HASP Directional Cherenkov Detector
February 2011 Status Report

Activities

More coatings were tested to prevent arcing due to high voltages and the best performance was seen in an epoxy coating. A conclusive test was performed on the 4-channel pulse analyzer board that as of now will be used in the experiment to ensure that it will not overheat in a near vacuum environment. This test showed that in a near vacuum, the temperatures of the critical components reached a steady-state value that would not affect the performance of the device.

The payload will be controlled by an Arduino microcontroller. An Arduino will be ordered for prototyping a control circuit which will interface to serial, retrieve data, and buffer data.

The essential components of the detector system, the radiators and photomultiplier tubes, were selected. The trigger system is currently being designed and will include a coincidence system utilizing multiple logic gates to trigger the microcontroller to readout the pulse heights outputted from a 4-channel pulse analyzer board. The power system is also being designed and will include fuses to protect the payload electronics. In the power system, DC/DC converters will be used instead of previously mentioned regulators.

Team Personnel

Team Electron Volt is comprised of Jace Boudreaux and Sean McNeil. Contact information and individual roles are shown in Table 1.

Table 1 – Team Management Structure

Name	Sean McNeil	Jace Boudreaux	Dr. Gregory T. Guzik
Roles	• Software • Testing • Calibrations • Data Analysis	• Project Management • Electrical • Mechanical	• Faculty Advisor
Department	LSU Physics and Astronomy	LSU Mechanical Engineering	LSU Physics and Astronomy
Contact Information	smcnei2@tigers.lsu.edu (209) 202-8522	jboud52@tigers.lsu.edu (225) 936-1549	guzik@phunds.phys.lsu.edu (225) 578-8597