



Contribution ID: 140

Type: 20 minutes talk

Cosmological and quantum gravity applications of quantum Riemannian geometry on polygons

Thursday, 16 December 2021 16:30 (30 minutes)

The idea that space-time could be better modeled due to quantum gravity effects by non-commutative coordinates or 'quantum spacetime' is widely accepted as a possibility and is a cornerstone of the formalism of Quantum Riemannian Geometry (QRG). This formalism allows to address issues related to unification of quantum theory and gravity in a systematic way. Using the QRG approach we fully solve the quantum geometry of Z_n as a polygon graph with arbitrary metric square-length on the edges. The quantum cotangent bundle is 2-dimensional and a generic metric has curvature. The correlation functions for small n of the Euclanzied quantum gravity are given for this model. As another toy application, we develop a FLRW model on RxZ_n finding the same radial expansion as in the classical 1+2 model. Finally, we use the adiabatic approximation in order to find the conditions under which there is no cosmological particle creation.

Could you please give the most relevant category for your talk?

Cosmology

Will you be pre-recording your talk?

No

Would you be interested in receiving feedback on your presentation?

Yes

Are you happy for your talk to be recorded?

Yes

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Session Classification: Full-length talks