



Contribution ID: 197

Type: **Talk**

Sensing Superposed Spacetime

Wednesday, 25 June 2025 10:25 (30 minutes)

One of the most basic expectations of quantum gravity is that gravitational fields can be placed in a state of superposition, analogous to what can be done for electromagnetic fields. However in a relativistic context a gravitational field is equivalent to a particular spacetime, and so a superposed gravitational field is a superposed spacetime. Rather than consider how such a state might emerge from a quantum theory of gravity, I will discuss instead how such states might be probed by model 2-level detectors. Examples will include flat spacetimes, expanding spacetimes, black holes, and cosmic strings. Quantum interference between the superposed spacetimes leads to qualitatively new features in the detector response. I will discuss these and close with some comments as to how these ideas can be further explored.

Primary author: MANN, Robert (University of Waterloo)

Presenter: MANN, Robert (University of Waterloo)

Session Classification: Wednesday Plenary Session