PROGRAM ANNOUNCEMENT
TO DOE NATIONAL LABORATORIES

U. S. Department of Energy
Office of Science
High Energy Physics (HEP)
Advanced Scientific Computing Research (ASCR)

Scientific Discovery through Advanced Computing:
High Energy Physics

DOE National Laboratory Announcement Number: LAB 17-1697
Announcement Type: Initial

Issue Date:	**11/4/2016**
Letter of Intent Due Date:	**1/17/2017 at 5 PM Eastern Time**
Proposal Due Date:	**02/27/2017 at 5 PM Eastern Time**

Table of Contents

REGISTRATIONS I

UPDATES AND REMINDERS III

SECTION I – DOE NATIONAL LABORATORY OPPORTUNITY DESCRIPTION 1

SECTION II – AWARD INFORMATION 7

A. TYPE OF AWARD INSTRUMENT 7

B. ESTIMATED FUNDING 7

C. MAXIMUM AND MINIMUM AWARD SIZE 7

D. EXPECTED NUMBER OF AWARDS 7

E. ANTICIPATED AWARD SIZE 7

F. PERIOD OF PERFORMANCE 8

G. TYPE OF PROPOSAL 8

SECTION III – ELIGIBILITY INFORMATION 9

A. ELIGIBLE APPLICANTS AND TOPICS 9

B. COST SHARING 9

C. ELIGIBLE INDIVIDUALS 9

SECTION IV – PROPOSAL AND SUBMISSION INFORMATION 10

A. ADDRESS TO REQUEST PROPOSAL PACKAGE 10

B. LETTER OF INTENT AND PRE-PROPOSAL 10

C. CONTENT AND PROPOSAL FORMS 10

D. SUBMISSIONS FROM SUCCESSFUL APPLICANTS 20

E. SUBMISSION DATES AND TIMES 20

F. FUNDING RESTRICTIONS 20

G. OTHER SUBMISSION AND REGISTRATION REQUIREMENTS 21

SECTION V - PROPOSAL REVIEW INFORMATION 22

A. CRITERIA 22

B. REVIEW AND SELECTION PROCESS 22

C. ANTICIPATED NOTICE OF SELECTION AND AWARD DATES 24

SECTION VI - AWARD ADMINISTRATION INFORMATION 25

A. AWARD NOTICES 25

B. REPORTING 25

SECTION VII - QUESTIONS/AGENCY CONTACTS....26
A. QUESTIONS....26
B. AGENCY CONTACTS....26
SECTION VIII - OTHER INFORMATION....27
A. MODIFICATIONS....27
B. GOVERNMENT RIGHT TO REJECT OR NEGOTIATE....27
C. COMMITMENT OF PUBLIC FUNDS....27
D. PROPRIETARY PROPOSAL INFORMATION....27
E. EVALUATION AND ADMINISTRATION BY NON-FEDERAL PERSONNEL....27
F. AVAILABILITY OF FUNDS....28

REGISTRATIONS

A. DOE Office of Science Portfolio Analysis and Management System (PAMS)

The DOE Office of Science performs many functions for DOE national laboratory proposals in the Portfolio Analysis and Management System (PAMS), which is available at https://pamspublic.science.energy.gov.

There are many activities that you can perform in PAMS, and more functionality will be added throughout the near future. DOE national laboratories will submit pre-proposals, letters of intent, and proposals directly into PAMS.

You must register in PAMS to submit a pre-proposal, letter of intent, or DOE national laboratory proposal.

To access PAMS, you may use the Internet Explorer, Firefox, Google Chrome, or Safari browsers.

Notifications sent from the PAMS system will come from the PAMS email address <PAMS.Autoreply@science.doe.gov>. Please make sure your email server/software allows delivery of emails from the PAMS email address to yours.

Registering to PAMS is a two-step process; once you create an individual account, you must associate yourself with ("register to") your institution. Detailed steps are listed below.

1. CREATE PAMS ACCOUNT:

To register, click the "Create New PAMS Account" link on the website https://pamspublic.science.energy.gov/.

- Click the "No, I have never had an account" link and then the "Create Account" button.
- You will be prompted to enter your name and email address, create a username and password, and select a security question and answer. Once you have done this, click the "Save and Continue" button.
- On the next page, enter the required information (at least one phone number and your mailing address) and any optional information you wish to provide (e.g., FAX number, website, mailstop code, additional email addresses or phone numbers, Division/Department). Click the "Create Account" button.
- Read the user agreement and click the "Accept" button to indicate that you understand your responsibilities and agree to comply with the rules of behavior for PAMS.
- PAMS will take you the "Having Trouble Logging In?" page. (Note: If you reviewed for or were listed as PI on a prior submission to the Office of Science but have not previously created an account, you may already be linked to an institution in PAMS. If this is the case, PAMS will take you to the PAMS home page.)

