DD 31: Praktika und neue Praktikumsversuche

Time: Tuesday 11:00–12:00 Location: DD 110

DD 31.1 Tue 11:00 DD 110

Evaluating digital experimental tasks for physics laboratory courses — •Simon Z. Lahme[1], Lucija Rončević[2], Pekka Pirinen[3], Ana Sušac[2], Antti Lehtinen[3], Andreas Müller[4], and Pascal Klein[1] — [1]U Göttingen, Germany — [2]U Zagreb, Croatia — [3]U Jyväskylä, Finland — [4]U Geneva, Switzerland

As physics laboratory courses are an integral part of studying physics, many approaches have been pursued to evaluate their quality, e.g., regarding the improvement of conceptual understanding, the students' motivation, or the acquisition of adequate concepts about experimental physics. So far, most approaches either evaluate laboratory courses in its entirety like a course evaluation or focus on the students' development of (specific) competencies. However, even though experimental tasks are the backbone of any laboratory course concept, specific instruments to evaluate single experimental tasks are missing. Both approaches mentioned above are unsuitable for that aim since typical laboratory courses consist of multiple tasks and the development of competencies takes place on a larger time scale than the execution of single tasks. Thus, as part of the EU-co-funded DigiPhysLab-project (Developing Digital Physics Laboratory Work for Distance Learning), we developed a questionnaire to explicitly evaluate the quality of a single experimental task. The questionnaire has been discursively developed and softly validated within our project group and is now available in four languages. In the contribution, we share our ideas behind and our experiences with the use of this instrument for piloting experimental tasks that were developed in the scope of the DigiPhysLab-project.

DD 31.2 Tue 11:20 DD 110

Several Experiments Developed during Teaching the Physics Experiment Course — •Jung-Bog Kim — Korea National University of Education, Cheongju, Rep. Korea — Johannes Gutenberg University, Mainz

I would like to present several experiments which have been developed in the regular course teaching physics experiments to physics teachers. These experiments were introductory level and published in physics education journals (such as The Physics Teacher and Physics Education). I will focus on points on how I can get ideas to improve, create, revise, or teach.

DD 31.3 Tue 11:40 DD 110

Investigating students' views about experimental physics in German laboratory classes — •Micol Alemani[1], Erik Teichmann[1], and Heather J. Lewandowski[2,3] — [1]Institut für Physik und Astronomie Universität Potsdam, Potsdam, Germany — [2]Department of Physics, University of Colorado, Boulder, USA — [3]JILA, National Institute of Standards and Technology and University of Colorado, Boulder, USA

Among the large variety of learning goals in physics laboratory courses, an often implicit but crucial aspect is to develop students' views and attitudes about experimental physics to align with practicing experimental physicists. With this explicit goal in mind, we have transformed our laboratory courses at the University of Potsdam (UP) to provide students with an authentic laboratory experience. Our course transformation was assessed using a new, German version of the Colorado Learning Attitudes Science Survey for Experimental Physics (E-CLASS). The E-CLASS is a research-based and internationally widely used test that assesses students' beliefs and attitudes about the nature of experimental physics. In this talk, we present how we translated the E-CLASS into German (creating the so-called GE-CLASS) and set-up a centralized automated system for instructors. Such a system allows laboratory instructors of European German speaking countries to easily use the E-CLASS to assess the impact of their courses along this one dimension of learning. First results using the GE-CLASS at UP are presented. A comparison between the international E-CLASS and GE-CLASS results for physics-major students is discussed.