Contribution ID: **422** Type: **Oral**

Quantum entanglement for gravitational-wave detectors

Thursday 28 August 2025 14:40 (20 minutes)

Quantum entanglement has recently begun to play an increasingly important role in astrophysical observations. Innovative techniques such as quantum steering, entanglement swapping, and quantum teleportation are opening new possibilities for precision measurements that surpass classical limits.

In this presentation, we provide a theoretical overview of how quantum entanglement can be applied to gravitational-wave detectors. We also discuss the potential for novel applications of entanglement through entanglement swapping between optical fields and the mechanical mirrors that constitute the interferometric detectors.

Collaboration you are representing

Author: Mr NISHINO, Yohei (University of Tokyo)

Presenter: Mr NISHINO, Yohei (University of Tokyo)

Session Classification: Gravitational Waves

Track Classification: Gravitational Waves