

Scalar Fields in CDT Quantum Gravity

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CDT is a numerical approach to quantum gravity which attempts to describe our Universe with the help of Regge Calculus and Path Integral formalism. The study of the past years revealed the rich phase-diagram of the model, which contains a physical de Sitter phase with higher order phase-transitions on its borders. Recently we added scalar fields to the model. The classical fields were used as coordinates, which revealed the structure of the CDT Universes which resembled the cosmological voids and webs. When the dynamical / quantum fields were used they triggered a phase-transition which effectively changed the space-time topology. During my talk I will show the most recent results related to scalar-fields in the model of Causal Dynamical Triangulations.

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