

Emergence of macroscopic spacetimes in a certain large-N limit of canonical tensor model

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It is challenging to realize emergence of macroscopic spacetimes in tensor models. We study a wave function of a tensor model in the canonical formalism in a certain large-N limit, in which the wave function can reliably be computed classically (namely, by saddle points). We show that spacetimes develop through successive first-order phase transitions, in which numbers of “points” increase one by one. When a positive cosmological constant is turned on, Lie-group symmetric macroscopic spacetimes with locality have large amplitudes.

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