



HASP 2018 Monthly Status Report

Report Month: January, 2018
Submitted by: Jacob Fonkert
Submit Date: 01 / 31 / 2018
Institution: SDSMT/SURF
Payload Number: 2018-06
Payload Name: Cosmic Ray Detector

I) Activities During Previous Month:

- Researched telescope assembly materials
- Submitting order forms on silicon plates
- Contacted Fermilab electrical engineer for electrical design advice
- Progressed on creating a Critical Design Review (CDR)
- Researched previous designs on absorption plates
- Progressed on revised submission

II) Issues Encountered:

- Lead time/Request for quotes - delayed for purchase order
- Unable to obtain fully-dimensioned drawings for plates
- Physics on cosmic rays - Using metal (W or Al) buffer to look at certain range we are most interested in

III) Milestones Achieved:

- Received confirmation that the DAQ board can be successfully altered to operate with silicon plates as opposed to the original purpose of scintillator pads

IV) Plans for Coming Month:

- Complete CDR
- Finish material research for telescope assembly

V) Other Comments:

Concern was raised in the application review on the effect of the magnetic field preventing certain particles from penetrating through that the project is designed to detect. Research has been found showing the presence of these particles in lower latitudes. This research will be further discussed in the application revision.

VI) Team Composition and Organization:

The team is composed primarily of a senior design team from SDSM&T and includes students from other disciplines to increase the knowledge and experience of the team. Dr. Peggy Norris is the Education and Outreach Deputy Director at Sanford Underground Research Facility and proposed this project to the design team. She advises the team on all matters related to physics. Dr. Jason Ash is an Associate Professor of Mechanical Engineering at SDSM&T and advises the team on the mechanical side.

Name	Start Date	End Date	Role	Student Status	Race	Ethnicity	Gender	Disabled
Luke Bauske	9/5/17	Present	Mechanical Design	Undergrad	White		Male	No
Zachary Christy	9/5/17	Present	DAQ/Telemetry	Undergrad	White		Male	No
Jacob Fonkert	9/5/17	Present	Team Lead	Undergrad	White		Male	No
Noah Klamm	9/5/17	Present	Materials	Undergrad	White		Male	No
Brandon Lind	9/5/17	Present	Flight Operations	Undergrad	White		Male	No
Kob Meier	9/5/17	Present	CAD Design	Undergrad	White		Male	No
Aaron Vogel	9/5/17	Present	Detector Subsystems	Undergrad	White		Male	No
Isabelle Schuster	9/5/17	Present	Physics Analysis	High School			Female	No
Dakotah Rusley	9/5/17	Present	Power Systems	Undergrad	White		Male	No
Sarah Kelly	9/5/17	Present	Systems Integration	Undergrad	White		Female	No
Peggy Norris	9/5/17	Present	Project Sponsor	Advisor	White		Female	No
Jason Ash	9/5/17	Present	Project Advisor	Advisor	White		Male	No