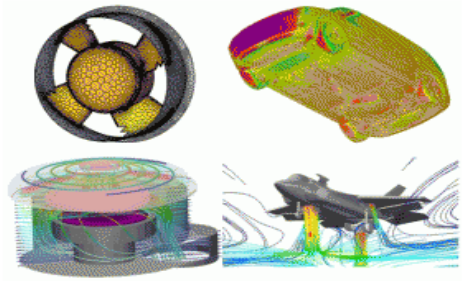
Development Engineer (f/m) for Plasma Modeling

Join our team!



ESI Group, a successful multinational company specializing in CAE solutions for virtual manufacturing and prototyping, seeks a Research and Development Engineer at its CFD and Multi-Physics Center of Excellence in Essen, Germany.

The successful candidate will be a member of a team developing and improving state-of-the-art flow and multi-physics solutions using a wide range of different techniques for different applications and industries. Developments will be implemented mostly in the flagship multi-physics solver of ESI Group, which incorporates coupled modules for transport phenomena, chemical and biochemical reactions, electro-magnetics, and structural dynamics.

The roles and responsibilities for the sought position are as follows:

Main Task

- Development and enhancement of models and numerical algorithms for discharge /plasma phenomena, especially using finite volume formulations. Some of the work will involve the development of new models and capabilities, and some will involve the extension and improvement of existing models and capabilities. The developments and enhancements will result in the incorporation in the solver of the latest external developments, research, and improvements in the field.

Side Tasks

- Participation in the long-term development decisions of all aspects of the solver that relate to kinetic models, flow models, heat transfer, coupling with electromagnetic and their related computational techniques, including decisions relating to the selection and pursuit of technologies, models, technical approaches, and application focus areas.
- Involvement in all phases of the development of the plasma, flow, heat transfer, and electromagnetic modules of the solver, including gathering and selection of market-driven and technical requirements, and the planning, design, implementation, testing, support, quality assurance, extension, maintenance, and documentation phases and components.
- Participation in the preparation of proposals and reports involving research and development or project work with the flow, heat transfer, electromagnetic and plasma modeling features and capabilities of the solver.
- Provision of occasional insight, guidance, and advice to Application Engineers and to the Sales and Marketing teams.

The minimum academic qualifications, expertise, experience, and skills for the sought position are as follows:

- A Ph. D. Degree in engineering, physics, applied mathematics, or a related discipline, with a substantial component of study and research involving plasma processes and the development and implementation of computational models.
- Extensive knowledge and understanding of kinetic plasma phenomena, Boltzmann equations and their extensions.
- Extensive knowledge and understanding of the Finite-Volume or Finite-Element discretization methodologies and related numerical methods as these apply generally to the solution of the governing equations encountered in transport phenomena and specifically to the solution of plasma Equations.
- Two or more years of directly-relevant experience with the development and software implementation of models for plasma processes. This relevant experience could have been acquired through the Ph. D. research itself, during Post-Doctoral work, or through regular work experience.
- Sound knowledge of the Fortran 90/95 or the C++ programming language, and the ability to design, re-factor, and implement rigorous, reliable, and efficient software code for computational modeling. A good understanding of multi-threaded or parallel programming is desirable but not mandatory.

The desired professional skills and abilities for the sought position are as follows:

- The ability to work in a “software production” environment, with delivery of software features or capabilities according to project schedules, and the ability to collaborate and coordinate with other developers, testers, and managers in small development and software design teams.
- The ability to work on multiple development efforts simultaneously.

ESI Group provides a stimulating, rewarding, and collaborative work environment, with plenty of opportunities for learning, growth, and diversification.

To apply, please send your resume and a cover letter to: mme@esi-group.com