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CDT, a theory of quantum geometry.

Tuesday, 26 May 2020 14:00 (50 minutes)

Causal Dynamical Triangulations (CDT) is a lattice model which provides a non-perturbative, background independent formulation of four-dimensional quantum gravity. It provides an emergent background geometry and one can study the quantum fluctuations around this background geometry. The model has second order phase transition lines in the bare coupling constants. These transition lines may be used to test the asymptotic safety scenario of quantum gravity. A minisuperspace effective action can be reconstructed from the data obtained from computer simulations of the model. By studying geometries where the spatial topology is toroidal we can "reintroduce" coordinates and attempt to construct a complete effective action.

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