

Centre Lasers Intenses et Applications



Postdoctoral Position (36 months) at CELIA – Bordeaux University, France Funded by CEA/DAM

Title: Design of ICF Targets for Energy Production - TARANIS Project

Context

- **2022:** A significant achievement was the first controlled fusion reaction with an **energy gain** at the **National Ignition Facility (NIF)** using Indirect Drive.
- **Dynamics:** There is significant national and European commitment to fusion research.
- **TARANIS Project:** Launched in 2024 by Thales and supported by the BPI France project call. The project is in collaboration with scientific partners such as CEA/DAM, CELIA, LULI, and CPHT.

Objectives

- **To design Inertial Confinement Fusion (ICF) targets for energy production.**
- **To contribute to the development specifications for a new laser facility for ICF experiments utilizing direct drive.**

Tasks

- **Calibration and improvement of existing simulation tools at CELIA.**
- **Development of a semi-analytical approach for ignition and gain using these simulation tools.**
- **Exploration of Artificial Intelligence applications to enhance the robustness of ICF targets.**

Tools

- **Simulations:** Use of CELIA's multidimensional radiative hydrodynamic simulation codes.
- **AI:** Implementation of optimization tools, including Artificial Neural Networks and Autoencoders.

Candidate Profile

- **Education:** PhD in physics (knowledge in plasma physics is a plus) or in applied mathematics (with a strong interest in physics).
- **Experience:** Demonstrated expertise in scientific computing codes.

Details

- The position is located in Talence, near Bordeaux, France, within the IFICIA team at the CELIA laboratory.
- The role will be under the supervision of **J.-L. Feugeas, M. Bardon, D. Raffestin, V. Tikhonchuk.**

Contact

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