

Abstract Submitted  
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**Low-Cost Quadrature Optical Interferometer**<sup>1</sup> TANNER MELODY, KRISHNA PATEL, CHRISTOPER SMALLWOOD, San Jose State University — Optical interferometry is a powerful scientific tool that has widespread applications in both spectroscopy and precision measurement. In spite of these advantages, building an interferometer can be an expensive endeavor, with the smallest setups costing around \$5000 and up. Here we summarize efforts focusing on the creation of a low-cost quadrature Mach-Zehnder interferometer that incorporates a store-bought laser pointer, home-build photodetectors, 3D-printed optical mounts, and a CircuitPython microcontroller for analog to digital data acquisition. All components of our interferometer can fit into a 12x6 space and can be constructed on a budget of less than \$200. Upshots of the project include the potential of making precision interferometry accessible and affordable for labs, students, and enthusiasts alike.

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