

Quantum Cross-section of Near-extremal Black Holes

Monday, 17 February 2025 09:30 (45 minutes)

We explore how to detect the large quantum fluctuations in the throat of a near-extremal black hole, where the dynamics are governed by the Schwarzian theory. To this end, we scatter a low-frequency wave of a massless, minimal scalar off the black hole and calculate the absorption cross-section. We find that in the strongly coupled regime the absorption cross-section exceeds the semiclassical prediction. We conclude that a measurement showing an enhanced absorption cross-section serves as a clear signature of the large quantum fluctuations in the geometry.

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