

## **ABSTRACT**

### **Computational Fluid Dynamics at CERN**

**CFD team (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 recent development of computer power and the next generation of “Grid” computational system are giving and will give more and more in the next future important opportunities of development to this science/technique.

CFD team supports already many CERN design and construction units in the development of the engineering solutions for LHC machine and in particular for LHC experiments. In the presentation that will be held on 15<sup>th</sup> April 2005 a number of different cases will be presented and discussed to let understand the potential benefits for CERN units.