

Abstract Submitted  
for the 4CF14 Meeting of  
The American Physical Society

**Developing a Low-cost NIR Imaging System to Introduce Students to Medical Imaging Techniques** ASHLEIGH WILSON, KIM NIELSEN, Utah Valley University — At many institutions, the algebra-based introductory physics courses are populated with students specializing in biological fields such as preparation for medical or dental schools. While the main focus on the course is to provide the students with a solid conceptual understanding and solving problem skills in physics, the students often see little application towards their fields. This is particularly true in the traditional introductory physics laboratory experiments and demonstrations. As part of a summer research project, we explored the possibility of developing a low-cost NIR imaging system, which could be used in demonstrations, laboratory exercises, as well as student research projects. The use of infrared imaging in medical physics is an emerging technology with promising prospects, including thermography, biometry, and phlebotomy. For example, when using near infrared (NIR) light (700-1100 nm), vein imaging and mapping is possible. Due to the deoxidized nature of hemoglobin in veins, it exhibits strong absorption at a certain wavelength ( $\sim 730$  nm). Utilizing an array of different NIR wavelengths and a modified web camera, we successfully created a low-cost NIR imaging system capable of mapping out veins. This poster will present the instrument setup as well as show the preliminary results. Further potential use of this system will also be presented.

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Date submitted: 19 Sep 2014

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