

# HASP LSU Directional Cherenkov Detector January 2012 Status Report

## Activities

The months of January and December involved setting up a computational simulation program. The name of the software program used is “EPICS”. This software program will aid in simulating the performance and efficiency of the detector design. The main task involves testing the program’s native functions and programming environment. The next set of tasks involves setting parameters related to the geometry of the detector. The goal is to simulate particle fluxes and individual particle interactions within parts of the detector. This simulation will aid in data analysis performed during testing, calibrations, and after the flight. The signals produced by the detector system will be compared with expected signals outputted by the simulation program.

Next months activities will also include continuing the construction of the previous payload. The first task involves identifying the cause of electrical problems in the PMT system. Next month’s tasks involve troubleshooting problems in the PMTs and power system. Once all of the problems are identified and corrected, further testing is needed to assure that the PMTs continue to function. Designing a mechanism to prevent further malfunctions may be required. Upon completion of the PMT system, the detector optical components require optical bonds. The optical bonding compound requires multiple days of dead time for curing. During this dead time, the planned activities include the further fabrication of parts needed for the mechanical structure and further testing of the flight software and electronics.

## Team Management Structure

Team Electron Volt is comprised of Sean McNeil. Contact information and individual roles are shown in [Table 1](#).

Table 1 – Team Management Structure

| Name  | Sean McNeil  | Dr. Gregory T. Guzik  |
|-------|--|---|
| Roles | <ul style="list-style-type: none"><li>• Software</li><li>• Testing</li><li>• Calibrations</li><li>• Data Analysis</li><li>• Project Management</li><li>• Electrical</li><li>• Mechanical</li></ul> | <ul style="list-style-type: none"><li>• Faculty Advisor</li></ul> |

|                                |  |  |
|--------------------------------|--|--|
| <b>Department</b>              | LSU Physics and<br>Astronomy   | LSU Physics and<br>Astronomy   |
| <b>Contact<br/>Information</b> | <a href="mailto:smcnei2@tigers.lsu.edu">smcnei2@tigers.lsu.edu</a><br>(209) 202-8522 | <a href="mailto:guzik@phunds.phys.lsu.edu">guzik@phunds.phys.lsu.edu</a><br>(225) 578-8597 |