

**Quantum Spacetime
and the Renormalization Group
2023
discussion session**

**QUESTIONS FOR ASYMPTOTIC SAFETY
(AND QG MORE IN GENERAL)**

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Why are we interested in Quantum Gravity?

Personal view: I am not (just) interested in better 'understanding' the phenomena we already know, I am interested in uncovering new ones

Of course, being able to reproduce the known physics in the appropriate limit is an important pre-requisite. But I see it as a step zero.

Specifically for Asymptotic Safety: what would be a smoking gun signature of the theory?

Where can we search for genuine signatures of Quantum Gravity?

'Classical phenomenology': e.g., tests of effective models using very high energy astrophysics observations

What are other areas where QG could be hiding?

Examples:

What does QG tell us about the outcome of high-precision table top experiments where one observes the gravitational field of a mass in superposition of states? (These experiments will be doable in the near future)

How does quantum gravity affect quantum systems? (e.g., decoherence)