2. REGISTER TO YOUR INSTITUTION:

- Click the link labeled "Option 2: I know my institution and I am here to register to the institution." (Note: If you previously created a PAMS account but did not register to an institution at that time, you must click the Institutions tab and click the "Register to Institution" link.)
- PAMS will take you to the "Register to Institution" page.
- Type a word or phrase from your institution name in the field labeled, "Institution Name like," choose the radio button next to the item that best describes your role in the system, and click the "Search" button. A "like" search in PAMS returns results that contain the word or phrase you enter; you need not enter the exact name of the institution, but you should enter a word or phrase contained within the institution name. (Hint: If your institution has an acronym, such as ANL for Argonne National Laboratory or UCLA for the Regents of the University of California, Los Angeles, you may search for the acronym under "Institution Name like." Many institutions with acronyms are listed in PAMS with their acronyms in parentheses after their names.)
- Find your institution in the list that is returned by the search and click the "Actions" link in the Options column next to the institution name to obtain a dropdown list. Select "Add me to this institution" from the dropdown. PAMS will take you to the "Institutions – List" page.
- If you do not see your institution in the initial search results, you can search again by clicking the "Cancel" button, clicking the Option 2 link, and repeating the search.
- All DOE National Laboratories have established profiles in PAMS, so please keep searching until you find your laboratory.

For help with PAMS, click the "External User Guide" link on the PAMS website, https://pamspublic.science.energy.gov/. You may also contact the PAMS Help Desk, which can be reached Monday through Friday, 9AM – 5:30 PM Eastern Time. Telephone: (855) 818-1846 (toll free) or (301) 903-9610, Email: sc.pams-helpdesk@science.doe.gov. All submission and inquiries about this DOE National Laboratory Announcement should reference **LAB 17-1697.**

UPDATES AND REMINDERS

RECOMMENDATION

The Office of Science encourages you to register in all systems as soon as possible. You are also encouraged to submit letters of intent, pre-proposals, and proposals before the deadline.

DATA MANAGEMENT PLAN

The Office of Science has published a new Statement on Digital Data Management, published at http://science.energy.gov/funding-opportunities/digital-data-management/, which governs applications submitted under this Announcement, and is detailed in Part IV of this Announcement.

ACKNOWLEDGMENT OF FEDERAL SUPPORT

The Office of Science published guidance about how its support should be acknowledged at http://science.energy.gov/funding-opportunities/acknowledgements/.

Section I – DOE NATIONAL LABORATORY OPPORTUNITY DESCRIPTION

GENERAL INQUIRIES ABOUT THIS ANNOUNCEMENT SHOULD BE DIRECTED TO:

Technical/Scientific Program Contacts:

Dr. Lali Chatterjee, High Energy Physics
301 903 0435
lali.chatterjee@science.doe.gov

Dr. Randall Laviolette, Advanced Scientific Computing Research
301 903 5195
Randall.laviolette@science.doe.gov

SUMMARY

High Energy Physics (HEP) [1] and Advanced Scientific Computing Research (ASCR) [2] within the Office of Science (SC), U.S. Department of Energy (DOE), hereby announce their interest in receiving five-year, multi-institutional proposals for Scientific Computational Partnerships in the area of Computational High Energy Physics to the Scientific Discovery through Advanced Computing (SciDAC) program.

This HEP-ASCR Announcement is part of the 2017 re-competition of the SciDAC Partnerships (SciDAC 4) for jointly funded and managed collaborations between particle physicists (sponsored by HEP) and applied mathematicians and/or computer scientists (sponsored by ASCR).

This Announcement is open to Laboratory-led, consortium computational partnership proposals submitted to the HEP-ASCR SciDAC 4 competition that conform to the guidelines detailed later in this Announcement.

Letters of Intent are required for this Announcement.

Please read carefully ALL the guidelines and criteria that follow.

SUPPLEMENTARY INFORMATION

Program Objective

The SciDAC program, a recognized leader in accelerating the use of high-performance computing to advance the state of knowledge in science applications involves all of the Office of Science (SC) Programs with a goal to dramatically accelerate progress in scientific computing through integrated collaborations between discipline scientists, applied mathematicians, and computer scientists. SciDAC Partnership projects between ASCR-funded mathematicians and

computer scientists and discipline scientists funded by the science programs have successfully developed computational solutions to science challenges across the SC Programs.

