Computational Plasma Physics Software Developer

Huntsville, AL
USA

Founded in 1973, ESI Group is a leading innovator in Virtual Prototyping solutions and a global enabler of industrial transformation. Thanks to the company's unique know-how in the physics of materials, it has developed and refined, over the last 45 years, advanced simulation capabilities. Having identified gaps in the traditional approach to Product Lifecycle Management (PLM), ESI has introduced a holistic methodology centered on industrial productivity and product performance throughout its entire lifecycle, i.e. Product Performance Lifecycle™, from engineering to manufacturing and in operation. Present in more than 20 countries, and in major industrial sectors, ESI employs 1200 high level specialists. In 2019, its turnover was 146M€. ESI is headquartered in France and is listed on compartment B of Euronext Paris. For further information, go to www.esi-group.com.

- To be considered for this position you must apply on this site: **https://esigroup.applicantpro.com/jobs/**
- Please let us know if you have questions regarding the application process or require assistance or an accommodation
- EOE Male/Female/Disability/Veteran

JOB PROFILE

ESI Group, a dynamic and diversified company specializing in CAE solutions for virtual manufacturing andprototyping, seeks an expert in the development and implementation of computational models for low temperature technological plasmas.

The expert will be a member of the Solver Development Group and participate in the development, support, maintenance, and extension of the plasma physics module in our flagship multi-physics modeling product, the ACE+ Suite. The plasma physics module is continuously being extended and improved for modeling of non-equilibrium low temperature plasmas for virtual reactors, process design, and other applications, as well as validation.

This position is temporarily remote due to COVID-19.

Essential Functions

- Work collaboratively with experienced computational physics research and development staff to advance the state-of-the-art in plasma modeling to make an impact in the semiconductor and other industries.
- Design and develop new algorithms and methodologies for high performance computation of plasmas and electromagnetics in complex geometries, chemistries, and process conditions using fluid, particle, and hybrid methods.
- Improve existing models and algorithms in the plasma module.
- Create validation and benchmarking problems to test and verify new developments and existing capabilities.
- Provide guidance, consultation, and support to users on existing and new capabilities.
- Propose, define, and contribute to new research topics to meet users' needs and reflect recent developments in plasma physics.

YOUR PROFILE

- PhD in plasma physics/engineering or related field with 5 or more years of code development experience. Relevant MS/Mtech degrees with sufficient experience will also be considered.
- Expertise in discretization and computational modeling of plasma governing equations.
- Experience in modeling plasma chemistry, including volumetric and surface reactions involving charged and neutral species.
- Industrial experience in the modeling and simulation of low temperature plasmas in the semiconductor industry is highly desired.
- Reactor scale and feature scale modeling knowledge and experience is preferred.
- Knowledge of computational electromagnetics, DSMC, Boltzmann and particle methods is preferred.
- Good skills with Fortran, C, or C++.
- Hands-on experience with parallel programming and optimizing code for high performance computing.
- Understanding of software engineering principles and their application to the development of large multi-physics codes.

THIS IS WHAT WE OFFER

- An ambitious and innovative technical environment
- Exciting projects with international teams and customers
- Interesting work in an international company with great colleagues and office environment
- Modern and well-equipped offices