2022 USQCD Call for Proposals

March 5, 2022

1 Introduction

This document describes the Call for Proposals for requests of time on the USQCD computer resources dedicated to lattice QCD and other lattice field theories, and for long-term storage of data at the USQCD facilities. The compute resources covered in this call are the GPU, Skylake, and KNL clusters at BNL, Skylake clusters at Fermilab, and the GeForce GPU and KNL clusters at JLAB. The long-term storage are provided at the USQCD computer facilities at BNL and Fermilab, funded by the DOE Office of High Energy Physics (DOE HEP) as part of LQCD extension III. JLab has provided an in-kind contribution to the DOE Office of Nuclear Physics (DOE NP) funded Nuclear and Particle Physics Lattice QCD Computing initiative. Data designated as NP-specific that is stored at this facility is not part of this call. Requests for compute resources and storage need separate proposals in the format specified in section 4, but can share the DMP.

Awards will be made for calculations or data storage that further the scientific goals of the collaboration, as laid out in the recent white papers and USQCD hardware proposals, which can be found https://www.usqcd.org/collaboration.html. In particular, it is anticipated that very few proposals will meet the criteria, spelled out below, for long-term storage. Eligible data should have the prospect of broad use within the USQCD Collaboration for a number of distinct projects and be clearly more expensive to re-compute than to store. Storage awarded in this call is expected to last till the next migration to new media, but needs to be rejustified each year. Such rejustification might be a short proposal that just list the updates on a previous data proposal, or a statement that specifies that there are no material changes. Without such a rejustification, the data may be moved off long-term storage and not be migrated to new media. Since the previous allocation was made midcycle, proposals with current allocations need only provide a supplemental request for the period January–June 2023 provided other details have not changed.

It is important that USQCD sponsored research projects address the needs of the DOE funded experimental program, to ensure continued funding for USQCD-owned computational resources. Data intended for long-term storage need not be generated on USQCD machines or with USQCD allocations, and proposals can ask for staging space to put data on or take data off machines.

In this allocation year, we expect to distribute computing and storage resources of about:

- Computational Resources

  71 M Sky-core hours on Skylake clusters at BNL and FNAL
  192.6 M KNL-core-hours on KNL clusters at JLAB and BNL
  1.12 M K80-GPU-hours on a GPU cluster at BNL
  1.66 M RTX2080-GPU-hours on the GeForce GPU cluster at JLAB
  0.41 M MI100-GPU-hours on the 21g cluster at JLAB

- Short-term Storage

  800 TB disk space and 1.2 PB tape at BNL
  600 TB disk space and 1000 TB tape at FNAL
  1PB disk space and 1PB tape at JLAB

- Long-term Storage

Site	Capacity	Allocated	Available
FNAL	6 Pbytes	3.12 Pbytes	2.88 Pbytes
BNL	6 Pbytes	4 Pbytes	2 Pbytes
JLab	10 Pbytes	9 Pbytes	1 Pbytes

on dedicated USQCD hardware. The resource numbers listed above depend on the next DOE fiscal year budget, and are therefore somewhat uncertain. In addition, the balance of available node-hours between the different platforms at BNL and FNAL may be adjusted, if necessary, to address the needs of the scientific program.

The long-term storage facilities are explicitly *not* for data associated with a single project (or very narrow range of projects). Some examples may help. Gauge-field configurations require a long investment in computer and human time and, at least in some case, are reused for decades. Modern techniques require data sets, such as objects which encode information of the Dirac-operator, that require a similar investment and are similarly reusable. Such data sets are excellent candidates for long-term storage. Quark propagators (with modern solvers), on the other hand, can be less demanding and are often used for only one project. For them a detailed cost-benefit analysis of storing vs. recomputing must be made, and arguments for reuse must be presented. As an example of important data that are unlikely to lie within the scope of the long-term storage facility are tarballs of myriad hadron correlators (let alone the individual files).