This Announcement invites new research proposals for HEP-ASCR Scientific Computational SciDAC 4 Partnerships in Computational High Energy Physics that enable and accelerate discovery along the HEP mission via computational Partnerships that facilitate advanced use of DOE HPC [3] and satisfy the guidelines outlined later in this Announcement.

The mission of the High Energy Physics (HEP) program is to understand how the universe works at its most fundamental level, which is done by discovering the elementary constituents of matter and energy, probing the interactions between them, and exploring the basic nature of space and time. Recent successes for HEP include the discovery of dark energy and the Higgs Boson.

The U.S. particle physics community's current vision for the future is embodied in the Particle Physics Project Prioritization Panel (P5) report [4] that presents a strategy for the next decade centered on five intertwined science drivers:

- Use the Higgs boson as a new tool for discovery;
- Pursue the physics associated with neutrino mass;
- Identify the new physics of dark matter;
- Understand cosmic acceleration: dark energy and inflation;
- Explore the unknown: new particles, interactions, and physical principles.

The HEP program implements the HEP mission and P5 science drivers through a program in particle physics that advances three frontiers (cosmic, energy, and intensity) of experimental scientific discovery and research in theory, computing, and technology.

Computing is an integral part of HEP scientific discovery and the 2014 HEP P5 report has drawn attention to computing and scientific software needs for research. These include the challenges of evolving computing architectures, increasing data volumes, and investments to exploit next generation hardware and computing models. Several community reports also articulate the projected shortfall in computing and data related resources across the HEP program.

Effective use of DOE HPC can help mitigate these challenges to some extent and there have been significant recent efforts towards use of HPC for data intensive experiments and experiment related simulations and event generators. Some HEP experiments along with the predictive simulations necessary for their data analysis display examples the convergence of simulation and observational data identified in the 2015 National Strategic Computing Initiative [5]. Use of HPC has also demonstrated notable success in calculating higher order effects in collisional processes and Monte Carlo simulations. Some accelerator modeling, cosmological simulations, and lattice QCD groups within HEP are established users of DOE HPC and have provided several success stories of the past SciDAC projects.

The challenges and needs noted above are present in all HEP frontiers and research thrusts funded by the science and technology sub programs. Responsibility for computing of individual experiments and research efforts lies with the HEP sub programs that fund them. However in many cases, solutions that apply to more than one HEP research thrust (i.e. that cross cut the

HEP research thrusts) or more than a single experiment are optimal and needed for cost effectiveness.

The goal of this HEP-ASCR SciDAC 4 partnership program is to facilitate advanced and effective use of DOE HPC by major ongoing HEP experiments along with related theory and simulation activities and current and near term accelerator projects, via appropriate partnerships between the HEP and ASCR communities. The HPC systems embody a computing landscape and related hardware-software-data management computing eco-system of the future [6] and computational partnership research areas encompasses these. The HEP- ASCR Partnerships must work collaboratively across HEP experiments and research areas to develop shared computing solutions to address future HEP computing challenges related to use of DOE HPC.

Lead Laboratories are strongly encouraged to engage University partners.

HEP-ASCR SciDAC 4 Guidelines

Scientific topics must focus on the P5 plan and its implementation within the experimental, theoretical, computational and/or technology paths of the HEP program and focus on current and near-term priorities.

Proposals must be organized consortium proposals with multiple institutional partners from HEP and ASCR communities that collaborate across HEP research thrusts and develop computational tools and algorithms for shared and cross cut use across HEP sub-areas or multiple experiments.

Proposals in support of single codes, or computational tools for single experiments or groups are **excluded** from this Announcement and will be declined without review.

Major data-intensive HEP experiments including their related simulations, as well as computing-intensive HEP research including accelerator modeling, theoretical, and computational physics are within the scope of this announcement. Partnerships that propose new research for HEP data-intensive experiments via coordinated campaigns for computational research that cross cut the HEP program are strongly encouraged. These may include innovative plans to better exploit CORI at NERSC and other DOE HPC architectures that foster data intensive computing.

Proposed computational research under this program should specify the new science that the research will make possible, how it is aligned to P5, and make the case why advanced computing and the SciDAC partnerships are needed for success.

We expect that the kind of interdisciplinary collaborations required by this solicitation should result in advances that would not have been accomplished by those same researchers working separately. The challenge of the effective employment of DOE HPC for scientific computing is one that confronts applied mathematicians, computer scientists, and discipline scientists. As Householder [7] observed more than sixty years ago, even a simple computation to be accomplished by a computing machine requires a profound understanding of both the mathematics of the problem and the potential sources of error.

