

2023 INCITE Proposal: Peer-Review Panel Questionnaire

1. Scientific and/or technical merit of the project.

- a) What important problem does this application address and what is the likelihood that it can make high-impact advances in its field through the use of a large allocation of high-end computing resources? Please provide a justification of the importance of the research to the field.
- b) How does the proposed research compare with other research in its field, both in terms of scientific and/or technical merit and originality?
- c) What is the broader impact of the proposed research? (For industry proposals, this can include potential economic or strategic business impact.)

2. Appropriateness of the proposed method or approach.

- a) Are the conceptual framework, methods, and analyses adequately developed and likely to lead to valid conclusions?
- b) Does this proposed research make use of the most appropriate mathematical algorithms, computer science methods and state-of-the-art data management, analysis and visualization techniques?
- c) Are project milestones (simulation and developmental) clearly articulated?

3. Competency of proposer's personnel and adequacy of proposed resources.

- a) How well qualified are the applicant's personnel to carry out the proposed research? (If appropriate, please comment on the scientific reputation and quality of recent research by the principal investigator and other key personnel.)
- b) Are all of the applicant's personnel already in place? Or will the project need to increase staffing in order to achieve the proposed milestones?

4. Reasonableness and appropriateness of the proposed request for computational resources.

- a) How well does the application articulate the need for petascale computing resources? Place this in the context of the state-of-the-art research in this field.
- b) Please assess the reasonableness of the estimates of the required computational resources to achieve the scientific/technical objectives. Has the principal investigator(s) adequately estimated their needs and justified their request (resolution, convergence, etc).
- c) (Optional) A separate review is being carried out to assess overall technical readiness to execute the computational campaign on the system requested, however, you may if you wish provide comments here about the proposed computational readiness.

5. Multi-year requests only.

Please comment on the proposed timeline and milestones outlined in the application: Does the potential impact of the proposed research warrant a multi-year award? Are milestones and goals for each year clearly articulated? Have the applicant(s) presented adequate evidence that they can effectively use the petascale resources over the full time-frame requested?

6. Summary**Rating: Excellent**

The proposed research answers a high-impact, key scientific/technical question and/or points to a new area of research. The proposed method is very appropriate and well developed for answering these key questions. Milestones are clearly defined. The application team is comprised of the top experts in this field. The applicant(s) have demonstrated a very clear understanding of petascale computing and can optimally use these resources to accomplish the stated scientific/technical goals.

Very Good

The proposed research has the potential for significant impact on or progress toward answering a key scientific/technical question. The proposed method is appropriate and sufficiently developed: further modification or exploration of new techniques may be required. Milestones are clearly defined. The application team is comprised of individuals very knowledgeable in this field. The applicant(s) have demonstrated that the proposed work is appropriate for petascale computing.

Good

The proposed research has moderate impact on or progress toward answering a key scientific/technical question. The proposed method and milestones are adequate but not ideal for addressing these questions. The application team is comprised of individuals who are knowledgeable in the field. The applicant(s) will need to continue to scale their simulations to effectively utilize the petascale systems.

Poor

The proposed research has minimal or incremental impact on or progress toward answering a key scientific/technical question. The proposed method and milestones are insufficiently or incompletely described. The application team is incomplete or comprised of individuals who do not have adequate expertise to carry out the proposed research. The proposed work is better suited for another system.