The USQCD Collaboration has instituted a *Long-term Data-management Strategy and Plan* (USQCDSP) that can be found here, accessible also via the USQCD Collaboration web site `https://www.usqcd.org/`. As part of that strategy, each proposal for computer time must be accompanied by a *Data-Management Plan* (DMP) that must be maintained following any award; the USQCDSP provides a template, though collaborations are encouraged to use the online tool DMPtool to ensure straightforward maintenance. Short-term storage will be allocated as

part of the annual allocation process for computing; such storage is guaranteed to remain in place for six months after project end.

Please note that it is mandatory to acknowledge USQCD in papers using calculations carried out on these resources, or using data stored in the USQCD long-term storage. The preferred text can be found in section 5 at the end of this document.

Important dates:

05 Mar 2022:	this Call for Proposals
01 Apr 2022:	Type A proposals due
17 Apr 2022:	reports to proponents sent out
21–22 Apr 2022:	All Hands' Meeting
31 May 2022:	allocations announced
01 Jul 2022:	new allocations start

The site managers at all three sites have agreed to provide small exploratory allocations to investigators in June, if needed, to enable all projects to get their codes ready on the allocated hardware prior to the start of the allocation year. Instructions for obtaining such early access will be included in the allocation notifications.

2 Resources

For the facility at JLAB, the Scientific Program Committee will allocate 7200 hours/year to Type A proposals. Of the 8760 hours in an average year, the facility at JLAB intends to provide 8000 hours of uptime. The facilities at BNL and FNAL intend to provide 8760 hours of uptime on the GPU, KNL, Skylake, and Cascade Lake nodes allocated to USQCD. About 10% of the node-hours available at the three sites will be used for Type B and Type C proposals, for the incentives that are part of the jeopardy policy, and for other contingencies.

At BNL

- **The BNL Institutional Cluster (IC)**
  Total 216 worker nodes Each node:
  - HPE ProLiant XL190r Gen9
  - 2 CPUs Intel(R) Xeon(R) CPU E5-2695 v4 @ 2.10GHz
  - Core(s) per socket: 18

- Socket(s): 2
- 2x Nvidia K80 (108 worker nodes) or 2x P100 (108 worker nodes) per node (4K80 or 2 P100 devices per node)
- 256 GB Memory
- InfiniBand EDR connectivity

LQCD currently have 75 nodes. 1 node year = 2* 24* 365*K80GPU hours 1 K80 GPU Hour = 33.25 SkyCore Hours. Cluster expect to operator until. end FY23, Under HP support until end FY23.
Type A allocatable = 1.12 M K80-GPU-hrs = 37.5M Sky-core-hours

- **The BNL KNL cluster**
Total 142 worker nodes Each node:
  - KOI S7200AP
  - 1 Intel(R) Xeon Phi(TM) CPU 7230 @ 1.30GHz
  - Core(s) per socket: 64
  - Socket(s): 1
  - 192 GB Memory
  - Dual Rail OmniPath (Gen1) connectivity

  LQCD currently have 30 nodes . 1 KNL NodeHour = 64 * 0.563 SkyCore Hours. Cluster have only LQCD users now. Cluster expected to operate until end of FY 23. Cluster was out of support around July 2021.
  Type A allocatable = 0.22M KNL-node-hours = 14.08M KNL-core-hours = 8.13M Sky-core-hours

- **BNL Skylake cluster**
Total 64 worker nodes Each node:
  - Dell PowerEdge R640
  - 2 CPUs Intel(R) Xeon(R) Gold 6150 CPU @ 2.70GHz
  - Core(s) per socket: 18
  - Socket(s): 2
  - 192 GB Memory
  - InfiniBand EDR connectivity

  LQCD currently have 58 nodes. 1 node year =36*24*365 SkyCore hours Cluster have only LQCD users now. Cluster expected to operate until end of FY23. Cluster was out support around March 2021.
  Type A allocatable = 15.7M Sky-Core-hours

- **Short-Term Storage**
LQCD currently have 800TB disk allocation on our 1.2PB GPFS storage.

