



Apr 16th, 11:00 AM - 12:00 PM

## Simple and Accurate Experimental Method for Measuring Faraday Rotation

Chris Butts  
*Illinois Wesleyan University*

Debo Olaosebikan  
*Illinois Wesleyan University*

William D. Brandon, Faculty Advisor  
*Illinois Wesleyan University*

Follow this and additional works at: <https://digitalcommons.iwu.edu/jwprc>

---

Butts, Chris; Olaosebikan, Debo; and Brandon, Faculty Advisor, William D., "Simple and Accurate Experimental Method for Measuring Faraday Rotation" (2005). *John Wesley Powell Student Research Conference*. 2.

<https://digitalcommons.iwu.edu/jwprc/2005/oralpres2/2>

This is protected by copyright and/or related rights. It has been brought to you by Digital Commons @ IWU with permission from the rights-holder(s). You are free to use this material in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/ or on the work itself. This material has been accepted for inclusion by faculty at Illinois Wesleyan University. For more information, please contact [digitalcommons@iwu.edu](mailto:digitalcommons@iwu.edu).

©Copyright is owned by the author of this document.

Presentation O2.2

**SIMPLE AND ACCURATE EXPERIMENTAL METHOD FOR  
MEASURING FARADAY ROTATION**

Chris Butts, Debo Olaosebikan, and William D. Brandon\*  
Physics Department, Illinois Wesleyan University

High fidelity measurements of the magneto-optic phenomenon, Faraday rotation, have proven challenging in undergraduate laboratories. In this study, an extremely accurate experimental method of measurement, implementing an apparatus principally constructed of equipment accessible in a typical undergraduate laboratory, is described. In particular, the dispersion of the Verdet constant of water was measured at wavelengths ranging from 473 nm to 890 nm and found to agree with accepted literature values. The method addresses issues involving light detection in the context of polarization spectroscopy, implements digital signal processing for the purposes of data acquisition, and demonstrates the advantages of phase sensitive detection.