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Matter-Geometry Entanglement in Quantum Cosmology

Monday 7 June 2021 16:48 (3 minutes)

We present a study of the evolution of entanglement entropy of matter and geometry in quantum cosmology. We show that entanglement entropy increases rapidly as the Universe expands, and then saturates to a constant non-zero value. The saturation value of the entropy is a linear function of the energy E associated to the quantum state: S=γE. This result suggests a 'First Law'of matter-gravity entanglement entropy in quantum gravity.

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