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Department of Theoretical Physics

THE QUANTUM SPACETIME SEMINAR SERIES

Entanglement structure of a state on multi-torus boundary

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We will study the entanglement structure of a particular quantum state, called link state, which is prepared by performing the Chern-Simons path integral on a 3 dimensional manifold whose boundary consists of multiple copies of torus linked with each other. The path integral on such a manifold gives a Hilbert space which is tensor product of Hilbert spaces associated with each torus boundary. The link state lives in this total Hilbert space and tracing out the sub Hilbert spaces associated with some of the torus boundaries gives an entanglement structure to the link state. We will discuss the features of this entanglement structure and interesting future projects which can be done in this direction.

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