



**GIREP-EPEC**  
**3–7 July 2023**  
Košice, Slovakia

*GIREP-EPEC conference 2023*  
*Physics learning promoting culture*  
*and addressing societal issues*

Contribution ID: 15

Type: **Oral presentation**

## **Trustworthiness as Central Design Principle for Introducing Uncertainties of Measurements to Students**

*Monday 3 July 2023 14:40 (20 minutes)*

Two curricula of introducing measurement uncertainties for high school students have been developed. The central design principle was “trustworthiness of experiments and data” following the GUM recommendations of Type-A and Type-B methods. A time-delayed post-test showed the long term acceptance of the key ideas. SEK-1 starts with an experiment that leads them to measurement uncertainties. Sources for uncertainties and the trustworthiness are discussed and data is analysed by simple statistical means. In SEK-2, students first build a measuring instrument by themselves for introducing Type-B uncertainties. Both curricula together provide a complete introduction in how to deal with uncertainties of measurement.

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

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

### **Target education level (primary)**

Lower-secondary education

### **Target education level (secondary, optional)**

Higher-secondary education

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**Session Classification:** Innovative strategies at school

**Track Classification:** Innovative strategies and pathways to improve physics education at school