

## OUR PROGRAMME

In order to give students the opportunity to familiarize themselves with various aspects of scientific computing as early as possible, the Jülich Supercomputing Centre (JSC) is once again organizing a programme for guest students in the 2022 summer vacation. The programme is supported by CECAM – Centre Européen de Calcul Atomique et Moléculaire. It targets students of science and engineering, informatics and mathematics who have already completed their first degree but have not yet finished their master's course. The students will work together with scientists from JSC on topics of current interest in research and development. Depending on their previous experience and interests, they will be involved in various fields of work, for example:

### Computational Science, Applied Mathematics

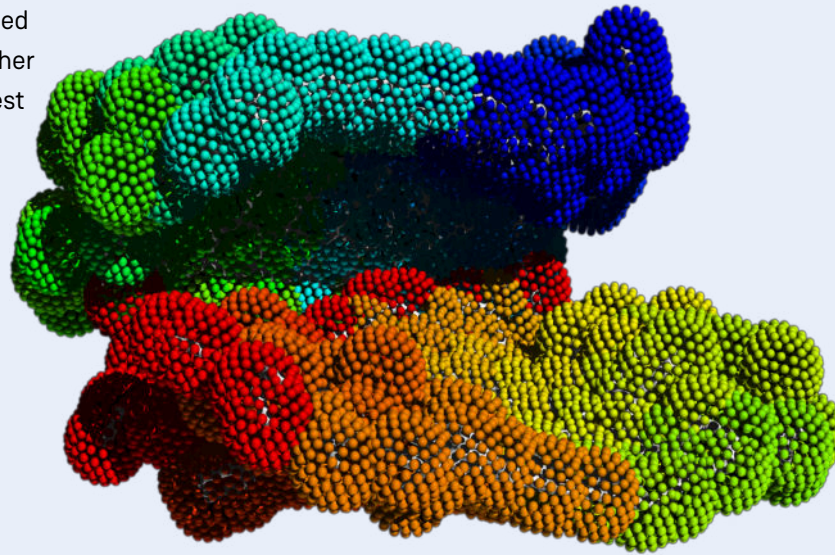
- Modelling and simulation in physics, chemistry and biophysics
- Techniques of parallel MD simulations
- Modelling, simulation and data analysis in neuroscience
- Parallel computational procedures in quantum chemistry and structural mechanics
- Performance evaluation of parallel algorithms in linear algebra
- Mathematical modelling, statistics and data mining

### Computer Architectures, GPU Computing

- GPU-computing, FPGA programming
- High-speed data networks & data management
- Programming models and performance portability

## High-Performance Computing, Visualization

- Performance analysis and optimization of parallel programs
- Programming of hierarchical parallel computer systems
- Distributed applications, interactive control and visualization
- Virtual reality techniques for visualizing scientific data



The programme will run for ten weeks from 1 August to 7 October 2022. The students will be able to use the supercomputers at JSC, including JUWELS, which is one of the largest supercomputers in the world. They should naturally be familiar with computer-oriented areas of their subjects. In addition, they should also have practical computer experience including a good knowledge of programming with C, C++, Python or Fortran on Linux systems.

## PROGRAMME SCHEDULE

The programme starts with an introductory course concerning the techniques of parallel computing and the use of the Jülich supercomputers. After the training week each student will be assigned to a supervisor, who is a member of staff. The students work on a topic of the supervisor's active field of research. In a colloquium at the end of the programme, the students will give presentations on their work and discuss their results with other students and scientists. They will also prepare a final report on their work. Information on the topics and results of previous guest student programmes can be found on the website given below.

## COMPENSATION

The students will receive an expense allowance and can reside at their home location for the entire duration of the programme.



```
int id, p, nam
char processor_
MPI::Init(argc, argv);
p = MPI::COMM_WORLD.Get_size();
id = MPI::COMM_WORLD.Get_rank();
MPI_Get_processor_name(processor_name, &name);
cout<<" Processor " << processor_name<<" ID="<<id<<"<<endl;
```

## APPLICATIONS

Please submit your application digitally before 30 April 2022 including:

- CV with photograph
- Certificates of bachelor's degree or equivalent, and a German or English transcript thereof
- School-leaving certificate with transcript
- Proof of student status (summer semester 2022)
- Level of knowledge in the above-mentioned disciplines
- Special interest in a particular field of work
- Motivation letter
- Detailed recommendation by at least one university lecturer

Please apply online at:

**<https://gsp.fz-juelich.de/applynow>**

Receipt of your application will be confirmed by e-mail.



Candidates will be selected after the closing date.



Notification of acceptance will be sent by 30 June 2022.



Gueststudents 2019

## FURTHER INFORMATION

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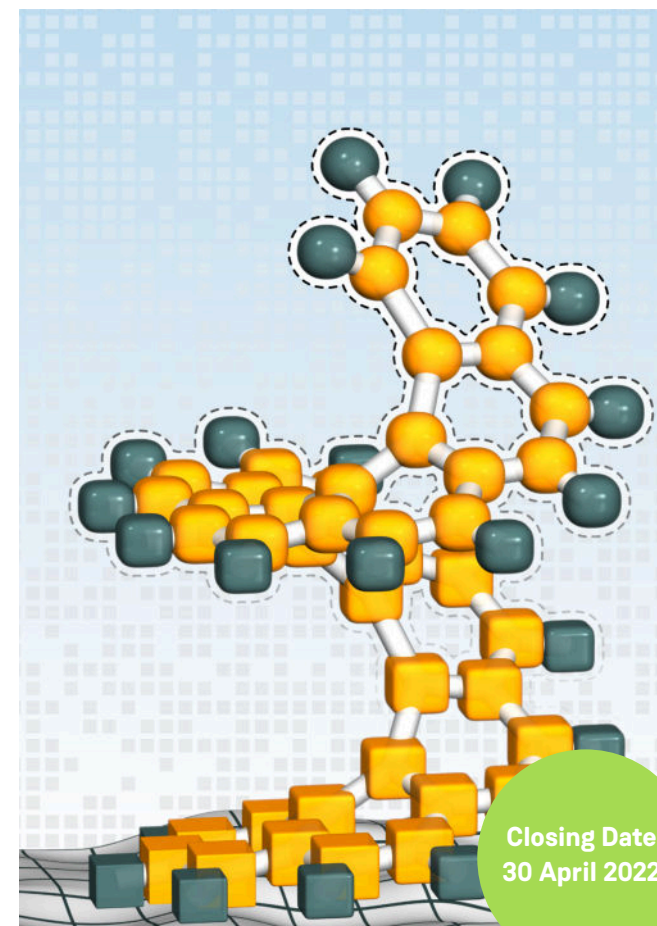


## DATES

Closing date for applications:	30 April 2022
Start of the programme:	1 August 2022
Programming courses:	1 – 12 August 2022
Colloquium:	27 September 2022 28 September 2022
End of the programme:	7 October 2022

## IMPRINT

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## GUEST STUDENT PROGRAMME 2022 JÜLICH SUPERCOMPUTING CENTRE

**1 August 2022 – 7 October 2022**

## SUPPORTED BY



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