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Quantum Backaction in Analogue Spacetime

Wednesday, 25 June 2025 16:45 (15 minutes)

Backaction plays a fundamental role in measurements made on quantum systems. In this talk I will discuss the role of backaction in quantum simulators on analogue spacetime, presenting both a non-perturbative treatment of backaction for an analogue realization of the circular Unruh effect and a general analogy incorporating perturbative backaction for Unruh-deWitt detectors in $(2+1)$ dimensions. I will compare the two treatments, and then comment on the role of backaction for extracting a signature of the Unruh effect beyond the standard quantum limit.

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