

Report on Advisory Board Grant 2019 - “Saving Funds via Do-It-Yourself (DIY) Construction of Customized Optical Mounts”

Submitted by: Kip Trout and Joe Royer

Date: May 15, 2020

PROJECT STATUS

Active – Funded at \$400 with some funds remaining

ACCOMPLISHMENTS

1. We recruited electrical engineering student, Ethan Quinones, in fall 2019. He joined our research team and was mentored by Trout to get him up to speed on the project. He primarily worked on the electronics (PCB) design for the single photon detectors during the fall semester. However, picking up where last year’s student, Huy Le, left off was difficult for Quinones. An attempt to use an alternate PCB drawing program did not work out as hoped either. Finally, by late fall 2019 progress was being made. The hope was that by mid spring 2020 the PCB design would be finished and finally sent out for fabrication.
2. Meanwhile, during the fall 2019 semester, Trout communicated with vendors and did research on quality versus price for the optical elements. The main optical elements for the project were ordered in late 2019.
3. Since the decision on the size and brand of optics was final, Quinones, Royer and Trout met several times at the beginning of the spring 2020 semester to take measurements and finalize plans for the construction of the DIY optical mounts and optical path.
4. Trout and Royer met at Lowes early in the Spring 2020 semester and purchased much of the needed parts and hardware for the DIY mounts.
5. Trout met with Jim Crimmel in engineering to get instructions and approval for using certain tools in the engineering machinist lab with student Quinones. Shortly before Spring Break 2020, Quinones and Trout met in the machinist lab and did some preliminary work on fabricating the optical mounts using the parts and hardware purchased from Lowes.
6. Unfortunately, after Spring Break 2020, the campus was shut down due to the Covid-19 virus, and faculty/students were forced into remote/virtual classrooms. Since work on this project is experimental and requires access to the campus, we have been unable to make further progress since that time.

In conclusion, there are still some items we would like to be able to get using the funds from this grant. Specifically, we need the epoxies, black spray paint, zip ties, and some other assorted hardware. Hopefully when the campus re-opens, we can finish construction of this phase of the project.