



MAISON DE LA SIMULATION



Postdoc/CDD : Development of 3D visualization tools for Tokamak plasmas

Topics: Scientific visualization

Duration : 18 months

Date : As soon as possible

Team-host : Maison de la Simulation, USR 3441.
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Profil of applicant : Knowledge in scientific visualization tools (VisIt, Paraview, VTK, ...), programming python, F90, C++, shell scripts, some knowledge in plasma physics would also be an asset.

Program for 18 months :

This Post-Doc is devoted to the development of a visualization tool dedicated to Tokamak plasmas. He will work with the visualization team at the Maison de la Simulation and in the rich scientific environment of the ANEMOS project. He will also benefit from the strong scientific dynamics of the Digiscope Equipex project.

ANEMOS Project :

The main goal of the ANEMOS project is to make a significant progress in understanding some of the plasma instabilities occurring in large Tokamak such as ITER. The studies of these instabilities rely largely on heavy numerical simulations and visualization tools are essential in order to analyse and understand the results of these simulations.

Visualization:

The visualization tools to be developed in this post-doc should be able to handle very large datasets. It will be developed either based on an existing opensource software or build from a graphical library. This tool will foster scientific discovery by allowing visualizing simultaneously the spatial structures and the time evolution of the physical quantities relevant in Tokamak physics (magnetic field, pressure, temperature...). An added value is that these kinds of tools are also of great interest to debug large simulations where numerical instabilities or bugs can appear.

The visualization tools will be implemented on the visualization platform of the Maison de la Simulation which is composed of a large (5mx3m) stereoscopic display wall and a graphic cluster with 3To of shared memory.