GR 9: Quantum Gravity I

Zeit: Donnerstag 11:00–11:45 Raum: NW-Bau - HS3

Hauptvortrag GR 9.1 Do 11:00 NW-Bau - HS3

Constructive QFT Approach to Quantum Gravity — •Thomas Thiemann — FAU Erlangen-Nuernberg

It is well known that canonical quantisation of Quantum Field Theories (QFT) on Minkowski space can be rephrased as a problem in constructive QFT, namely the construction of a rigorous path integral measure on a space of Euclidian fields obeying the Osterwalder-Schrader (OS) axioms. From such a measure the canonical QFT (Hilbert space, vacuum, dynamics) can be recovered by OS reconstruction. The measure theoretic approach opens access to Wilsonian renormalisation techniques that can be used in order to derive a consistent continuum theory from a naively quantised version.

In this talk we review elements of this framework and explain how it can be applied to canonical Quantum Gravity (QG). We close by discussing applications thereof in a particular incarnation of canonical QG called Loop Quantum Gravity (LQG).