

Parity and Environmental Effects on Quantum Entanglement and Bell Tests

Saturday, 26 April 2025 11:40 (25 minutes)

Symmetries exhibit the beauty of nature, while their breaking reflects the reality of our Universe. In this talk, I will discuss how parity violation affects Bell tests by quantifying its impact on quantum entanglement and the violation of the Bell inequality, using spin-half bipartite systems as an illustration. On the other hand, spins interact with the environment, causing a decoupling effect that tends to disentangle the bipartite systems. This environmental effect, however, has been largely overlooked in the past but will be discussed in detail in this talk.

This talk is based on <https://arxiv.org/abs/2409.15418>

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