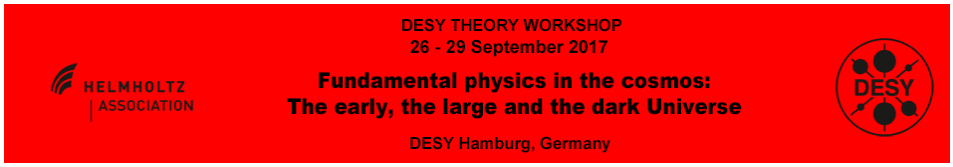

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Holographic lattice field theories

Thursday 28 September 2017 16:25 (20 minutes)

Recent developments in tensor network models (which are, roughly speaking, quantum circuits designed to produce analogues of the ground state in a conformal field theory) have led to speculation that such networks provide a natural discretization of the AdS/CFT correspondence. This raises many questions: just to begin, is there any sort of lattice field theory model underlying this connection? And how much of the usual AdS/CFT dictionary really makes sense in a discrete setting? I'll give a brief overview of some recent work that proposes a setting in which such questions can perhaps be addressed: a discrete spacetime whose bulk isometries nevertheless match its boundary conformal symmetries. Many of the first steps in the AdS/CFT dictionary carry over without much alteration to lattice field theories in this background, and one can even consider natural analogues of BTZ black hole geometries.

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