**Proposal for a EUROfusion HPC Project**

(for the **Project cycle 2** from 1st August 2017 to 31st December 2018)

|  |  |
| --- | --- |
| **Project Title** |  |
| **Project Acronym**  (up to 8 characters) |  |
| **Category**  [check the relevant research area(s)] | Plasma turbulence and related transport processes  Fast particle physics  Linear, nonlinear and/or extended MHD  Edge physics  Heating and current drive  Integrated modelling of fusion plasmas  Reactor materials  Reactor technology |
| **Is this a continuation of a previous project?** | ( ) yes  ( ) no  If yes, indicate the previous project name: |

**Abstract**

***(150 - 300 words)***

***Principle Investigator (PI):***

|  |  |
| --- | --- |
| *Name of PI:* |  |
| *Institution:* |  |
| *Street Address:* |  |
| *City:* |  |
| *Country:* |  |
| *Nationality:* |  |
| *Email:* |  |
| *Phone / Fax:* |  |

***Collaborator(s):***

|  |  |
| --- | --- |
| *Name(s) of Collaborator(s):* |  |
| *Institution:* |  |
| *Street Address:* |  |
| *City:* |  |
| *Country:* |  |
| *Nationality:* |  |
| *Email:* |  |
| *Phone / Fax:* |  |

*Several collaborators from the same institution may be grouped together. Please duplicate this table if necessary.*

**Computer Resource Requirements and Code Characteristics**

|  |  |
| --- | --- |
| Total amount of requested node hours for the present project (one node corresponds to 2x24 cores) **Conventional Nodes** (A3 partition)\* |  |
| Total amount of requested node hours for the present project (one node corresponds to 68 cores) **Non-Conventional Nodes** (A2 partition)\*\* |  |
| Expected average and maximum number of nodes per run |  |
| Expected minimum number of nodes per run based on memory requirements [note that up to196 GB per node (= 2x24 cores) are available in partition A3] |  |
| Temporary disk space required for a single run [for input / output / restart files etc.] |  |
| Permanent disk space required for the entire project [if larger than 10 TB] |  |
| Retention time of the obtained data |  |
| Estimated volumes of data transferred to/from by network |  |
| Name of the code to be used |  |
| Own code / 3rd party code? |  |
| Code publicly available? |  |
| Pure MPI or mixed OpenMP / MPI communication?  Specific libraries |  |
| On which machines is this code currently used for production runs, and how many cores are being employed? |  |
| Example for the strong scaling performance [fixed problem size] of the code |  |
| Expected code scalability for the targeted problems in the present project |  |
| Projects in which the propose calculations are embedded if applicable (i.e. EUROfusion Work Package, F4E Grant, ITPA, …)\*\*\* |  |

*\*please note that 1 node hour in Marconi-Fusion is approximately equivalent to 5 node hours in Helios for the A3 particition.*

*\*\*please note that 1 node hour in Marconi-Fusion is approximately equivalent to 3 node hours in Helios for the A2 particition.*

*\*\*\*the project evaluation is based on the criteria specified in the call and the information included in this box is for referencing purposes only. It will not be used to judge the scientific merit of the project.*

**Detailed Project Description (max. 3 pages)**

*Please give a detailed description of the project including:*

* *the relationship of the project to key goals of the fusion programme*
* *a description of the scientific significance and novelty of the proposed project*
* *the scientific background and preparatory work (including related publications) and a description of the relevant expertise of the team.*
* *the targeted research achievements (on the project timescale and possibly beyond)*
* *a quantitative justification of the requested computer resources (in terms of expected number of runs, number of nodes used, and elapsed time per run) and the relationship to the scientific objectives, including details of the resource management and project scheduling*
* *details on the strong scaling performance of the employed codes*
* *dissemination plan in order to judge the impact*

Annex: Evaluation Criteria

*The final selection will be made according to the scientific and technical merit of the proposals taking into account the following criteria:*

*(1) Quality / scientific excellence of the proposal (Weight: 40% no threshold)*

*(2) Impact to the fusion research (Weight: 30% no threshold)*

*(3) Quality, skills, recognised expertise and competences of the team to carry out the proposal, including the outcome of the projects in previous cycles (this will apply to calls for* cycle 2 and followings) (Weight: 20% no threshold)

(4) Resource management/efficient use of the resources

(Weight: 10% threshold > 2)

Proposals with one or more evaluations below the threshold of 2 (the range of *evaluated values is from 0 to 5) in category (4) will fail. For projects, which are the continuation of a previous cycle of allocation, the peer reviewers will take into account the outcome of that project in making their evaluation. This will be done by making the reports (see section 8) and evaluation reports of related projects to the referees, which will take these into account in the evaluation process, together with the Project proposal.*