

QFT measurements: Localization, causality and correlations

Charis Anastopoulos

University of Patras, Greece

Abstract

Understanding relativistic quantum measurements is important (i) for addressing foundational problems in QFT (localization, causality), (ii) in order to consistently define quantum information notions in relativistic settings, and (iii) for quantum gravity research (problem of time, black hole information paradox). Here, we present some recent progress on modeling quantum measurements through local QFT interaction with a measuring apparatus. We emphasize applications to particle localization, relativistic uncertainties and correlations, and the Unruh/Hawking effect.