



Alabama Research Experiences for Undergraduates (ALREU)

Project Title:

Development, test, and characterization of atmospheric pressure plasma sheet sources

Project Reference Code:

UAH-Xu

Hosting Institution:

The University of Alabama in Huntsville

Hosting Institution Location:

Huntsville, AL

Project Description:

At the Plasma and Electrodynamics Research Lab at UAH, we are actively developing new atmospheric pressure plasma (APP) sources for applications to materials, agriculture, and water treatment. The most common design in the field is the APP jet, or APP pencil. It typically takes the form of a small jet a few millimeters in diameter and a few centimeters long. We have been studying an APP jet at UAH but its small size makes it impractical for larger scale applications outside the lab.

Thus, recently we have developed an APP sheet that is two inches wide and about one centimeter long. While a longer length is desirable, the current volume of plasma generated is multiple times larger than the jets. This sheet source is promising for development into a practical tool with potential commercial applications. However, we must first study and characterize the plasma (uniformity, density, temperature, species) and then improve the design. The work will be mainly experimental using physical and optical diagnostics. Experience with hands-on experimental research, data logging, data analysis (Excel, Matlab), and any plasma experience would be desirable.

Disciplines:

Engineering, Physics, Chemistry

Name(s) of Mentor(s) and contact information:

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The name and contact information of personnel at the hosting is provided for further assistance with questions regarding the hosting institution or the project.

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