

Abstract Submitted
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Building student research project capacity, optics offers many possibilities ZACH SIMMONS, Milwaukee School of Engineering — Research-grade experiments in physics often require equipment complex and expensive enough to be out of reach for small institutions. One area of research and potential student projects well-suited to make the most of modest resources is optics. Experiments can be small and applications are myriad and often interdisciplinary. Also, equipment such as cameras and light sources have benefited from consumer advances and applications, becoming ever cheaper and more powerful. This work describes a project at MSOE to build student experiment capacity in optics. The specific project is the construction of an apparatus to measure an optical phenomenon called enhanced backscattering (EBS). EBS is well-suited as an example for this work as it is a simple apparatus that does not require a scientific camera and has varied applications, from liquid characterization to cancerous tissue discrimination. EBS also provides pedagogical opportunities to connect to numerical modeling techniques like Monte-Carlo simulation. Presentation will include construction of the apparatus, discussion of data acquisition enabled by open-source program micro-manager, and some initial experimental data.

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