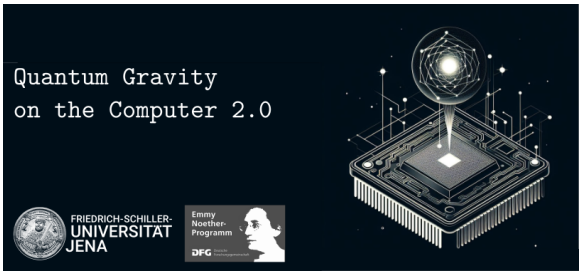

Contribution ID: **14** Type: **not specified**

Quantum dynamics in Causal Set Theory

Wednesday 11 September 2024 09:30 (1 hour)

Causal Set Theory is a Lorentzian approach to quantum gravity in which spacetime is fundamentally discrete. Lorentzian discreteness poses an obstruction for a Hamiltonian formulation of dynamics, but it is well-suited for exploring dynamics in the spirit of the path integral. This talk will focus on the Decoherence Functional, a generalisation of the probability measure that encodes quantum interference. We will illustrate how one can obtain a Decoherence Functional that describes the quantum dynamics of a causal set spacetime (via the Complex Growth models prescription) and introduce the Decoherence Functional for scalar quantum field theory on a fixed causal set background.

Presenter: ZALEL, Stav (Imperial College London)