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Emergent Cosmology from Quantum Gravity

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In this talk, I will show how cosmological physics emerge from the collective behavior of spacetime quanta within the Group Field Theory (GFT) approach to quantum gravity. In particular, I will review key aspects of the resulting quantum cosmological physics, including the resolution of the initial singularity into a quantum bounce, the presence of a purely quantum geometric inflationary mechanism, the deep connection between cosmological perturbations and quantum gravitational entanglement, and the effects of quantum gravity on the dynamics of these perturbations.

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