Copernicus Webinar and Colloquium Series



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Quantum gravity here and now, and at the end of the world

Tuesday 15 November 2022 15:00 (1h 20m)

I review a recent approach to connecting quantum gravity and the real world by deconstantizing the constants of nature, and using their conjugate as a time variable. This is nothing but a generalization of unimodular gravity. The wave functions are then packets of plane waves moving in a space that generalizes the Chern-Simons functional. For appropriate states they link up with classical cosmology in the appropriate limit. There are however deviations, namely during the matter to Lambda transition, raising the possibility that quantum gravity could be in action here and now. At the other extreme I show how this approach can be used to resolve the cosmological singularity, clarify the no-boundary proposal, and shed new light on the cosmological constant problem.

Presenter: MAGUEIJO, João (Imperial College London)