



GIREP-EPEC

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

Probing students' difficulties in electromagnetic induction using an approach based on Conceptual Blending theory.

Tuesday 1 July 2025 09:20 (20 minutes)

While common student difficulties in electromagnetic induction have been identified in the literature, the exact points of pitfalls in the sequence of the associated cognitive operations remain unexplored. In the process of administering a questionnaire based on simple electromagnetic induction situations to students, we experienced the need for a fine-grained probe into students' mental models that goes beyond a simple test for the presence of conceptual knowledge. This approach uses the theoretical framework of Conceptual Blending and emphasizes the integration of different concepts, laws, conventions, and visualizations involved. Our approach indeed reveals significant new insight into students' thought processes.

Education level

Age over 18 (excluding teacher education)

Physics topic

Other

Research focus

Student conceptions / Preconceptions / Misconceptions

Research method

Innovative research strategies (Try-out) (Qualitative research)

Organizing preference criteria

Education level

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Session Classification: Parallel oral presentations

Track Classification: Interplay of mathematics and physics (MATH)