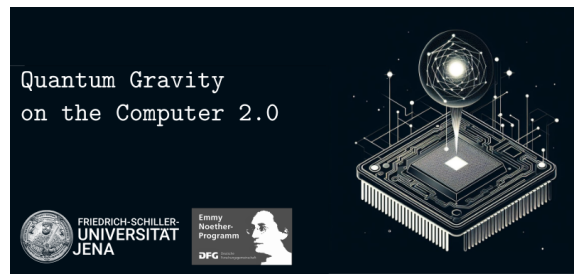


## Quantum Gravity on the Computer 2.0



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# The notion of topology and dimension in lattice quantum gravity

*Thursday 12 September 2024 09:30 (1 hour)*

The developments of the past decades in computational power allowed us to implement numerical simulations to test the impact of the fluctuations of gravity furthermore to see if there are any interesting effects when one couples matter systems to it. In my talk I will present results regarding coupling matter fields to CDT including scalar and gauge fields. Only the scalar fields were minimally coupled, the gauge fields are only tested in the quenched approximation. Using matter fields one can strengthen the results of the four-dimensional nature of the observed deSitter spacetimes furthermore discuss the meaning of topology and dimensions in lattice theories of geometries. When there is an interaction between matter and geometry those two observables are not trivial.

**Presenter:** NÉMETH, Daniel (Radboud University Nijmegen)