

GIREP-EPEC conference 2023 Physics learning promoting culture and addressing societal issues

Contribution ID: 112

Type: Oral presentation

# Teaching the subtleties of entanglement via the delayed-choice two-slit experiment with polarizers

Tuesday 4 July 2023 16:00 (20 minutes)

Single-particle entanglement requires at least two degrees of freedom for the particle that is used to make a nonfactorizable superposition. Using a two-slit experiment with horizontal and vertical polarizers over each slit, respectively, we illustrate how one measures at the slits to create an entangled state, followed by a delayed-choice placement of a second polarizer (before the photons hit the screen) to control the particle-like, or wave-like nature of the final observed pattern. This approach is used to teach (both non-scientists and undergraduates) the subtleties of entanglement and how delayed-choice experiments actually work.

## How would you like to present your contribution?

Hybrid from my own country (later in the conference day, best for Americas ...)

# **Target education level (primary)**

University education

## Target education level (secondary, optional)

Higher-secondary education

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Session Classification: Hybrid session - later

**Track Classification:** Innovative strategies and pathways to improve physics education at university