

	Course / Workshop Title	Location	Language	Days	Date
par	Efficient Parallel Programming with GASPI ( <b>PRACE course</b> )	Stuttgart	English	2	Jul 1-2, 2019
par	Parallel Programming with HPX ( <b>PRACE course</b> )	Stuttgart	English	2	Jul 4-5, 2019
Ing	Advanced C++ with Focus on Software Engineering	Stuttgart	German *)	4	Jul 9-12, 2019
dat	Deep Learning and GPU programming using OpenACC	Stuttgart	English	3	Jul 15-17, 2019
par	Introduction to parallel programming with MPI and OpenMP	Jülich	English	5	Aug 12-16, 2019
par	Parallel Programming with MPI / OpenMP	Zürich	English	4	Aug 19-22, 2019
c+w	13 <sup>th</sup> International Parallel Tools Workshop	Dresden	English	2	Sep 2-3, 2019
cfD	Intro. to ANSYS Fluid Dynamics (CFX, Fluent) on LRZ HPC Systems	Garching	English	5	Sep 2-6, 2019
cfD	CFD with OpenFOAM®	Siegen	German *)	5	Sep 2-6, 2019
Ing	Advanced Fortran Topics ( <b>PRACE course</b> )	Garching	English	5	Sep 9-13, 2019
cfD	Introduction to Computational Fluid Dynamics	Stuttgart	German	5	Sep 9-13, 2019
par	Iterative Linear Solvers and Parallelization	Garching	German	5	Sep 16-20, 2019
c+w	High Performance Computing in Science and Engineering	Stuttgart	English	2	Oct 7-8, 2019
Ing	Introduction to Python	Jülich	German *)	3	Oct 7-9, 2019
dat	Big Data, Analytics & Machine Learning	Garching	English	5	Oct 7-11, 2019
Ing	Introduction to Semantic Patching of C programs with Coccinelle	Garching	English	1	Oct 8, 2019
dat	Intel® Artificial Intelligence Workshop: AI From the Data Center to the Edge	Garching	English	1	Oct 15, 2019
par	Performance Portability Programming with Kokkos	Garching	English	1	Oct 24, 2019
par	Parallel Programming Workshop (MPI, OpenMP & advanced topics) ( <b>PRACE course</b> )	Stuttgart	English	5	Oct 14-18, 2019
vis	Scientific Visualization	Stuttgart	English	2	Oct 24-25, 2019
par	Introduction to GPU programming using OpenACC	Jülich	English	2	Oct 28-29, 2019
prf	From zero to hero, Part II: Understanding and fixing intra-node performance bottlenecks	Jülich	English	2	Nov 5-6, 2019
cfD	ANSYS Technology Day @ LRZ	Garching	English	1	Nov 6, 2019
Ing	Software Development in Science	Jülich	English	2	Nov 19-20, 2019
Ing	Advanced C++ with Focus on Software Engineering	Garching	English	3	Nov 20-22, 2019
Ing	C++ Language for Beginners	Garching	English	5	Nov 25-29, 2019
Ing	HPC & ANSYS Fluent	Jülich	English	3	Nov 26-28, 2019
Ing	Advanced C++ with Focus on Software Engineering	Stuttgart	German *)	4	Nov 26-29, 2019
par	Introduction to the programming and usage of the supercomputer resources at Jülich	Jülich	English	2	Nov 28-29, 2019
par	Advanced Parallel Programming with MPI and OpenMP	Jülich	English	3	Dec 2-4, 2019
dat	Python for Beginners	Garching	English	1	Dec 3, 2019
prf	Node-Level Performance Engineering ( <b>PRACE course</b> )	Garching	English	2	Dec 3-4, 2019
cfD	Molecular Modeling with Schrödinger-Suite	Garching	English	2	Dec 4-5, 2019
Ing	Fortran for Scientific Computing	Stuttgart	German *)	5	Dec 9-13, 2019

Legend:

\*) Slides in English

**Parallel Programming par**

- Message Passing Interface - MPI
- OpenMP Shared Memory Parallelization
- Partitioned Global Address Space (PGAS) Languages, e.g.,
- Iterative Solver and Parallelization
- GPUs and Accelerators, e.g., CUDA, OpenACC, OpenMP-4.0, OpenCL
- High performance parallelism, e.g., HPX

**Computational Fluid Dynamics cfD**

**Scientific Visualization vis**

**Compute Cluster - Usage and Administration clu**

**Performance Optimization and Debugging prf**

- Node-Level Performance Engineering
- Tools courses, e.g. VI-HPS tuning courses
- Optimization and scaling courses and workshops

**Data in HPC dat**

- Cluster Filesystems
- Parallel Input/Output, e.g., with MPI-I/O, HDF, XDF5
- Data analysis (e.g. statistics with R), Deep Learning

**Programming Languages for Scientific Computing Ing**

**Training for special communities com**

**Scientific Conferences and Workshops c+w**

PRACE courses: GCS is a PRACE Training Centre. Some of the courses are sponsored by the PRACE training programme.

