Abstract Submitted
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Construction and calibration of a Fabry-Perot interferometer MARK BERUBE, Bridgewater Coll — This summer for my Adrian Tinsley Summer research grant I constructed and calibrated a Fabry -Perot interferometer. Our major goal was to build an integral piece for the Magneto Optical trap that the Dr. Deveney lab is trying to build. I began my summer research using the design from a recent publication from Fletcher and Orzel[1], on low cost construction of an interferometer. In the process of construction I felt I could build a better design using parts from the optics lab. To construct the newly designed Fabry -Perot Interferometer I used a 30mm cage system from Thorlabs, hand polished concave mirrors, and a Thorlabs PDA 36A photodiode detector. I hand polished the back of my mirrors until I was able to get .5 percent and .1 percent light transmission through the back of the mirrors. Using this constructed interferometer I was able to see an increase in intensity as I changed the cavity length. I am currently working on more precise alignment of the mirrors and placement of the piezo stack on the back of the mirror. Once I achieve the ideal alignment I will be able to calculate the finesse for my Fabry-Perot interferometer.

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