



Regional Introduction to Plasma Processes



Project Title: RF Communication System Development For CubeSat and Ground Station

Project Reference Code: Spencer-USA

Name of Project Leader: Dr. Edmund Spencer

Host Facility: University of South Alabama

Internship Location: Shelby Hall, USA

Host Facility Location: 150 Student Services Dr., Mobile, Alabama, 36688

Project Description:

University of South Alabama has a working satellite communications ground station, which we are actively developing to integrate into the SatNOGS open-source global network of ground stations. In this project, the intern will work with the communications team at the University to integrate the hardware and software into SatNOGS, as well as develop the communications hardware needed for a CubeSat to communicate effectively with the network to transmit plasma instrument science data. Both hardware and software work will be part of the project.

Disciplines: Electrical Engineering, Computer Engineering, Software Engineering, Aerospace Engineering, Computer Science.

Importance:

CubeSat communication systems create fundamental constraints on the proper functioning and probability of mission success.

Requirements:

- **Preferred Major**
 - Any major in STEM is acceptable
- **Class work**
 - Intro to Computing, Calculus based Physics I and II, Calculus I and II
- **Programming knowledge**
 - Basic knowledge is sufficient
- **Software knowledge**
 - C, C++, Python, MATLAB or equivalent
- **Other**

Biography:

Dr. Spencer works on space plasma physics and space weather. He has worked extensively with space weather satellite and magnetometer station data. Dr. Spencer is interested in the development of instruments for space science and building theoretical and analytical frameworks to analyze and interpret the measured data from instruments immersed in or proximate to plasma.

Is U.S. citizenship required to participate in this project? Yes



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