At FNAL

- **A 175-node cluster ("LQ1")**
  An estimated 1.46 M node-hours, on up to 175 available nodes
  Twenty-core, dual-socket, 2.5 GHz Intel Xeon 6248 (Cascade Lake) nodes
  40 cores per node
  196 GB memory/node
  Intel EDR Omni Path Network
  Type A allocatable = 1.31 M node-hours = 55.3 M Sky-core-hours, where the quoted Sky-core-hours reflects the slightly greater performance of Cascade Lake rather than Sky Lake cores.

- **Short-term Storage:**
  These clusters will share about 600 TBytes of disk space in a Lustre file systems. 1000 TBytes of tape access is also available.

At JLAB

- **432 node Xeon Phi / KNL cluster ("16p/18p")**
  Single socket 64 core KNL (with AVX-512 8 double / 16 single precision)
  192 (98) GB main memory / node 16p (18p)
  32 GB high bandwidth on package memory (6x higher bandwidth)
  100 Gbps bi-directional Omnipath network fabric (total 25 GB/s/node) 32 nodes / switch, 16 up-links to core / switch
  Type A allocatable = 2.8 M KNL-node-hours = 178.6 M KNL-core-hours = 100.5 Sky-core-hours

- **32-node GeForce GPU cluster ("19g")**
  Eight-GPU RTX-2080 nodes
  8 GByte memory per GPU, 192 GByte memory per node.
  Each on 100g OmniPath Fabric
  Type A allocatable = 207.4 k node-hours = 1.66 M RTX2080-GPU-hours = 35.7 Sky-core-hours

- **8-node GPU Cluster "21g"**
  Eight-GPU AMD MI100 nodes with Inter-GPU Infinity interconnect.
  32 GByte memory per GPU, 1 TByte memory per node.
  Each on 100g InfiniBand Fabric
  Type A allocatable = 51.7 k node-hours = 0.41 M MI100-GPU-hours = 53.8 Sky-core-hours

- **Short-term Storage:**
  1.0 PB total shared disk space for LQCD, as detailed below, and 1.0 PB of tape storage:

- **Write-through cache:** this is never full and data are auto-migrated to tape, with the disk copy automatically deleted as needed. Thus this consumes tape resources.
- **Volatile:** this is never full, with least recently used data auto deleted.
- **"work"**: a user-managed area of limited size that is not backed up.

Both the cache and volatile are able to burst above managed quotas when needed. Note that requested disk space must include anything already present on disk that should be kept on disk.

For further information see https://lqcd.jlab.org.

The following table is used to convert the different platforms to Sky-core-hours:

1 KNL-core-hour = 0.563 Sky-core-hours
1 K80-GPU-hour = P100-GPU-hour = 33.25 Sky-core-hours
1 RTX2080-GPU-hour = 0.65 K80-GPU-hour = 21.6 Sky-core-hours

We expect
1 MI100-GPU-hour $\approx$ 130 Sky-core-hours

The above numbers are based on appropriate averages of asqtad, DWF fermion, and Clover inverters, whilst the conversion of GPU to Sky-core-hours is based on the average of application performance on user jobs across all GPU systems at BNL, FNAL and JLab. The KNL and GPU allocations use KNL-core-hours, and K80-GPU-hours and RTX2080-GPU-hours as appropriate; the conversion to Sky-core-hours is shown for reference, but is application dependent.

3 Procedures

This section describes the USQCD allocation procedures. All members of the USQCD Collaboration are eligible to submit proposals[1]. Requests for computing time can be of three types:

A) Requests for potentially large amounts of time for calculations which address the scientific needs of the collaboration or support calculations of benefit for the whole USQCD Collaboration. There is no minimum size to the request. Allocations are for one year.