For further information and/or registration please visit our web page/s:

- <http://www.hirs.de/training/>
- <http://www.lrz.de/services/compute/courses/>
- <http://www.fz-juelich.de/ias/jsc/events>
- <http://www.gauss-centre.eu/training>
- <http://hpc-calendar.gauss-allianz.de/>
- <http://www.training.prace-ri.eu/>

# COURSES, WORKSHOPS AND CONFERENCES, January – June 2020

## SUPERCOMPUTING AT THE LEADING EDGE

	Course / Workshop Title	Location	Language	Days	Date
Ing	Programming in C	Jülich	German	7	Jan 13-22, 2020
par	Introduction to Hybrid Programming in HPC and Scaling Workshop	Stuttgart	English	5	Jan 27-31, 2020
par	Parallel I/O and Portable Data Formats ( <b>PRACE course</b> )	Jülich	English	3	Jan 27-29, 2020
par	Introduction to parallel programming with MPI and OpenMP	Jülich	English	5	Feb 3-7, 2020
com	ESM user forum	Jülich	English	3	Feb 4-6, 2020
par	Parallel Programming with MPI & OpenMP and Tools	Dresden	German	5	Feb 10-14, 2020
par	Fundamentals of Accelerated Computing with CUDA and OpenACC	Ostrava	English	2	Feb 10, 2020
Ing	Programmierung in Fortran	Jülich	German	15	Feb 10 - Mar 6
dat	Parallel and Scalable Machine Learning ( <b>PRACE course</b> )	Jülich	English	3	Feb 17-19, 2020
cfD	Introduction to Computational Fluid Dynamics	Siegen	German	5	Feb 24-28, 2020
Ing	Programming with Fortran	Garching	English	3	Feb 26-28, 2020
c+w	NIC Symposium 2020	Jülich	English	3	Feb 27-28, 2020
vis	Usage of VTK for scientific-technical visualisation	Jülich	German *)	1	Mar 2020 (tbc)
Ing	Introduction to Python	Jülich	German *)	3	Mar 2020 (tbc)
Ing	Intermediate C++ with Focus on Software Engineering	Stuttgart	German*)	4	Mar 3-6, 2020
par	Parallel Programming of High Performance Systems	Erlangen	English	5	Mar 9-13, 2020
vis	Introduction to ParaView for the visualization of scientific data	Jülich	German *)	1	Mar 12, 2020
dat	Introduction to Cluster Filesystems	Stuttgart	German*)	1	Mar 12, 2020
cfD	Introduction to ANSYS Fluid Dynamics (CFX, Fluent) on LRZ HPC Systems	Garching	German	5	Mar 16-20, 2020
cfD	CFD with OpenFOAM®	Stuttgart	German *)	5	Mar 16-20, 2020
par	Iterative Linear Solvers and Parallelization	Stuttgart	English	5	Mar 23-27, 2020
par	Parallelization with MPI and OpenMP	Mainz	English	4	Mar 30-Apr 2
par	Introduction to Hybrid Programming in HPC ( <b>PRACE course</b> )	Garching	English	2	Apr 20-21, 2020
Ing	Fortran for Scientific Computing ( <b>PRACE course</b> )	Stuttgart	English	5	Apr 20-24, 2020
dat	Interactive High-Performance Computing ( <b>PRACE course</b> )	Jülich	English	2	Apr 21-22, 2020
dat	Deep Learning and GPU programming workshop ( <b>PRACE course</b> )	Espoo	English	3	Apr 22-24, 2020
prf	From zero to hero, Part I: Understanding and fixing on-core performance bottlenecks	Jülich	English	2	Apr 28-29, 2020
Ing	Advanced C++ with Focus on Software Engineering	Stuttgart	German*)	4	May 5-8, 2020
par	Programming in C++	Jülich	English	4	May 11-14, 2020
prf	VI-HPS Tuning Workshop ( <b>PRACE course</b> )	Stuttgart	English	5	May 11-15, 2020
dat	Introduction to Deep Learning Models ( <b>PRACE course</b> )	Jülich	English	3	May 12-14, 2020
par	Introduction to the usage and programming of supercomputer resources in Jülich	Jülich	English	2	May 18-19, 2020
dat	Data Analysis and Plotting in Python with Pandas	Jülich	English	1	May 26, 2020
dat	Deep Learning and GPU programming using OpenACC	Vienna	English	3	Jun 3-5, 2020
Ing	High-performance computing with Python ( <b>PRACE course</b> )	Jülich	English	3	Jun 8-10, 2020
Ing	High-performance scientific computing in C++ ( <b>PRACE course</b> )	Jülich	English	3	Jun 15-17, 2020
clu	Cluster Workshop	Stuttgart	German	2	Jun 16-17, 2020
par	Introduction to hybrid programming in HPC	Vienna	English	2	Jun 17-18, 2020
dat	Deep Learning and GPU programming Workshop ( <b>PRACE course</b> )	Garching	English	4	Jun/Jul (tba)
prf	Node-Level Performance Engineering and Scaling Workshop ( <b>PRACE course</b> )	Stuttgart	English	5	Jun 29-Jul 3