



**Department of Energy**  
Office of Science  
Washington, DC 20585

Dr. Josephine Fazio  
LQCD Contractor Project Manager  
Fermi National Accelerator Laboratory  
Mail Station: 228 (WH 5W)  
P.O. Box 500  
Batavia, IL 60510

Dear Dr. Fazio:

The Department of Energy (DOE) Office of High Energy Physics (HEP) plans to conduct an Annual Progress Review of the Lattice Quantum Chromodynamics (LQCD-ext III) Computing Program on May 22-24, 2023, virtually, using ZOOM. This year's review will also include the LQCD-ext III cluster program at Thomas Jefferson National Accelerator Facility (TJNAF or JLAB) which is funded by the Office of Nuclear Physics (NP) since this program uses the same allocation process within a common collaboration and governance structure. A review panel of experts in high energy physics, nuclear physics, project management and computer science is being convened for this task.

John Kogut of HEP is responsible for this review; he will be assisted by Bill Kilgore, the Theory Program Manager of HEP.

Each panel member will evaluate background material on the LQCD-ext III research program and attend all the presentations at the May 22-24, 2023 review. The focus of the 2023 LQCD-ext III Annual Progress Review will be on understanding:

- The continued significance and relevance of the LQCD-ext project, with an emphasis on its impact on the experimental program of the DOE Offices of High Energy and Nuclear Physics;
- The progress toward scientific and technical milestones;
- The status of the technical design and proposed technical scope for FY 2023-2024;
- The merits of updating the HEP LQCD-ext III research program to include the construction and operation of dedicated hardware in addition to the existing program of funding Institutional Clusters at Fermilab and Brookhaven National Laboratory;
- The feasibility and completeness of the proposed budget and schedule;

- The effectiveness of the proposed management structure, and the responsiveness to any recommendations from the last progress review.

Since LQCD-ext III provides computer cycles that are distributed by the US Lattice Quantum Chromodynamics (USQCD) collaboration, the panel members will also consider:

- The effectiveness of USQCD in allocating the LQCD-ext III resources to its community of lattice theorists, the scientific impact of this research on the entire HEP and NP communities and the status, operational procedures and related activities of the USQCD collaboration itself.

The 3 days of the review will consist of presentations and executive sessions. The third day will include an executive session and preliminary report writing; a brief close-out will conclude the review. Preliminary findings, comments, and recommendations will be presented at the close-out. You should work with John Kogut to generate an agenda which addresses the goals of the review.

Each panel member will be asked to review those aspects of the LQCD project listed above which are within their scope of expertise and contribute his/her findings to the closeout and final review reports. John Kogut, the Federal Project Manager, will be responsible for the final review report. That report will have recommendations for your consideration that you and USQCD should respond to in a timely fashion.

Please set up a web site for the review with relevant background information on LQCD-ext III, links to the various LQCD-ext III sites the collaboration has developed and distribute relevant background and research materials to the panel at least 2 weeks prior to the review. Please coordinate these efforts with John Kogut so that the needs of the review panel are met.

We greatly appreciate your willingness to assist us in this review. We look forward to a very informative and stimulating review.

Sincerely,

Glen Crawford  
Director, Research and Technology Division  
for High Energy Physics



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Dr. Josephine Fazio  
LQCD Contractor Project Manager  
Fermi National Accelerator Laboratory  
Mail Station: 228 (WH 5W)  
P.O. Box 500  
Batavia, IL 60510

Dr. Robert Edwards  
Principle Investigator  
NP LQCD Initiative  
Thomas Jefferson National Accelerator Facility  
12000 Jefferson Avenue  
Newport News, VA 23606

Dear Dr. Fazio and Dr. Edwards:

The Department of Energy (DOE) Office of Nuclear Physics (NP) plans to conduct a Progress Review of the Nuclear Physics Lattice QCD Computing Initiative (NP LQCD Initiative), in conjunction with the Office of High Energy Physics (HEP) Annual Progress Review of the Lattice Quantum Chromodynamics (LQCD-ext III) Computing Program, on May 22-24, 2023, using ZOOM. The NP LQCD Initiative funds the LQCD cluster program at Thomas Jefferson National Accelerator Facility (TJNAF or JLAB) as part of the LQCD cluster program. It follows the same allocation process within a common collaboration and governance structure. A review panel of experts in high energy physics, nuclear physics, project management, and computer science is being convened for this task.

Paul Sorensen is the NP representative for this review and will coordinate with John Kogut of HEP to have a joint LQCD-ext III and NP LQCD Initiative review.

Each panel member will evaluate background material on the LQCD research program, including those for NP LQCD Initiative, and attend the presentations at the May 22-24, 2023 review. The focus of the 2023 NP LQCD Initiative Progress Review will be on understanding:

- The continued significance and relevance of the NP LQCD Initiative, with an emphasis on its impact on the experimental program of the DOE Offices of High Energy and Nuclear Physics;
- The progress toward scientific and technical milestones;
- The status of the technical design and proposed technical scope for FY 2023-2024;
- The merits of updating the NP LQCD Initiative research program, including the construction and operation of dedicated hardware;

- The feasibility and reasonableness of the preliminary FY25-29 5-year plan for NP LQCD Initiative; and
- The effectiveness of the proposed management structure, and the responsiveness to any recommendations from the last progress review.

Since NP LQCD Initiative provides computer cycles that are distributed by the US Lattice Quantum Chromodynamics (USQCD) collaboration, the panel members will also consider:

- The effectiveness of USQCD in allocating the NP LQCD Initiative resources to its community of lattice theorists, the scientific impact of this research on the entire HEP and NP communities and the status, operational procedures and related activities of the USQCD collaboration itself.

The 3 days of the review will consist of presentations and executive sessions. The third day will include an executive session and preliminary report writing; a brief close-out will conclude the review. Preliminary findings, comments, and recommendations will be presented at the close-out.

Each panel member will be asked to review those aspects of the LQCD project listed above which are within their scope of expertise and contribute his/her findings to the closeout and final review reports. That report will have recommendations for your consideration that you and USQCD should respond to in a timely fashion.

Please set up a website for the review with relevant background information on NP LQCD Initiative, and distribute relevant background and research materials to the panel at least 2 weeks prior to the review.

We greatly appreciate your willingness to assist us in this review. We look forward to a very informative and stimulating review.

Sincerely,

Timothy J. Hallman  
Associate Director of the Office of Science  
for Nuclear Physics

Enclosure