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Detector-based measurements in AQFT

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I present a method to introduce a measurement postulate in Quantum Field Theory (QFT) in Minkowski spacetime using Unruh-DeWitt detectors and algebraic tools. Beginning with a review of the detector-based measurements for QFT presented by J. Polo-Gomez, J. J. Garay, and E. Martin-Martinez (Phys. Rev. D 105, 2022), I demonstrate how this scheme can be extended to induce localised Kraus operators and selective measurements within the framework of Haag-Kastler's QFT axioms. This extension leads to a robust measurement postulate for (A)QFT in flat spacetime. Additionally, I will discuss the implications of the detector-based measurement scheme for entanglement entropy and the feasibility of defining measurements in more general spacetimes.

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