



Contribution ID: 165

Type: **Oral presentation**

## Using Variation Theory to Understand How Students Relate an Idealised Model to a Paul Trap in the Physics Laboratory

*Thursday 6 July 2023 15:00 (20 minutes)*

Using models in the physics classroom allows students to explore phenomena in ways that could help facilitate learning. A laboratory exercise was developed where upper secondary school students worked with a mechanical Paul trap and a simulation to understand how a real Paul trap works to investigate the usefulness of ideal models in the physics laboratory for learning. A design-based research approach guided by variation theory was adopted for the mixed-method study. The results identified successful patterns of variations and how models in the physics classroom can be both a blessing and a curse for conceptual understanding.

### How would you like to present your contribution?

Live in Košice (time slot to be allotted based on the programme)

### Target education level (primary)

Upper-secondary education

### Target education level (secondary, optional)

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**Session Classification:** Contemporary and modern physics

**Track Classification:** Contemporary physics and modern physics at school