



Departmental seminar

Judging the quality of measurements - a neglected topic in science classes

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Weizmann Institute of Science**

Abstract

We are living in a world in which data play a crucial role in economics, politics, science, health care and everyday life. People draw various conclusions from data, with sound or dubious justifications. Relying on or referring to data makes arguments appear trustworthy. This is even more the case when data are gathered by measurements. However, there are pitfalls and misunderstandings regarding the public interpretation of presented data, especially in the case of fraudulent practices and misuse of data. Thus, it is an aim of education to teach how the quality of a measurement can be judged. This talk will present the approach the physics education group at the Humboldt-Universität follows to bring the topic of measurement uncertainties into the science classroom. It will address the theoretical background as well as empirical studies. With our work, we want to contribute to helping students build a conceptual understanding of measurement uncertainties and help them to use this in evidence-based argumentation so that they can think critically about data.