

Abstract Submitted
for the APR20 Meeting of
The American Physical Society

Open Source Diode Array Absorption Spectrophotometer¹ IVAN MIDTBUST HEGER, Hendrix College — 3D printing technology is a powerful tool in the creation of optics equipment, both for research and educational purposes, allowing for components that can be designed to meet a large array of specific needs. Compared to their commercial counterparts, the open source nature of many of the already available 3D printable optomechanical components allows for researchers and educators to customize the parts for their needs. Here, we present the design of a 3D printable diode-array visible absorption spectrophotometer. Optomechanical parts were designed using CAD software and can be constructed using 3D printed plastic components and parts available at a hardware store. Absorption is measured with the use of a charge coupled device (CCD) and an Arduino. Because the parts can be constructed by anyone with access to a 3D printer, the spectrophotometer is accessible to a broader audience by a significantly reduced cost and allowing access to more remote areas by bypassing the need for shipment of parts and instead printing and assembling parts in the span of hours. The increased availability and decreased cost of an open source diode array absorption spectrophotometer will allow more classrooms and educational labs to engage students with spectrometers.

¹Funded by the Arkansas Space Grant Consortium and the Hendrix Odyssey Program

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Date submitted: 31 Jan 2020

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