[1]Those interested in joining the Collaboration should contact Andreas Kronfeld (ask@fnal.gov)

B) Requests for medium amounts of time on USQCD dedicated resources intended to support calculations in an early stage of development which address, or have the potential to address the scientific needs of the collaboration. There is no maximum, but the request is encouraged to be below 500 k Sky-core-hours or less on clusters, or 25 K K80-GPU-hours or less on GPU clusters. Allocations are for up to 6 months.

C) Requests for exploratory calculations, such as those needed to develop and/or benchmark code, acquire expertise on the use of the machines, or to perform investigations of limited scope. The amount of time used by such projects should not exceed 20 K Sky-core-hours on clusters 2 K GPU-hours on the K80 or RTX GPU clusters.

Requests of Type A and B must be made in writing to the Scientific Program Committee and are subject to the policies spelled out below. Requests of Type A should be submitted via the **2022 USQCD Proposal Submission Form** described in section 4.1 and must be received by the deadline listed in section 1.

Requests of Type B can be made anytime of the year, and will start in the nearest month. A PDF file of the proposal should be sent by email to the chair of the SPC, currently Tanmoy Bhattacharya (tanmoy@lanl.gov).

Requests of Type C should be made in an e-mail message to
James Simone (simone@fnal.gov) for computing at FNAL,
Peter Boyle (pboyle@bnl.gov) for computing at BNL,
Robert Edwards (edwards@jlab.org) for computing at JLAB.

For requests and awards on Skylake clusters, the Scientific Program Committee will use "Sky-core-hours" as a common unit. Requests and awards for KNL clusters are in terms of "KNL-core-hours", and "K80-GPU-hours" and "RTX2010-GPU-hours" are used for requests and awards on GPU clusters, reflecting the quite different properties of each GPU cluster. Conversion factors for the various platforms are given in section 2.

USQCD has adopted a policy to encourage even use of allocations throughout the year. The policy encourages early use of resources in the first calendar quarter and requires projects with Type A allocations to use some of their allocation in the first calendar quarter. A detailed statement of the rules for the 2019-2020 allocations is posted on the USQCD website and available from the following link: `https://www.usqcd.org/jeopardy.pdf`.

Requests for long-term storage must be made in writing to the SPC via the **2022 USQCD Long-Term Storage Proposal Submission Form** desribed in section 4.2 and must also be received by the deadline listed in Sec. 1. They are subject to the policies spelled out below.

3.1 Policy directives

USQCD has adopted the following policies for proposals and awards of Type A and B:

1) Proposals of Type A are for large scale investigations, which may require a substantial fraction of the available resources. Proposals of Type B are intended for investigations at an early stage of development, and are smaller in size. There is no strict lower limit for the resources requested in Type A proposals, and no strict upper limit on Type B Proposals. However, Type B requests for significantly more than 500 k Sky-core-hours on Skylake or KNL clusters, or more than 25 k GPU-hours on the K80 and RTX GPU clusters will receive more scrutiny.

2) All Type A and B proposals are expected to address the scientific needs of the USQCD Collaboration. Proposals of Type A are for investigations that benefit the whole USQCD Collaboration. Thus, it is expected that the calculations will either produce data, such as lattice gauge fields or quark propagators, that can be used by the entire Collaboration, or that the calculations produce physics results listed among the Collaboration's strategic goals.

   Accordingly, proponents planning to generate multi-purpose data must describe in their accompanying DMP what data will be made available to the whole Collaboration, and how soon, and specify clearly what physics analyses they would like to perform in an "exclusive manner" on these data (see below), and the expected time to complete them, in accordance with the USQCDSP referenced earlier.

   Similarly, proponents planning important physics analyses should explain how the proposed work meets USQCD's strategic goals and how its results would interest the broader physics community.

