MP 10: Hauptvortrag

Zeit: Donnerstag 11:45–12:30 Raum: M010

Hauptvortrag MP 10.1 Do 11:45 M010

Aspects of Quantum Fields on Cosmological Models — •Nicola Pinamonti — II. Institut für Theoretische Physik, Universität Hamburg

In this talk we shall consider the backreaction of certain quantum fields on gravity. This will be done employing a very simple model for matter, namely the free quantum field, and using the Einstein equations in a semiclassical fashion. A central role in the discussion will be played by the analysis of the trace anomaly of the stress tensor in states with a good ultraviolet behavior. Even if the presented models are very simple, they show that the effect of renormalization could play an important role at cosmological level. The results presented in the first part of the talk rely on the existence of states on curved spacetime with nice ultraviolet behavior, namely states that satisfy the Hadamard property. We shall discuss the existence of these states also in relation to the problem of the evolution of scalar fluctuations of the metric.