



GIREP-EPEC

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

Students' epistemic difficulties in analysing Energy Transfer Problems in Mechanics

Monday 30 June 2025 14:30 (20 minutes)

The teaching of the concept of energy, along with the processes of energy transformation and transfer in Newtonian mechanics, is a complex issue that continues to present significant pedagogical challenges. This study examines the epistemic practices of High School students (ages 16-18) in Argentina and Spain when solving problems related to energy transformation, transfer, and the application of the principle of conservation of energy in Newtonian Mechanics. The responses to the problems we administered reveal that many students fail to explicitly define the system and its environment when analyzing energy transfer phenomena, leading to confusion and conceptual errors in their understanding of energy.

Education level

Age 15-18 (Secondary education)

Physics topic

Other

Research focus

Student conceptions / Preconceptions / Misconceptions

Research method

Mixed method (qualitative & quantitative)

Organizing preference criteria

Physics topic

Author: GUISASOLA, Jenaro (DUAL ENGINEERING SCHOOL, Machine Tool Institute (IMH) Elgoibar, Spain and Donostia Physics Education Research Group (UPV/EHU).)

Co-authors: Dr GUTIERREZ-BERRAONDO, Jose (DUAL ENGINEERING SCHOOL, Machine Tool Institute (IMH) Elgoibar, Spain and Donostia Physics Education Research Group (UPV/EHU).); Prof. GANDOLFO, Nicolas (FACULTY OF MATHEMATICS, ASTRONOMY, PHYSICS, AND COMPUTER SCIENCE, National University of Córdoba, Medina Allende and Haya de la Torre. Ciudad Universitaria, CP 5000, Córdoba, Argentina); Dr BUTELER, Laura (ENRIQUE GAVIOLA INSTITUTE OF PHYSICS, FAMAF - CONICET, Medina Allende and Haya de la Torre. Ciudad Universitaria, CP 5000, Córdoba, Argentina)

Presenter: GUIASOLA, Jenaro (DUAL ENGINEERING SCHOOL, Machine Tool Institute (IMH) Elgoibar, Spain and Donostia Physics Education Research Group (UPV/EHU).)

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