3) Proposals of Type B are not required to share data, although if they do so it is a plus. Type B proposals may also be scientifically valuable even if not closely aligned with USQCD goals. In that case the proposal should contain a clear discussion of the physics motivations. If appropriate, Type B proposals may discuss strategic importance in the narrative, and their data-sharing strategy in their DMP, as in the case of Type A proposals.

4) The SPC needs to be reasonably confident that the resources will be used efficiently in the proposed project. Projects that employ new software or on new hardware must include information in the proposal to show that it performs efficiently on its target platform(s). Information on portability is welcome, but not mandatory.

5) Requests for total long-term storage needs smaller than 10 TBytes will not be considered.

6) All long-term storage proposals are expected to address the scientific needs of the USQCD Collaboration. Accordingly, the proposal must describe in the accompanying DMP what data will be made available to the whole Collaboration, and how soon, and specify clearly what physics analyses they would like to perform in an "exclusive manner" on these data (see below), and the expected time to complete them, in accordance with the USQCDSP referenced earlier. The justification should try to explain the benefit of the long-term storage to the HEP community, the NP community, or both.

7) The data that will be made available to the whole Collaboration must be released promptly. "Promptly" should be interpreted with common sense and in accordance with the USQCDSP. Lattice gauge fields, Dirac-operator eigenvectors and other large datafiles do not have to be released as they are produced, especially if the group is still testing the production environment. On the other hand, it is not considered reasonable to delay release of, say, 444 files, just because the last 56 will not be available for a few months. After a period during which such data will remain for the exclusive use of the members of the USQCD Collaboration, and possibly of members of other collaborations under reciprocal agreements, the data will be made available worldwide as decided by the Executive Committee (EC).

8) The USQCD Collaboration recognizes that the production of shared data will generally entail a substantial amount of work by the investigators generating the data. They should therefore be given priority in analyzing the data, particularly for their principal physics interests. Thus, proponents are encouraged to outline in their DMP a set of physics analyses that they would like to carry out with these data in an exclusive manner and the amount of time that they would like to reserve to themselves to complete such calculations.

   When using the shared data, all other members of the USQCD collaboration agree to respect such exclusivity. Thus, they shall refrain from using the data to reproduce the reserved or closely similar analyses. In its evaluation of the proposals, the SPC will in particular examine the requests for exclusive use of the data and will ask the proposers to revise the DMP in case the request was found too broad or excessive in any other form. Once an accepted proposal has been posted on the Collaboration website, it should be deemed by all parties that the request for exclusive use has been accepted by the SPC. Any dispute that may arise about the use of such data will have to be directed to the SPC for resolution and all members of the Collaboration should abide by the decisions of this Committee.

9) The investigators whose proposals have been selected by the Scientific Program Committee for a possible award of USQCD resources shall agree to have their proposals posted on a password protected website, available only to our Collaboration, for consideration during the All Hands' Meeting.

10) All types of proposals are specifically encouraged from "Junior Scientists", i.e.,

from graduate students for their thesis work under USQCD mentors, and from postdocs for projects they develop or lead.

4 Proposal format

4.1 Compute Proposal

The proposals should contain a title page with the title, abstract, and a complete author list, which should include all participating investigators and their affiliations. Proposals from "Junior Scientists", i.e., from graduate students for their thesis work under USQCD mentors, and from postdocs for projects they develop or lead, should mention this on the title page, along with the name of the graduate student mentor when applicable. For proposals of Type A, the body, including bibliography and embedded figures, should not exceed 12 pages in length, with a font size of 11pt or larger. If necessary, further figures, with captions but without text, can be appended, for a maximum of 8 additional pages. Proposals of Type B should not be longer than about 6 pages. For proposals of both Type A and Type B, the option of an abbreviated form for *continuation proposals* is available, as described later in this section. Resumes, Curricula Vitae, publication lists and similar personal information are not requested and should not be included in the submission of any proposal for USQCD resources. The title page, proposal narrative and optional appended figures should be combined into a single PDF file. All proposals must be accompanied by a DMP as a single, separate PDF file.

