



Project Title:

Optical characterization of nanocomposite materials exposed by plasma jet

Project Reference Code:

AAMU-Guggilla

Host Facility:

Alabama A&M University

Host Facility Location:

4900 Meridian Street N, Huntsville AL

<https://www.aamu.edu/>

Project Description:

Thin films of various functional materials used in polymeric devices with nanoscale features are emerging nowadays more than ever with the continued miniaturization of electronic devices. Thin films can be defined as a thin layer of material, where the thickness is less than 10^{-9} m and categorized as smart nanomaterials, or responsive materials. The emergence of nano-size materials led to a new and unique behaviors in materials such as, optical, electrical, optoelectrical, dielectric applications, and so on. Smart materials technology enables us to adapt to environmental changes by activating its functions. The objective of this project is to fabricate Polyvinylidene fluoride doped with piezoelectric materials such as LiTaO_3 , BaTiO_3 , and ZnTiO_3 with varying concentrations. These films will be fabricated using the solution casting technique due to its low production cost and ease of fabrication. These films will be characterized for their electrical, optical and structural properties utilizing UV-Vis Spectroscopy, and other in-house set-ups at AAMU. These films will be characterized before and after the Plasma Jet exposure. Optical Characterization of these films reveal the impact of the plasma jet on these composite films.

Disciplines:

Any STEM disciplines

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

No

Internship Location and COVID-19 related Backup Plan

The internship location is at Alabama A&M University. We are planning for an in-person internship. However, due to the continuing COVID-19 pandemic, we are preparing additional options to ensure that the internship will take place, such as a hybrid option.

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

Padmaja Guggilla (Padmaja.guggilla@amu.edu) Phone: 256-372-8141

Internship Coordinator/ HR manager:

Ms. Sherry Pruitt (Sherry.pruitt@amu.edu) Phone: 256-372-5836.



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

Interns will not enter into an employee/employer relationship with the host facility. No commitment with regard to later employment is implied or should be inferred.