

Project: Physical limitations on creating and observing strictly quantum correlations

PRELUDIUM BIS 3

Description for the general public

Quantum correlations between the measurement results lie at the heart of modern quantum physics – a theory describing phenomena in the world of atoms and elementary particles. They are much stronger than those that are possible under classical physics. These correlations allow us to explore the foundations of quantum mechanics and, at the same time, can and are used in revolutionary applications for information processing. Our project aims to investigate how fundamental physical conditions limit the creation of quantum correlations. We shall include limits on time, energy, range, and type of interactions. Additionally, we plan to investigate how the choice of reference frames affects the observation of quantum correlations.