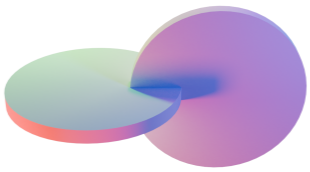

GIREP-EPEC
Transforming physics learning via Research & Practice
LEIDEN, 2025

Contribution ID: **71** Type: **Invited keynote**

Quantum Education

Thursday 3 July 2025 11:00 (1 hour)

The teaching and learning of quantum physics has been an area of intense research in physics education for many years. Based on research on students' conceptions and learning difficulties, teaching concepts have been developed and evaluated. Possible learning objectives and the various ways to achieve them have been discussed at previous GIREP conferences. The first part of the talk will introduce our own approach, the milq concept, which is based on a mini-axiomatic of quantum physics, the 'quantum reasoning tools'.
The second part will examine how the new quantum technologies can enrich the teaching of quantum physics. Quantum computing, quantum sensors and quantum communication have been at the forefront of research in recent years and attract a lot of attention in the public. From an educational point of view, quantum technologies are interesting because the focus on the decidedly non-classical aspects of quantum physics. We will discuss how quantum technologies can be used as possible application contexts in physics teaching at upper secondary level.

Education level

All ages

Physics topic

Quantum mechanics

Research focus

Other

Research method

Other

Organizing preference criteria

Physics topic

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Session Classification: Keynote speaker

Track Classification: Quantum education (QUANT)