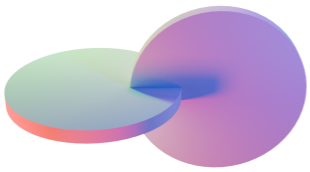

GIREP-EPEC
Transforming physics learning via Research & Practice
LEIDEN, 2025

Contribution ID: **266** Type: **Oral presentation**

The impact of different representation types in multi-representational physics instruction

Monday 30 June 2025 14:10 (20 minutes)

Multiple representations are important in physics education as they help students connect concepts, visualize phenomena, and develop a deeper understanding through various modes of representation. However, students often struggle to interpret these different forms of information, which can hinder learning. We examined how pre-service teachers use multiple representations to understand interference and diffraction using eye tracking. Eye-tracking data were recorded during pre- and post-tests and learning. Results indicated the critical role of mathematical representations and suggested that extracting information was easiest from verbal representations. These findings provide insights into how representations support conceptual understanding.

Education level

Age over 18 (excluding teacher education)

Physics topic

Other

Research focus

Evaluation & Assessment

Research method

Analytic Physics Education Research (Quantitative research)

Organizing preference criteria

Track

Authors: SUSAC, Ana; KÜCHEMANN, Stefan; MALONE, Sarah; PLANINIC, Maja; KUHN, Jochen

Presenter: SUSAC, Ana

Session Classification: Parallel oral presentations

Track Classification: Cognitive science research (COGN)