

Bottom-Up Cross-Cutting Workshop “JENAS Initiative: Gravitational Wave Probes of Fundamental Physics”

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Quantum spacetime in the sky: from the horizon to the vacuum

Tuesday, 13 February 2024 15:15 (45 minutes)

I will discuss two aspects of the quantum fluctuations of vacuum spacetime that can be probed in gravitational wave (GW) observatories. The first is the quantum fluctuations near the horizon that lead to (stimulated) Hawking emission (a.k.a. echoes) AND multipolar deformation of Kerr geometry. The second is an irreducible noise in the GW detectors due to the quantum fluctuations of spacetime geometry. These are both (potential) manifestations of a UV/IR coupling that is inevitable in any non-perturbative theory of quantum gravity.

Presenter: AFSHORDI, Niayesh