

**Project Title:**

The origin of energetic particles in magnetic reconnection

Project Reference Code:

UAH-Che

Host Facility:

The University of Alabama in Huntsville

Host Facility Location:

301 Sparkman Dr.
Huntsville, AL 35899

<https://www.uah.edu>

Project Description:

Besides gravity, magnetic field is one of the main free energy sources stored in stars, pulsars, black holes, and other astrophysical objects. The magnetic energy is released through magnetic reconnection, resulting in violent explosive events, such as solar and stellar flares, flares in black hole accretion disks, and gamma-ray bursts. During these explosive processes, a large amount of charged particles are accelerated to GeV (10^9 eV) even up to PeV (10^{15} eV), and escape from their hosts and propagate in space. This project aims to help the student to understand the basic idea of how magnetic reconnection converts magnetic energy into the kinetic energy of particles.

Disciplines:

Plasma, Numerical Computation

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

No

Internship Location and COVID-19 related Backup Plan

The internship location is at the University of Alabama in Huntsville. 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 or fully virtual option.

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

Haihong Che (Haihong.Che@uah.edu)

Internship Coordinator/ HR manager:

Dana Waller (dsw0012@uah.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.