

Fully Funded PhD Research Assistantship in Supersonic/Hypersonic Aerodynamics at Stevens Institute of Technology in the Parziale Group

Position Overview

The Department of Mechanical Engineering at Stevens Institute of Technology is seeking a highly motivated PhD student to join the Parziale Group to conduct cutting-edge research in high-speed boundary-layer physics. This fully funded position offers the opportunity to contribute to transformative advances in hypersonic flow diagnostics and modeling. The anticipated start date is Summer/Fall.

Research Focus

The successful candidate will work on experimental investigations of supersonic and hypersonic boundary-layer physics problems including instability and transition, turbulence and shock-wave/boundary-layer interaction. Using advanced laser diagnostic techniques, such as krypton and acetone tagging velocimetry, focused laser differential interferometry, and near-resonant enhanced schlieren, the research will explore:

- Mechanisms driving instability growth in the boundary layer.
- High-fidelity turbulence characterization over complex geometries, including blunt cones and backward-facing steps.
- Validation of turbulence models at extreme flow conditions.

The candidate will utilize a state-of-the-art hypersonic wind tunnel called the Stevens Impulse Facility (SIF).

Eligibility Requirements

- Bachelor's or Master's degree in Mechanical Engineering, Aerospace Engineering, or a related field by the start date.
- Strong background in fluid mechanics and heat transfer; prior experience with experimental techniques is a plus.
- Programming skills (e.g., MATLAB, Python, or similar) are desirable.
- Excellent communication and analytical skills.

Why Join the Parziale Group? As part of our team, you will:

- Collaborate with experts from academia, government, and international organizations, including NATO technical teams.
- Present your work at prestigious conferences and publish in top-tier journals.
- Receive a competitive stipend, full tuition coverage, and travel support for research dissemination.

How to Apply

Interested candidates should send the following materials to Dr. Nick Parziale at nparzial@stevens.edu:

- A one-page cover letter detailing your research interests and career goals.

- CV or resume, including relevant coursework and experience.
- Contact information for two academic or professional references.

Application Deadline

Review of applications will begin immediately and continue until the position is filled.

Take this opportunity to push the boundaries of high-speed aerodynamics and make a lasting impact in the field of hypersonic flight. We look forward to your application!