported potentials, while they fail if the adiabatic limit is considered. This failure led to the definition of a Non-Equilibrium Steady State in pAQFT [2].

Furthermore, in order to study this new non-equilibrium state, we define relative entropy and of entropy production in the framework of pAQFT [3].

Bibliography:

[1] K. Fredenhagen, F. Lindner - "Construction of KMS States in Perturbative QFT and Renormalized Hamiltonian Dynamics". Commun. Math. Phys. 332 – 895 (2014). [2] N. Drago, F. Faldino, N. Pinamonti - "On the stability of KMS states in perturbative algebraic quantum field theory". Commun. Math. Phys 357, Issue 1 (2018) 267-293. [3] N. Drago, F. Faldino, N. Pinamonti - "Relative Entropy and Entropy Production for Equilibrium States in pAQFT". ArXiv:[1710.09747] (2017).