Speaker: **Anirudh Gundhi, University of Freiburg**

Title: **Measuring decoherence due to quantum fluctuations of the electromagnetic field**

Date: **Tuesday, December 09, 11:00 am (s.t.).**

Place: **Seminar room 915**

Title: **Measuring decoherence due to quantum fluctuations of the electromagnetic field.**

Even in the absence of photons, quantum fluctuations of the electromagnetic field are predicted to exist within the framework of quantum field theory. The so-called Casimir effect, which refers to the attractive force between two metallic plates, is typically attributed to the existence of the same quantum fluctuations. In this talk, I will discuss the possibility to measure decoherence due to vacuum fluctuations of the electromagnetic field. I will argue why in typical situations vacuum fluctuations do not cause decoherence and then discuss the special scenarios where they might. I will also discuss if the strength of this decoherence effect could be strong enough to be detected.

The talk is based on the articles:
A. Gundhi and H. Ulbricht, Phys. Rev. Lett. 135, 020402 (2025); A. Gundhi, Phys. Rev. D 110, 116001 (2024).