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(G*) A Proposal of Pedagogy for Upper Year Inquiry Based Lab Work

Monday 27 May 2024 17:00 (15 minutes)

In this presentation, I discuss the efforts at the University of Waterloo in developing upper year inquiry lab materials based on the SQILabs as designed by Dr. Natasha Holmes and Dr. Carl Wieman (Physics Today **71** (1), 38–45 (2018)).

In our work, we have proposed a set of experiments that make use of ultrafast lasers to situate students in an environment in which they can test their agency as it relates to learning in the physics lab. We have begun preliminary analysis on the impact of these labs on undergraduate students through the use of qualitative methods. We hope to use these methods to develop quantitative assessments to evaluate the impact these upper year inquiry labs have on student learning and engagement with experimental physics.

These experiments were designed based on the results of the replication studies of the Sense of Agency Survey and the Physics Lab Inventory of Critical Thinking, both completed at the University of Waterloo. These surveys were originally developed and validated by Dr. Natasha Holmes et al.

This work will have an accompanying set of manuscripts that will be available upon request, and hopefully published in the near future.

Keyword-1

Inquiry Labs

Keyword-2

Upper Year Undergraduate Labs

Keyword-3

Ultrafast Lasers

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