Introduction to ANSYS Fluid Dynamics on LRZ HPC Systems

Montag, 23. November 2020 | 10:00 Uhr bis 16:00 Uhr

Leibniz-Rechenzentrum (LRZ) | 85748 Garching b. München, Boltzmannstr. 1

The focus of this course with its 20 lectures and about 10 practical exercises is targeted on students, PhD's and researchers with good knowledge in the fundamentals of fluid mechanics and potentially with some first experience in Computational Fluid Dynamics (CFD). The course will focus on the introduction to the ANSYS Fluid Dynamics software packages, i.e. ANSYS CFX and ANSYS Fluent. Further, participants will be familiarized with the main steps of the typical CFD workflow, in particular with CFD preprocessing / CFD setup creation, serial and parallel solver execution and CFD postprocessing in both CFD solver systems CFX and Fluent. Correctness of boundary conditions and CFD setup specifications, solver convergence control, solver monitoring, customization capabilities of the solvers and the postprocessing as well as recommended CFD best practices are covered.

The course further focusses on the usage of the ANSYS CFD software in a typical Linux cluster environment for massively parallel computations. This includes a basic Linux primer, introduction to LRZ HPC systems and network environment, intro to the use of the SLURM scheduler, CFD remote visualization and aspects of successful CFD simulation strategies in such an HPC environment. Finally some aspects of workflow automation using Python as scripting language are targeted as well.

All software components introduced in the ANSYS CFD Short Course are available at LRZ via the ANSYS Multiphysics Campus license.

Course participants are required to install ANSYS Release 2020.R1 on their own computers, accessing the ANSYS Academic Teaching licenses provided by LRZ in the MWN network. Alternatively the ANSYS Free Students Edition 2020.R1 can be used by participants for preparational steps on their own computers at home, if the participant is not a member of either TUM, LMU or HM.

Veranstalter:
Leibniz-Rechenzentrum (LRZ)

Boltzmannstr. 1
85748 Garching b. München

https://www.lrz.de

Weitere Informationen: https://www.lrz.de/services/compute/courses/2020-10-12_hcfd2w20/