For proposals for compute-time, the last sentence of the abstract should state the amount of computer time requested in units of Sky-core-hours for Sky and Cascade Lake clusters, KNL-core-hours for KNL clusters, and in units of K80-GPU-hours and RTX2080-GPU-hours as appropriate for GPU clusters, the amount of long-term storage requested, in addition to the short-term disk and tape storage needs in TBytes. The body of the proposal should contain the following information, if possible in the order below:

1) The physics goals of the calculation.

2) The computational strategy, including such details as gauge and fermionic actions, parameters, computational methods.

3) The software used, including a description of the main algorithms and the code base employed. The proposal should provide enough information to show that the code base performs efficiently on its target platform(s), especially when the software is new to the hardware. Information on portability is welcome, but not mandatory.

4) The amount and type of resources requested. Here one should also state which machine is most desirable and why. If a Type A proposal requests time on more than one platform, it should include a description of how the various parts of the proposed work will be split up among the different platforms. If relevant, proposals of Type A should indicate longer-term computing needs here.

   In addition to computing time, proposals must specify their storage needs. In particular, Type A proposals should state in Tbytes how much tape and disk storage is already in use, and how much new disk and tape storage is needed. In addition, the storage request should also be restated in Sky-core-hours, using the following conversion factors, which reflect the current replacement costs for disk storage and tapes:

   1 Tbyte disk = 7.5 K Sky-core-hour
   1 Tbyte tape = 1.3 K Sky-core-hour

   Projects using disk storage will be charged 25% of these costs every three months. Projects will be charged for tape usage when a file is written at the full cost of tape storage; when tape files are deleted, they will receive a 40% refund of the charge.

   Projects that expect to have large I/O requirements, such as those that use eigenvalue and deflation methods, are requested to note that in their proposal and to work with the site managers to handle these needs as painlessly as possible.

5) Readiness and anticipated run schedule: Are the codes and scripts ready for production running? If not, what is the anticipated time frame for the start of the runs? Type A proposals need to provide a plan for a quarterly run schedule.

Continuation Proposals

Recognising the considerable burden in writing a proposal, projects that received USQCD resources last year may submit an abbreviated narrative that refers back to last year's proposal for the motivation, science case, goals, methods and codes, as appropriate in sections 1)-3) above. This should be prominently stated in both the abstract and introduction of the proposal. Continuation proposals that use this option must, however, include the following information:

1. accomplishments of the project in the past year(s)
2. description of changes in the methodology or codes used, if any, and the reasons for these changes
3. specific goals of the project for the new allocation year and how they fit into the overall goals of the project

The other sections of the proposal, including a detailed justification of the requested resources, should be the same as for new proposals.

Both new and continuing proposals should include in the DMP a discussion of Data sharing and exclusive rights (for Type A proposals). In particular, if relevant, what data will be made available to the entire Collaboration, and the schedule for sharing it. What calculations the investigators would like to perform in an"exclusive manner" (see section 3.1), and for how long they would like to reserve to themselves this exclusive right.

The Scientific Program Committee will use a web interface for Type A proposals:

2022 USQCD proposal submission form

The form includes PDF file uploads for the proposal file, and for the DMP file, and requests the following summary information:

i. Proposal PI (Last Name, First Name)

ii. PI Institution

iii. Computational resource request for:

   a. CPU time (in M Sky-core-hours)
   b. KNL time (in M KNL-core-hours)
   c. GPU time (in k K80-GPU-hours)
   d. GeForce GPU time (in k RTX2080-GPU-hours)

iv. Short-term disk and tape storage (in Tbytes)

   a. to be carried forward from a previous allocation
   b. to be created new this year

v. Quarterly run plan for each requested resource (CPU, GPU, KNL) as a percentage of the total request for that resource

vi. Site preferences

4.2 Storage Proposal

The proposals should contain a title page with the title, abstract, and a complete author list, which should include all participating investigators, their affiliations, and, where appropriate, a collaboration name. The body, including bibliography

and embedded figures, should not exceed 4 pages in length, with a font size of 11pt or larger. Resumes, Curricula Vitae, publication lists and similar personal information are not requested and should not be included in the submission of any proposal for USQCD resources. The title page, proposal narrative and optional appended figures should be combined into a single PDF file. All proposals must be accompanied by a DMP as a single, separate PDF file.

