The Combustion Institute
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MS and PhD Positions in Combustion Research

Auburn University has immediate vacancies for fully-funded M.S. and Ph.D. positions to join Dr. Tsolas's combustion research group in the Department of Mechanical Engineering. Several projects are available, which involve both experimental and numerical investigations into various combustion phenomena.

- The PhD project involves experimental and numerical investigations into low-temperature plasma (LTP) effects on the combustion kinetics of fuels, with an aim to support the development of next generation advanced compression ignition and multi-mode engines. One part of the project will require the design, development and construction of a new optically-accessible experimental apparatus to study LTP ignition at higher pressures.

- Sooting and ignition characteristics of hydrotreated algae-based biofuels combustion research. This also involves experimental investigations requiring the development of a purpose-built premixed flame burner.

Essential Requirements

The ideal PhD candidates should have:

- Hold a master's degree or equivalent in mechanical engineering, aerospace engineering, chemical engineering or related disciplines. Highly qualified recent undergraduates will also be considered for direct-PhD admission.
- Demonstrated experience with the design, fabrication and assembly of mechanical parts, including hydraulic pneumatic components, and/or burner applications using commercial software SolidWorks, CATIA, and/or AutoCAD
- Experience from the construction of experimental equipment and related infrastructure is an advantage.
- Experience with the use of chemical kinetics software, such as CHEMKIN, CANTERA and/or OpenFOAM, some experience with CFD software is ideal.
- Applicants must be proficient in both written and oral English and possess excellent communication skills with strong technical writing abilities.
- Ability to work independently, self-motivated, with a strong work ethic and demonstrate good collaborative skills.

The ideal MS candidates should have:

- Have a minimum 3.3 GPA from undergraduate degree, in mechanical engineering, aerospace engineering, chemical engineering or related disciplines.
- Strong foundational knowledge of core undergraduate courses in thermodynamics, fluid mechanics, heat transfer, and/or introductory combustion.
- Strong programming skills in FORTRAN, C/C++ or other script languages.
- Demonstrated experience with hands-on design projects, and/or extra-curricular activities (e.g. Formula SAE)
- Applicants must be proficient in both written and oral English and possess excellent communication and interpersonal skills.
- Ability to work independently, self-motivated, with a strong work ethic and demonstrate good collaborative skills.

About Auburn University

Auburn University is a public R1 research institution and is considered one of the fastest growing educational and research institutions in the country. The Samuel Ginn College of Engineering is considered the top-ranked engineering graduate school in the state of Alabama and is one of the nation's top 50 institutions in research expenditures. Cutting edge research is underway across 10 departments and 21 nationally recognized research centers and institutes, focused on producing technology and innovation that will help drive economic growth while improving human life on a global scale. AU's campus in located in Auburn, Alabama and was recently voted one of the best places to live in the US in 2018. More information can be found at http://www.auburn.edu/main/welcome/.

How to Apply

The new hire will receive a competitive annual GRA stipend, medical and dental insurance, with full tuition waiver. Select candidates with exceptional credentials will also be considered for Auburn University Fellowships valued up to an additional $10,000 per year.

Interested candidates should send an updated CV as a PDF attachment to Dr. Nicholas Tsolas at ntsolas@auburn.edu.