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Lorentzian functional renormalization and the Nash-Moser theorem

Tuesday 24 September 2024 14:30 (1h 40m)

The Renormalization Group (RG) Equation determines the flow of the effective action under changes in an artificial energy scale, which roughly corresponds to the scale of the system under consideration. I report on a rigorous construction of a non-perturbative RG flow for the effective action in Lorentzian manifolds. I give the main ideas of a proof of local existence of solutions for the RG equation, when a suitable Local Potential Approximation is considered. The proof is based on an application of the renown Nash-Moser theorem. Time permitting, I also discuss an application of the RG equation to the non-perturbative renormalizability of quantum gravity.

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Session Classification: Poster Session