Lattice QCD Extension II Computing Project
(LQCD-ext III)

Response to Suggestions
from the
2020 LQCD-ext III Science Review

Compiled by

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LQCD-ext III 2020 Science Review
Response to Suggestions

INTRODUCTION

On July 9-10, 2020 the U.S. Department of Energy (DOE) Office of High Energy Physics conducted a zoom review of the Lattice Quantum Chromodynamics extension III (LQCD-ext III). This year the review had no formal recommendations however, there were a few comments and two suggestions that will be reviewed and worked on by the Executive Committee.

> 1. The impact of lattice results would be stronger by maintaining and enhancing connections with the neutrino cross-section community through Neutrino Scattering Theory Experiment Collaboration, the International Workshop on Neutrino Interactions workshops, and other venues that bring experiment/theory and the Office of High Energy Physics/Nuclear Physics groups together. The project should develop a plan to increase its impact on this research area, which is becoming a larger portion of the domestic high energy physics program. The Letters of Intent at Snowmass could be a start.
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> 2. USQCD should work with the laboratories (Fermilab and BNL) offices on Diversity, Equity and Inclusion & Science, Technology, Engineering and Math outreach activities

Response to Suggestions:

Suggestion #1: The impact of lattice results would be stronger by maintaining and enhancing connections with the neutrino cross-section community through Neutrino Scattering Theory Experiment Collaboration, the International Workshop on Neutrino Interactions workshops, and other venues that bring experiment/theory and the Office of High Energy Physics/Nuclear Physics groups together. The project should develop a plan to increase its impact on this research area, which is becoming a larger portion of the domestic high energy physics program. The Letters of Intent at Snowmass could be a start.

Response: We agree with this suggestion. In fact, USQCD already had a strong connection to the Neutrino Scattering Theory Experiment Collaboration (NuSTEC): an EC member (Kronfeld) sits on the NuSTEC board. Several USQCD members participate in conferences on neutrino scattering, albeit not the most recent two International Workshops on Neutrino Interactions (NuInt), because of scheduling clashes with the International Symposia on Lattice Field Theory. Mindful of this suggestion, USQCD members participated in New Directions in Neutrino-Nucleus Scattering, a virtual conference organized by NuSTEC after NuINT was postponed due to the covid pandemic.

USQCD is also engaged with the Snowmass Study's neutrino theory topical group. Together we will run a workshop on neutrino-nucleus scattering. The workshop will exchange ideas in order to coordinate a Snowmass whitepaper on neutrino-nucleus scattering. This whitepaper will have a chapter on the role of lattice QCD in this subject (USQCD member will coordinate this chapter), as well as chapters on nuclear

theory, experimental challenges, and event generators. The workshop is scheduled for the week of August 23, 2021.

Suggestion #2: USQCD should work with the laboratories (Fermilab and BNL) offices on Diversity, Equity and Inclusion & Science, Technology, Engineering and Math outreach activities

Response: In February 2020, USQCD formed a Committee on Diversity, Equity and Inclusion (CDEI). Owing to covid distractions, the CDEI was not especially active by the September 2020 review, but this suggestion prodded it into action. This summer, we aim to collaborate with ongoing Research Experience for Undergraduate programs by staging a virtual workshop or school at one of the labs, with postdocs as lecturers. If this is successful, we plan to apply for funding so that such meetings can be held in person starting 2022. This idea builds on the experience of one of the CDEI members (Giedt) in organizing schools on computational science aimed at undergraduates with explicit efforts to recruit students from communities that are underrepresented in STEM.

The CDEI also drafted a Code of Conduct, based on the text of DOE-SC's Code. It was approved by the Executive Committee and posted on the USQCD website (here).

The current CDEI's members are William Detmold (CDEI chair), Kimmy Cushman, Aida El-Khadra, Joel Giedt, Andreas Kronfeld (*ex offico*), Huey-Wen Lin. These members include a Ph.D. student, mid-career faculty, and senior researchers. We intend to add a postdoc and a junior faculty member to the CDEI; during an avid discussion of these issues at the 2021 USQCD All Hands' Meeting (AHM; the annual collaboration meeting), the CDEI asked for volunteers. During the same discussion, an instant zoom poll found that several dozen participants would be interested in attending a "USQCD meets DEI" workshop.

In April 2021, Detmold and Kronfeld met with Sandra Charles (Chief DEI Officer at Fermilab) to discuss how USQCD and Sandra's office could work together. They learned that Sandra's Office will work with scientific collaborations on DEI and outreach, but the details are still being worked out. Thus, USQCD will be part of the conversation as policies and partnerships develop. In future years, once the framework is in place, we may invite DEI office staff to speak at the AHM.