

SGR 2021 LSCFD: SGR LS/CFD

Description

There is a need to increase the capabilities of current Computational Fluid Dynamics tools for engineering design by re-engineering them for extreme-scale parallel computing platforms. The backbone of the Large-scale Computational Fluid Dynamics (LS/CFD) team is centered on the fact that, today, the capabilities of leading-edge emerging HPC architectures are not fully exploited by industrial simulation tools. Current state-of-the-art industrial solvers do not take sufficient advantage of the immense capabilities of new hardware architectures, such as streaming processors or many-core platforms.

A combined research effort focusing on novel numerical methods, more accurate physical models, algorithms and HPC application is the only way to develop and advance simulation tools that meet the needs of the European industry. The LS/CFD team will focus on the development of numerical tools, turbulence models, multi-physics algorithms and data driven methodologies.

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