Project Title:
Computer Simulations of Laser-Induced Plasmas Used in Thin Film Growth of Advanced Materials

Project Reference Code:
UAB-Camata1

Host Facility:
The University of Alabama at Birmingham

Host Facility Location:
1720 2nd Ave South
Birmingham, AL 35294
https://www.uab.edu/

Project Description:
The irradiation of a surface with a high-intensity laser pulse leads to a plasma that can be used to create a variety of novel thin film materials. There is currently great interest in using these laser-induced plasmas to grow large-area 2D materials, engineer thin film heterostructures, and access novel non-equilibrium quantum phases of matter. The Quantum Materials Synthesis laboratory at the UAB Department of Physics is seeking one undergraduate intern to apply commercial and in-house developed software packages to multi-physics simulation of plasmas generated during laser irradiation of materials. No prior experience in plasma simulations is required. The intern will learn the fundamentals of plasma physics and laser synthesis of materials and receive training in packages used for simulation. The intern will work closely with experimentalists at UAB to interpret the simulations in conjunction with data acquired in actual laser ablation plasma experiments.

Disciplines:
Applied Physics, Physics, Electrical Engineering, Materials Science and Engineering, Mechanical Engineering, Computer Science, Electrical and Computer Engineering, Mathematics, Quantum Chemistry

Is U.S. citizenship required to participate in this project?
No

Name(s) of Mentor(s) and contact information:
Renato Camata (camata@uab.edu)

Internship Coordinator/ HR manager:
Charita Cadenhead (charita@uab.edu)

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.