The last sentence of the abstract should state the amount of long-term (tape) storage in TBytes, as well as any temporarty staging disk needs also in TBytes.

The body of the proposal should contain the following information, if possible in the order below:

1) A few-sentence description of the datasets.

2) Ratios of the cost to re-compute vs. store the data, using 1 Tbyte tape = 1,300 Sky-core-hour.

3) The amount of storage requested. Here tables disentangling the needs and relative (re-compute/store) costs of distinct datasets, e.g., ensemble by ensemble or data-type by data-type, will be helpful.

4) Lists of the calculations that have been carried out, are in progress, and are yet to be performed on the datasets, together with the collaborations or principal investigators responsible.

5) Readiness and urgency to move the data to long-term storage. This information is especially important when moving data from an external site or from one USQCD site to another. For data being generated, this should indicate the amount of data that needs to be moved to storage each month. It should also state if the data already exists on tape, and at which facility.

Proposals for long-term storage that are already in place need only submit an abbreviated supplemental request for the period January–June to bring them in sync with the standard allocation cycle.
As with the DMP for Type A computing proposals, the DMP for a storage proposal should include a discussion of data sharing and exclusive rights. In particular, if relevant, what data will be made available to the entire Collaboration, and the schedule for sharing it. What calculations the investigators would like to perform in an"exclusive manner" (see section 3.1), and for how long they would like to reserve to themselves this exclusive right. A storage proposal may, and often should, share a DMP with a (series of) Type A proposals.

The SPC will use a web interface for storage proposals:

2022 Storage Proposals Form

The form includes PDF file uploads for the proposal file, and for the DMP file, and requests the following summary information:

i. Proposal PI (Last Name, First Name)

ii. PI Institution

iii. Requests for:

   a. Long-term tape storage (in Tbytes)
   b. Short-term staging disk storage (in Tbytes)

iv. Quarterly timetable for moving data into storage.

v. Site preferences.

5 Awards procedure

The Scientific Program Committee will receive proposals until the deadline. Each proposal will be read in detail by two members of the SPC, chosen by the chair to minimize conflicts of interest, who will then lead the discussion of the proposal by the SPC as a whole. Following this preliminary assessment, and in accord with the time line outlined earlier, the SPC will send a report to the proponents which may include a request for additional information or clarification.

Following the All Hands' Meeting, the SPC will determine a set of recommendations on the awards. Each member of the SPC will independently draft a possible allocation of resources based on the total available, and the aggregate of these allocations will form the basis for the discussion of the final recommendation. Note that members of the SPC will exclude from their independent allocations proposals on which they are participants, and refrain from commenting on such proposals. The scientific quality of the proposal, the computational appropriateness, the proponents' response to questions posed in the written report, the need to maintain a balanced physics portfolio, alignment with the DOE HEP and NP programs, and the views of the Collaboration expressed at the All Hands' Meeting will all influence the outcome.

The SPC will send its recommendations to the Executive Committee after the All Hands' Meeting, and inform the proponents once the recommendations have been accepted by the Executive Committee. The successful proposals and the size of their awards will be posted on the web.

Scientific publications describing calculations carried out with these awards should acknowledge the use of USQCD resources, by including the following sentence in the acknowledgments:

"*The research reported in this work made use of computing and long-term storage facilities of the USQCD Collaboration, which are funded by the Office of Science of the U.S. Department of Energy.*"

Projects that useonly USQCD's computation or long-term storage should omit the appropriate phrase in *computing and long-term storage*.