

## **ABSTRACT**

### **A future for Computational Fluid Dynamics at CERN**

**Michele Battistin (TS/CV)**

Computational Fluid Dynamics (CFD) allows to develop 3D models and find numerical solution of thermal and fluid flow problems in confined spaces. Since 1993 CFD has been used at CERN, in particular in the TS-CV group, to solve several problems on thermo-fluid dynamics, especially related to LHC experiments during the development, design and construction phases. 3D models can be analysed numerically reducing the effort required for prototype testing, saving time, money and allowing for additional investigation and design optimisation.

The development of a more efficient support is related to two important factors: computer power and experienced engineers. Computer power IS the limiting resource of CFD. Only the recent development of computer speed had allowed important high tech and industrial applications. Computer Grid is already now (OpenLab at CERN) and will be more and more the natural environment for CFD science. At CERN, these activities have been developed by a dynamic and small team, consisting mainly of fellows, associates and students. The high turnover of the team never allowed the consolidation of an important and stable expertise.

A clear definition of these two aspects will lead the future of CFD science at CERN.