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## Seminario INFN

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**Jacopo Papalini**

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terrà il Seminario:

### **Towards the bulk dual of double-scaled SYK**

**Abstract:** In this talk, I will propose the bulk gravitational dual of double scaled SYK. Remarkably, the low energy dynamics of SYK model is captured by the Schwarzian quantum mechanics, which is in turn holographically dual to JT gravity, the simplest realization of AdS/CFT, which has taught us various lessons about quantum black holes in the last years. Consequently, the bulk dual of DSSYK would provide an all-energy extension of JT Gravity, potentially offering a version of UV completeness for a theory of quantum Gravity. I will first briefly introduce the SYK model and present its exact quantization in the double scaling limit using chord diagrams. Inspired by the semiclassical analysis, I will then construct the holographic dictionary and perform a canonical quantization of the bulk theory, exactly reproducing all amplitudes of DSSYK. The proposed bulk dual will display several fascinating features, such as a deviation of the entropy profile from the usual Hawking formula and the discretization of spacetime at the quantum level.

Giovedì 23 Maggio 2024  
alle ore 14.00  
Aula Maxwell