

JOB OFFER – CDI

Permanent researcher in combustion and simulation for the energy transition and its impact on the environment

OFFER INFORMATION

Reference: LG-E&S-SRes-2024

Location: 42 Avenue Gaspard Coriolis – 31057 Toulouse

Team: E&S

Contact person: GICQUEL Laurent

Starting date: 01/10/2024

Salary: from 47 K€/year (gross) depending on qualifications and experience

Level of education required: PhD with at least 2 to 3 years' experience or Post-Doctorate (HdR desirable but not a prerequisite)

Key words: LES, combustion, simulation, energy transition, environmental impact

CERFACS

Cerfacs is a private research, development, transfer and training center for modeling, simulation and high-performance computing. Cerfacs designs, develops and proposes innovation software methods and solutions to meet the needs of its partners in the aeronautics, space, climate, environment and energy sectors. Cerfacs trains students, researchers and engineers in simulation and high-performance computing.

Cerfacs works closely with its seven partners: [Airbus](#), [Cnes](#), [EDF](#), [Météo France](#), [Onera](#), [Safran](#) et [Total](#).



HOSTING TEAM - E&S

The Energy & Safety team, formerly known as the CFD-Combustion team, focuses on cross-disciplinary activities aimed at developing, optimizing and deploying scientific codes dedicated to advanced combustion simulations of industrial relevance. The team focuses particularly on flows encountered for aircraft, rockets, helicopters, car engines, turbines and more. As a result of such efforts, essential tools emerge for a wide range of applications, with the leitmotiv: let's calculate systems before we build them. More specifically, team members develop models and tools covering chemical reduction, turbulence, combustion, two-phase systems, combustion instabilities, etc., to meet both academic and industrial challenges. Thanks to its position, the team collaborates with numerous scientific groups, design offices of Cerfacs associates, and other Cerfacs teams.

CONTEXT

As part of its activities with Cerfacs and external partners, the E&S team is called upon to respond to various requests. Following a reorganization and the rise of research themes around the energy transition, several short- and medium-term issues need to be covered by scientific calculation in the coming years. Indeed, a large number of industrial sectors require a clear vision of these issues and associated challenges, as well as the implementation of effective solutions with an expert view of the environmental impact of these choices. In order to meet these needs, either scientific in the case of combustion or simulations, or in terms of training and expertise, or even to train tomorrow's decision-makers and engineers, the team is seeking to strengthen its position and is looking for a researcher in these fields.

MISSION

- You will be responsible for the monitoring and scientific development of models dedicated to the turbulent combustion of new fuels (in liaison with the team and the CFD code AVBP) for their future exploitation.
- You will contribute to and potentially represent Cerfacs in the area of SAF and alternative fuels, and pollutant emissions: exchanges with associates, relations with players in the worlds of research and industry, and HPC (GENCI, EuroHPC, computing centers), participation in and organization of national and international projects, supervision of interns, PhD students and post-docs, in collaboration with members of E&S and other Cerfacs teams.
- You will manage the implementation of Cerfacs codes and models, making them available to target users in the short term.
- You will contribute to the follow-up and operational support as well as the training of Cerfacs staff around AVBP and the team's research themes.
- You would like to obtain a HdR (if you don't already have one).

DESIRED PROFILE

- You have a PhD and at least 2 to 3 years' research experience (HdR is a plus) in advanced turbulent combustion modeling, scientific computing / HPC, chemistry reduction.
- You are interested in the energy transition and industry's use of new fuels such as SAF, hydrogen, ammonia.... You are also interested in their impact on the environment.
- You have professional experience of supervising young researchers and have worked in a team context on large-scale scientific projects in collaboration with various entities (industrial and academic).
- You have professional experience in drafting and monitoring projects.
- You are able to make proposals in your research activities.
- You are familiar with software engineering and programming tools related to HPC: Fortran, MPI, Git/Gitlab, debuggers, profilers.
- You are able to present collective results at international conferences.

WHAT WE OFFER AT CERFACS

- Broad access to technology, a rich interpersonal environment, in-house skills recognized nationally and internationally.
- An inclusive and equitable work environment.
- A structure accessible to people with disabilities.
- A complementary health insurance scheme offering excellent health care coverage in addition to social security, with the possibility of enrolling family members (spouse and children).
- 6 weeks' annual leave (with the possibility of 22 extra days' leave per year linked to your choice of a 39-hour rather than 35-hour working week).
- Flexible working arrangements, with the possibility of working from home up to two days a week.
- A sustainable mobility package enabling employers to pay up to a maximum of 500 euros a year to cover the home-to-work travel costs of staff who cycle to work.

HOW TO APPLY ?

To apply, please send your CV and covering letter to lgicquel@cerfacs.fr , applications are open until 31/07/2024.

See you soon at CERFACS!