



# GIREP-EPEC

Transforming physics learning via Research & Practice  
LEIDEN, 2025

Contribution ID: 225

Type: **Poster**

## Student Model of Engagement in DC circuits

*Monday 30 June 2025 16:30 (1 hour)*

**Abstract.** This is the culmination of a long and systematic study on contextual variation of student responses in the context of dc circuit. We published the contextual variation from their Forced Choice Responses of eight electrically identical questions with fine grained variations that are trivial to a physicist, the productive and unproductive foothold ideas, then narrated the six micro-episodes from interviews that sketches the complex cognitive terrain of sense-making path that links complex everyday experience, mathematical reasoning and language connotations with the idealised physics model. We reflect on how the overall findings might be used in order to introduce a curriculum on simple DC circuits.

### Education level

Age over 18 (excluding teacher education)

### Physics topic

Full curriculum

### Research focus

Innovative instructional strategies and pathways

### Research method

Mixed method (qualitative & quantitative)

### Organizing preference criteria

**Author:** Dr JOHN, Ignatius (Cape Peninsula University of Technology, South Africa)

**Co-author:** Prof. ALLIE, Saalih (University of Cape Town)

**Presenter:** Dr JOHN, Ignatius (Cape Peninsula University of Technology, South Africa)

**Session Classification:** Poster session

**Track Classification:** Instructional strategies & Curricula (INSTR)