A new formulation of Lee-Wick quantum gravity

Marco Piva
Dipartimento di Fisica "Enrico Fermi"
Università di Pisa
Italy

Lee-Wick models are a class of higher-derivative quantum field theories that are claimed to reconcile renormalizability and unitarity in a very nontrivial way. After a brief introduction, I will provide a new formulation of the models, by defining them as nonanalytically Wick rotated Euclidean theories. The new formulation overcomes the major difficulties with no need of external ad hoc prescriptions and gives the right cutting equations, which are consistent with unitarity. The physical results are different from the previous formulations. Moreover, the unusual behaviors of the physical amplitudes lead to interesting phenomenological predictions. Finally I will show the simplest model for quantum gravity.