We expect that these applied mathematicians or computer scientists, whose proposed contributions will be reviewed by their peers, would be those who have accomplished significant research in scientific computing on the most advanced high performance supercomputing systems. A record of funding from ASCR for such research, while not a prerequisite, may be regarded as evidence of relevant experience.

Some of the research conducted and expertise contributed by applied mathematicians would likely include, for example: Discretization methods for structured and unstructured grids; particle methods; multi-physics coupling techniques; direct, iterative, and multi-level solvers for linear & nonlinear systems; time integrators; resilient algorithms, adaptive error estimation and UQ (or UQ-aware) methods; scalability to million-way parallelism; algorithm and code interoperability. Computer scientists might be expected to conduct research and contribute to: Application performance modeling and benchmarking, tuning and analysis, code profiling and optimization; fault tolerance and resilience; management, analytics and visualization of massive and heterogeneous scientific data sets; usability and user experience; runtime systems, portable programming, advanced debugging capabilities and computational methods for hybrid, many and multi-core architectures; efficient use of new and emerging memory systems; workflow management, rapid prototyping, parallel I/O tools, and storage systems.

We would further expect that the research and contributions to the collaboration by applied mathematicians and computers scientists would be "architecture aware", i.e., the main architectural features of existing and planned computing environments include: heterogeneous nodes (e.g., CPUs + GPUs), deep memory hierarchies, and varying trade-off costs for computation versus data movement. Therefore the tools and methodologies for coping with and taking full advantage of such architectural complexities are an important practical consideration as well as coordination of the proposed capabilities with past work across disciplines. Furthermore, the applied mathematicians and computer scientists should be aware of and have plans to incorporate the software engineering best practices that can contribute to the productivity of software developers and the long-term maintainability of the software as the computational systems and science evolve over time. An important contributor to software productivity is code portability across the DOE HPC systems. It is important that best practices are tailored to fit within the constraints of the scientific problem of the proposal and that close interactions are formed between software engineering experts, scientific software developers and scientists. Some examples of exclusively ASCR funded past research via the SciDAC Institutes can be viewed at [8]

Laboratory-led Consortium Proposals responsive to this Announcement must:

1. Focus on computational advances for use of DOE HPC to accelerate discovery along the HEP Science drivers in the P5 Report and their implementation paths within the experimental, theoretical, computational, and/or technology thrusts of the HEP Program.
2. Effectively combine the science goals with the intellectual resources in particle physics, applied mathematics, and computer science communities (including expertise in algorithms and methods, and scientific software tools) via multi-institutional collaborations between particle physicists, applied mathematicians and computational

scientists.

3. Partnerships must be multi-institutional and engage multiple experiments or research areas within HEP.
4. Proposals must demonstrate integration across any sub sections of the proposed work and true collaboration across the inter-disciplinary scientists and the HEP sub area partnerships.
5. Proposals must submit suitable Data Management Plans and comply with the Management Plan and other guidelines provided below.
6. Must NOT be confined to single experiments or single community/group requirements.

Budgets and personnel

Proposals will request funds from both HEP and ASCR to meet proposed objectives (see also Management Plan). Budget details and bios of investigators to be funded should be included. Unfunded senior investigators are discouraged – other than in the form of external/associated Advisory Panels.

Proposals are strongly encouraged to engage university partners.

Computing Resources:

Proposals will not request computing resources; instead, the allocation of computing resources available to individual projects is contingent on review and award through the processes as described in [9] Within the available computational resources, every effort will be made to ensure that successful applications will have the resources needed to support their efforts.

Project Management Plan:

Proposals must include a project management plan that clearly indicates the roles and responsibilities of each organization and indicates how activities will be coordinated and communicated among team members. This section should describe the management structure, how effective collaborations among the participants will be fostered, how integration of computational and science efforts will be attained, and the timeline for all major activities including performance metrics and deliverables. The applicants must identify a management structure that enables an effective and fruitful collaboration among the participants. The structure and management must be sufficiently flexible to adapt quickly to changing technical challenges and scientific needs. To that end, the application must identify an overall Project Coordinator from among the principal investigators. Furthermore, the application should specify the requested level of support for each task. Typical duties, responsibilities and authorities for the Project Coordinator (who must be employed by the lead institution) include serving as the overall leader of the project and serving as the primary contact responsible for communications with the DOE program managers on behalf of all of the principal investigators. The Project Coordinator may also appoint Science and Computational leaders within the project; all other Senior/Key Personnel and their roles must be identified. The management plan

must specify a timeline that will allow progress and contributions to be measured over the course of the research. For example, these could take the form of milestones for progress in the various components of the research. The lead institution's proposal must include the summary level budget and task tables.

