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An effective metric description of quantum black holes

mardi 24 juin 2025 15:30 (30 minutes)

Black holes provide a unique setting to explore quantum gravity, where semiclassical effects and quantum corrections can modify their observable properties. In this talk, I will present an effective metric approach to describe such effects in a model-independent way. The deformations of the metric are captured by a priori unknown functions of a physical observable of the spacetime, expressed as self-consistent Taylor series expansions. I will discuss how this framework remains independent of the specific choice of the observable and how it impacts black hole shadows and thermodynamic properties. Finally, I will compare the results with predictions from specific quantum gravity models, highlighting the potential for connecting theoretical approaches with observational signatures.

References: https://arxiv.org/abs/2307.13489 , https://arxiv.org/abs/2403.12679 , https://arxiv.org/abs/2412.13673 , https://arxiv.org/abs/2504.20810 .

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