**Appendix A: Detailed JLab report**

**Report Period of Performance:**

07/1/2022 –09/30/2022

**Co-Principal Investigator:**

Riad Suleiman, with Joe Grames and Matt Poelker (Jefferson Lab), and Eric Voutier (IJCLab, Orsay, France)

**Work-scope Highlights:**

Jefferson Lab’s contribution to this project is to provide a Compton Transmission Polarimeter, which will be used to measure beam polarization when SRF photogun employs a GaAs photocathode. IJCLab is contributing to Jefferson Lab’s effort.

**Q4 FY22 Brief summary of activity issues, concerns, successes:**

*Activity successes:*

1. We installed the polarimeter at the Upgraded Injector Test Facility (UITF) by October. Figure 1 shows the layout at the UITF.
2. The portable data acquisition system is ready. Figure 2 shows the portable rack.
3. The beam polarization at the UITF has been measured to be about 37% from bulk GaAs using the keV Mott polarimeter.
4. We started the beam commissioning of the Compton Transmission Polarimeter On October 3, 2022.
5. Graduate student Greg Blume is being trained of all aspect of polarimetry from simulation to data taking and analysis.

*Issues and concerns: none*

**Milestones**

1. Polarimeter is ready. We started commissioning on October 3, 2022.



Figure : Layout of the Compton Transmission Polarimeter. From right to left, shown are the radiator, copper collimator, magnet and the detector box. Electron beam is coming from the right.



Figure : The portable data acquisition system.

**Budget**

Summary of total expenditures:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  ID #  | **Item/Task**  | **Baseline****Total Cost**(AY$) | **Costed &****Committed**(AY$) | **Estimate****To Complete**(AY$) | **Estimated****Total Cost**(AY$) |
| COMTRA  | Compton Trans Polarimeter | $400,200  | $310,161 | $90,039 | $400,200  |
|  | Totals: | **$400,200** | **$310,161** | **$90,039** | **$400,200**  |

*Notes:*

* Costed and Committed numbers are as of September 30th, 2022.

Summary of expenditures by fiscal year (FY):

|  |  |  |  |
| --- | --- | --- | --- |
|  | **FY 2020** | **FY 2021** | **Total** |
| a) Funds allocated | $200,100 | $200,100 | $400,200 |
| b) Actual costs to date  | $200,100 | $76,149 | $276,249 |
| c) Uncosted commitments | $0 | $33,912 | $33,912 |
| d) Uncommitted funds  | $0 | $90,039 | $90,039 |