



Contribution ID: 666

Type: **Talk (preferred)**

## **Macroscopic realism versus quantum mechanics: Macroscopic Bell inequality violations and Wheeler's delayed choice using cat states**

*Wednesday 14 December 2022 12:15 (15 minutes)*

We predict violations of Bell, Leggett-Garg, and dimension-witness inequalities for macroscopic qubits based on macroscopically-distinct coherent states. This challenges our understanding of macroscopic realism versus quantum mechanics and motivates the examination of realism in quantum mechanics.

**Author:** THENABADU, Manushan (Swinburne University of Technology)

**Co-author:** Prof. REID, Margaret (Swinburne University of Technology)

**Presenter:** THENABADU, Manushan (Swinburne University of Technology)

**Session Classification:** AIP: Quantum Science and Technology

**Track Classification:** AIP Congress: AIP: Quantum Science and Technology