

Eric Anthony Comstock

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EDUCATION **Georgia Institute of Technology**, Atlanta, GA
PhD student (beginning January, 2023), Aerospace Engineering

Texas A&M University, College Station, TX
B.S. Aerospace Engineering,
Engineering Honors Program
Minors: Chemistry and Mathematics
GPA: 3.87/4.0
December, 2022

EXPERIENCE **Georgia Institute of Technology**
Low-Gravity Science and Technology Lab
Graduate Research Assistant

January, 2023 -

I will be working on various activities in the fields of microgravity and low-gravity research. Initially, I will work on electromagnetically enhanced low-gravity electrolysis with applications that include life support for human spaceflight and spacecraft propulsion.
Research advisor: Dr. Alvaro Romero-Calvo

Texas A&M University
National Aerothermochemistry and Hypersonics Lab
Undergraduate Research Assistant

September, 2022 – December, 2022

My research involved computational modeling and optical spectrum analysis of hypersonic flows. My research is composed of two major parts this semester which are being used to gain exposure relating to the full process of simulating test results in a lab environment. This process starts with the CFD simulation of the test apparatus - in this case, a simulation of a Mach stem in a chemically reacting, hypersonic flow. This is done by using the Pointwise software to generate a mesh from the known dimensions of the test apparatus, which can then be simulated using the US3D software. This simulation enables the calculation of translational and vibrational temperatures, as well as species concentrations. These data are inputs to the NEQAIR software, which can then be used to generate the optical emissions spectrum at any given point in the flow. These results can then be used for comparison to experiments.
Research advisor: Dr. Rodney Bowersox

Texas A&M University
Laser Diagnostics and Plasma Devices Lab
Undergraduate Research Assistant

January, 2022 – August, 2022

My laboratory project was the characterization of directed energy through various media, accomplished by superimposing a laser and an atomic jet to create a hybrid beam. This was analyzed through absorption spectroscopy to characterize the system. My simulation (in Python), created to further the analysis, modeled a combined beam through an apparatus designed to test potential laser/particle beam coupling behavior. Further development included the incorporation of low-density effects and the modeling of quantum absorption derived through first principles. This simulation will then be compared with experimental data, and has been used to predict the most effective experimental configurations.
Research advisor: Dr. Christopher M. Limbach

Texas A&M University
Aerospace Engineering Department
Teaching Assistant

January, 2021 – May, 2021

Graded papers for a senior level class in Finite Difference and Finite Element Analysis (AERO 430)
Supervisor: Dr. Theofanis Strouboulis

Texas A&M University
Undergraduate Research Assistant

January, 2021 – May, 2021

This research involved creating a simulation program in Python simulating rotational vibrational spectra for use in hypersonic flow spectroscopy.
Research advisor: Dr. Adonios Karpetis

Texas A&M University
Michaudel Lab – Organic Chemistry
Undergraduate Research Assistant

January, 2020 – May, 2020

Research was conducted in organic chemistry that resulted in a departmental paper entitled “Bottom-Up Synthesis of n-doped Polycyclic Aromatic Hydrocarbons.”
Research advisor: Dr. Quentin Michaudel

SKILLS MATLAB, Maple, Python, C++, MS Office, Solidworks, General Mission Analysis Tool (GMAT), CFD, NEQAIR, Pointwise, US3D, Leadership experience, Finite Difference Method and Finite Element Analysis for hyperbolic and parabolic PDEs in arbitrary dimensional spaces, Rigid Body Dynamics, Runge-Kutta 4, Least Squares Method, Control Systems Analysis (Laplace transfer functions and state-space systems)

RELEVANT COMPLETED COURSEWORK

Space System Design, Chemical Quantitative Analysis, Chemical Equilibria, Nuclear Chemistry, Physical Chemistry, Complex Analysis and Linear Algebra

GRADUATE COURSES COMPLETED

Aerothermochemistry, Numerical Methods of Partial Differential Equations

PLANNED COURSES for Spring, 2023

Plasma Engineering and Applications, Advanced Electromagnetism

HONORS **Undergraduate Summer Research Grant (USRG)**
At Texas A&M University

Summer, 2022

This was a highly selective grant funded by the College of Engineering, open to STEM students from around the country who plan to attend graduate school.

Dean’s Honor Award

Spring, 2022
Fall, 2021
Fall, 2020

Engineering Honors Program

Tau Beta Pi, The Engineering Honor Society

November, 2020

National Chemistry Olympiad

2018, 2019

Achieved Honors designation
Top 150 students nationwide

President, Chemistry Club
Lone Star College – Montgomery

2017