



# GIREP-EPEC

Transforming physics learning via Research & Practice  
LEIDEN, 2025

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Type: **Oral presentation**

## Advancing Physics Computational Literacy with AI and Open-Source SageMath

*Thursday 3 July 2025 09:40 (20 minutes)*

Computational literacy is essential for physics students, yet traditional tools can still be challenging for beginners. We introduce a digital tool, AI-enhanced SageMath HTML notebooks, integrating the Mistral AI assistant for code generation, formatting, and explanation. This seamless integration strongly supports numerical and symbolic calculations, data analysis, and visualization. To assess its impact, we conducted pilot testing in 2024 and launched a case study in 2025 within two university courses. Our findings, with a full data analysis based on current data science methodology, will be presented at the conference, demonstrating how generative AI could enhance physics computational literacy.

### Education level

Age over 18 (excluding teacher education)

### Physics topic

Other

### Research focus

Other

### Research method

Other

### Organizing preference criteria

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**Session Classification:** Parallel oral presentations

**Track Classification:** Artificial Intelligence (AI)