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

Contribution ID: **142** Type: **Workshop**

Understanding stellar properties through conceptual modelling - ASTRO

Tuesday 1 July 2025 15:30 (1h 30m)

In this workshop we present three lesson activities to teach core (astro)physics concepts at pre-university level which students find difficult to grasp with traditional interventions: star properties, star states and the fusion-gravity balance. In each activity, students construct and simulate a conceptual cause-effect model. An evaluation study in nine Dutch classrooms showed that the star properties lesson significantly increased students'understanding of the underlying causal relationships. The lessons were created as part of the Stargazing Live! project, which inspires students with an interactive planetarium lesson incorporating real astrophysical data before triggering deep learning with the conceptual modelling activities.

Education level

Age 15-18 (Secondary education)

Physics topic

Astronomy and Astrophysics

Research focus

Innovative instructional strategies and pathways

Research method

Mixed method (qualitative & quantitative)

Organizing preference criteria

Track

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Session Classification: Workshops

Track Classification: Astronomy and Astrophysics education (ASTRO)