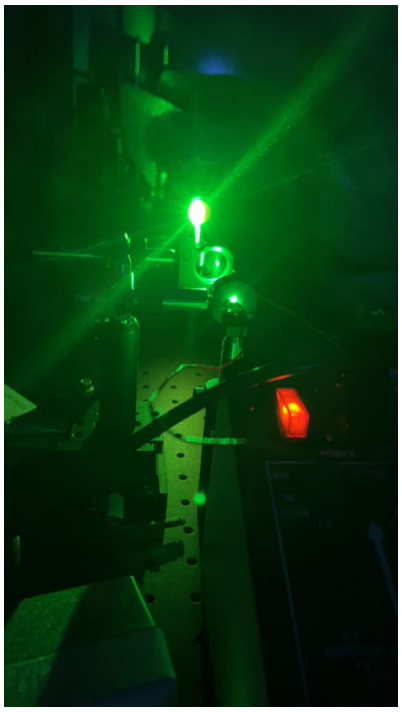
PHYSICS SEMINAR

Measuring the Speed of Light through Optical Feedback with a Diode Laser

Quintin Krumtum, CMU

Thursday, October 29, 2026
12:30 – 1:30 p.m.
Wubben 264

We demonstrate and discuss the technique of measuring the optical feedback of a diode laser as an essential first step in measuring the speed of light using a diode laser. Optical feedback is a fraction of the light returning to the laser cavity and affecting the average power output. We built an adjustable current driver and a current source regulator to measure the photocurrent within the laser diode and its increase in average power output during optical feedback. The photocurrent increases significantly at varying distances due to optical feedback. A 100 Mhz square wave was sent through a highpass filter and amplifier to generate laser pulses of approximately 600 picoseconds. Preliminary data shows promise for a successful experiment.



Refreshments!