



GIREP-EPEC

Transforming physics learning via Research & Practice
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Type: **Oral presentation**

Undergraduate students' conceptual understanding of electromagnetic waves

Friday 4 July 2025 09:40 (20 minutes)

A questionnaire about electromagnetic waves was submitted to 35 undergraduate students after the conclusion of the electromagnetism course. The questionnaire consists of 6 multiple choice questions, also asking for justification of the answer. The answers' analysis was carried out through an iterative categorization process, aimed at verifying the consistence between the selected options and the motivations provided by the participants. The preliminary results show which are the most common learning difficulties (e.g. the interpretation of the wave profile representation and the relationships between the velocity and the other quantities characterizing electromagnetic waves) and how they are related to each other.

Education level

Age over 18 (excluding teacher education)

Physics topic

Other

Research focus

Student conceptions / Preconceptions / Misconceptions

Research method

Analytic Physics Education Research (Quantitative research)

Organizing preference criteria

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Track Classification: Other research in Physics Education (OTHER)