

Application for Tier 2 HPC Access to NHR@FAU Resources

**After submission, you can try to login to our HPC portal (https://portal.hpc.fau.de) via Single Sign-On (DFN-AAI + eduGAIN). We will recognize this login attempt and can prepare necessary steps for your future cluster access.**

**Remarks**

*The text in italics is for explanation. You do not need to delete this.*

Replace the red text in the gray boxes by your individual details.

Please do not change the size of the font or other format specifications.

For any questions, feel free to contact us via hpc-support@fau.de.

Application form as of November 10th, 2023

# Technical Description of the Project

*In this section, please give us some information about the technical (not scientific) aspects of your planned work. This is also mandatory for test or porting projects.*

## Requested Resources

*Type and amount of resources (CPU/GPU hours, storage) for the requested timeframe. Also typical number of cores per job and maximal memory demand per core. How many jobs do you plan to run at the same time typically? For information about the available hardware, please follow these links:* [*Alex GPGPU cluster*](https://hpc.fau.de/systems-services/systems-documentation-instructions/clusters/alex-cluster/) *–* [*Fritz parallel cluster*](https://hpc.fau.de/systems-services/systems-documentation-instructions/clusters/fritz-cluster/)*.*

*Here is an example how such a request could look like:*

*I plan to run 50 MD simulations. Each simulation consists of 20 consecutive runs on 864 cores taking 24h.*

*Compute time demand = 50 \* 20 \* 864 \* 24 = 20,736,000 core-h = 21 Mio core-h on Fritz.*

*Five simulations can easily be run at the same time as they are independent.*

*For a second set of parameters, I plan to run 10 MD simulations. Each simulation consists of 25 consecutive runs on one A100 GPU taking 24h.*

*Compute time demand = 10 \* 25 \* 1 \* 24 = 6,000 A100-GPU-h.*

*All ten simulations are independent and can in principle run at the same time.*

(Provide information here)

## Name and Description of the Application Software

*Please describe the software you plan to use. Is it suitable for HPC and for batch processing?*

(Provide information here)

## Required System Software, Tools and Libraries

*Which compilers, libraries, tools do you need?*

(Provide information here)

## Efficient HPC Usage

*Please demonstrate that your project and the software you plan to use is suited for making efficient use of an HPC cluster, e.g., by providing performance plots. Please indicate if you are interested in support to improve performance and/or scalability of your application!*

(Provide information here)

# Scientific Project Information

*In future, the detailed scientific project description should be uploaded as a single PDF file according to an individual template we will provide.*

***The required subsections and their length depend on the project type!***

**Test/Porting projects:**

* Please provide a short summary of your test or porting project which justifies the use of the HPC resources. The total text should not exceed one page.
* A half page “project description” is sufficient. Focus on HPC aspects.

**Normal projects with** **granted/reviewed DFG/BMBF/EU project**

* As the scientific part of your project has already been reviewed, it is sufficient to provide a summary of your project in **section 4.2**. Anyway you should make clear in **section 4.8** the amount of HPC resources you apply for. The total text of this chapter should not exceed two pages.

**Large projects and normal projects without existing review**

* Please provide a scientific description of your project. The total text of this chapter should typically not exceed **3 to 6 pages for a normal project**, and **5 to 10 pages for a large project**, respectively (including references). If you prefer to upload a PDF document, please also follow the outline given below.

# Scientific Project Description

## Project Abstract*(all projects types)*

*This text* ***may be published on the NHR web pages****. Typically, 200-700 characters.*

(Provide information here)

## Project Description*(all project types)*

*A short summary of your planned scientific work. Typically, 0,5 – 1 page.*

(Provide information here)

## State of the Art and Preliminary Work*(**mandatory for large projects and normal projects without existing review only)*

*State of the art of the research topic. A short description of your own contribution to the research topic.*

(Provide information here)

## Scientific Project Goals*(mandatory for large projects and normal projects without existing review only)*

*What is the aim of your project, its scientific impact, and how does it differ from other projects in the field?*

(Provide information here)

## Detailed Scientific Project Description*(mandatory for large projects and normal projects without existing review only)*

*The description should include the numerical methods used and their implementation.*

(Provide information here)

## Detailed Project Plan*(mandatory for large projects and normal projects without existing review only)*

*Definition of work packages with justification of requested HPC resources.*

(Provide information here)

## Summary/Statement of Existing Scientific Reviews *(mandatory for normal projects with granted/reviewed DFG/BMBF/EU project as an alternative to filling sections 4.3-4.6)*

*Please provide a summary of the existing scientific reviews here. As your project has been scientifically reviewed, we would appreciate attaching the review report(s) to strengthen your application.*

(Provide information here)

## Justification for the Amount of applied HPC Resources *(mandatory for all except test/porting projects)*

*Please explain/justify in detail the amount of applied HPC resources. This information is crucial for the reviewers to decide about the amount of granted resources!*

(Provide information here)

## References *(optional for all project types)*

*Please provide bibliographic references that are relevant to the project indicating your own publications.*

(Provide information here)

# Follow-up Projects – skip this section for initial applications!

*Mandatory if this is a follow-up project within the NHR alliance.*

## Resources used and Results obtained so far

*Summary of results obtained so far and HPC resources used therefore.*

(Provide information here)

## Short Intermediate Report

*This information may be published on the NHR web pages and should be generally understandable.*

(Provide information here)

## Outreach

*Publications emerged from the project. How do the results obtained so far justify the follow-up application?*

(Provide information here)

# Optional Information

*Filling in this section is not mandatory, but it will help us to speed up and improve the process.*

## Reviewers

*Reviewers will be* ***independently selected*** *by the steering committee. However, you may* ***suggest up to five reviewers****, which are experts in your field of application. Please note that the experts you nominate should not be a member of your research group or a member of a group with whom you work on a regular basis.*

(Provide contact data here)

## Awareness

*How have you heard about the possibility to apply for HPC resources at our center? This information will help us to increase the awareness in the community.*

(Provide information here)

# Important Notes

*Please acknowledge the following information!*

[ ]  By submitting this application, I confirm to use the following **acknowledgement** for computing time granted by NHR projects on NHR@FAU systems for **all publications arising from this project**:

“The authors gratefully acknowledge the scientific support and HPC resources provided by the Erlangen National High Performance Computing Center (NHR@FAU) of the Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) under the NHR project *<ID of your project - will be communicated later>*. NHR funding is provided by federal and Bavarian state authorities. NHR@FAU hardware is partially funded by the German Research Foundation (DFG) – 440719683.”

I will **send electronic copies of these publications** by email to nhr-redaktion@lists.fau.de

I understand that I may be contacted by NHR@FAU staff in order to **take part in reviewing other scientists' compute project proposals**. I am aware that I can nominate a delegate who is competent and capable of taking part in the reviewing process.

NHR@FAU staff may contact you to **request an intermediate or final report** of your work done with the help of the resources granted by this application. Additionally, our staff may ask you to report at a NHR@FAU results symposium or similar event organized by our center.