Faces of Physics Presents:

The Trouble with Traditional Physics Labs

Dr. Natasha G. Holmes

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Presented Live on YouTube, Link Below:

https://youtu.be/YP8Gq4hv99c

Bio: Natasha G. Holmes is the Ann S. Bowers assistant professor in the Department of Physics at Cornell University, with the Laboratory of Atomic and Solid State Physics. Prof. Holmes received her BSc in physics from the University of Guelph and her MSc and PhD in physics at the University of British Columbia. She then went on to do her postdoctoral work at Stanford University working with Prof. Carl Wieman. Her research group studies many aspects of student learning, attitudes, and skill development from hands-on laboratory experiences, with a focus on critical thinking and experimentation. She also explores issues of equity and diversity in physics and methodological issues and techniques in physics education research.

Abstract: When you ask physicists to reflect on their intro labs, responses include “boring”, “forgettable”, or “cookbook.” What is so wrong with the traditional lab? An instinctive answer is the structure: students follow procedures without having to think about what’s going on. In this talk, I’ll present work that challenges this instinct and I’ll suggest an alternative answer: namely, that the fundamental goal to use labs to demonstrate phenomena is problematic. I’ll describe several studies that have used quantitative assessments of student learning, analysis of student work, and videos of students conducting lab experiments to shed light on this issue. I’ll also briefly describe how we’ve restructured our introductory lab courses in response to these results.

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AIP American Institute of Physics

NASA West Virginia Space Grant Consortium

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