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

Contribution ID: **190** Type: **Oral presentation**

Secondary School Students' Interpretation of Thermal Processes

Friday 4 July 2025 09:00 (20 minutes)

The interpretation of thermal processes by every citizen is increasingly important today for energy sustainability. In a previous research work based on experiments of thermal interaction and thermal conduction, emerged the difficulty of interpreting the thermal processes in a coherent framework by students who had already studied thermal phenomena at school. This mainly on thermal conduction in a multilayer wall of a building emerged. The main problems that emerged concern the awareness of the difference between equilibrium states and transient processes, the way in which of a spatial temperature gradient is produced and the different behavior of the various materials. We planned an experimental didactic intervention module with the aim of deepening the difficulties that emerged from the previous research and identifying the ways to overcome the interpretative difficulties.

Education level

Age 15-18 (Secondary education)

Physics topic

Thermodynamics and Energy

Research focus

Student conceptions / Preconceptions / Misconceptions

Research method

Educational design research (Qualitative research)

Organizing preference criteria

Physics topic

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Session Classification: Parallel oral presentations

Track Classification: Educational research methodology (METHOD)