The management plan should describe how they will develop and maintain a project website and how they will disseminate results and test tools that they develop.

References.

[1] http://science.energy.gov/hep/research/
[2] http://science.energy.gov/ascr/research/
[3] http://science.energy.gov/~/media/ascr/pdf/facilities/ASCR_Computiing_Facility_Upgrades.pdf
[4] http://science.energy.gov/~/media/hep/hepap/pdf/May-2014/FINAL_P5_Report_Interactive_060214.pdf
[5] https://www.whitehouse.gov/the-press-office/2015/07/29/executive-order-creating-national-strategic-computing-initiative
[6] https://arxiv.org/abs/1603.09303
[7] Householder, Alton S. *Principles of Numerical Analysis*. McGraw-Hill, New York (1953).
[8] http://www.scidac.gov/institutes.html.
[9] http://science.energy.gov/ascr/facilities/allocation-policy.

See IV.B for Letter of Intent instructions.

Section II – AWARD INFORMATION

A. TYPE OF AWARD INSTRUMENT

DOE anticipates awarding laboratory work authorizations under this DOE National Laboratory Program Announcement.

Any awards made under this Announcement will be subject to the provisions of the contract between DOE and the awardee National Laboratory.

B. ESTIMATED FUNDING

Total funding of up to $25,000,000 (total from both program offices) is expected to be made available for awards under this LAB Announcement contingent on satisfactory peer review and the availability of appropriated funds. Applicants should request project support for up to five years. Following the first year award, out-year support will be contingent on the availability of appropriated funds, progress of the research, and programmatic needs. Awards are expected to begin in fiscal year 2017. Funding for the final two years is contingent upon satisfactory completion of a progress assessment during the third year of each project. The format of this assessment will be determined by HEP and ASCR and will be communicated to the Principal Investigators during the beginning of the third year of each project.

DOE is under no obligation to pay for any costs associated with the preparation or submission of any proposal. DOE reserves the right to fund, in whole or in part, any, all, or none of the proposals submitted in response to this DOE National Laboratory Announcement.

C. MAXIMUM AND MINIMUM AWARD SIZE

(See B. Estimated Funding section above.)

The following total funding limits are specified for consortium proposals:

Ceiling
$2,000,000 per year

Floor
$500,000 per year

D. EXPECTED NUMBER OF AWARDS

(See B. Estimated Funding Section above.)

The exact number of awards will depend on the number and size of meritorious proposals and the availability of appropriated funds.

E. ANTICIPATED AWARD SIZE

(See B. Estimated Funding Section above.)

The award size will depend on the number and amount of meritorious proposals and the availability of appropriated funds.

F. PERIOD OF PERFORMANCE

(See B. Estimated Funding section above.)

Research Awards are expected to be made for a period of five years.

G. TYPE OF PROPOSAL

DOE will accept new DOE National Laboratory Proposals under this DOE National Laboratory Announcement. Please only submit a PAMS lab technical proposal in response to this Announcement; do not submit a DOE Field Work Proposal (FWP) at this time. The Office of Science will request FWPs later from those selected for funding consideration under this Announcement.

Section III – ELIGIBILITY INFORMATION

A. ELIGIBLE APPLICANTS AND TOPICS

This is a DOE National Laboratory-only Announcement. FFRDCs from other Federal agencies are not eligible to submit in response to this Program Announcement.

B. COST SHARING

Cost sharing is not required.

C. ELIGIBLE INDIVIDUALS

Eligible individuals with the skills, knowledge, and resources necessary to carry out the proposed research as a Lead Principal Investigator/Principal Investigator are invited to work with their organizations to develop a proposal. Individuals from underrepresented groups as well as individuals with disabilities are always encouraged to apply.

Section IV – PROPOSAL AND SUBMISSION INFORMATION

A. ADDRESS TO REQUEST PROPOSAL PACKAGE

Proposal submission instructions are available in this Announcement on the DOE Office of Science Portfolio Analysis and Management System (PAMS). Screenshots showing the steps in DOE National Laboratory proposal submission are available in the PAMS External User Guide, accessible by navigating to https://pamspublic.science.energy.gov and clicking on the "PAMS External User Guide" link.

Proposals submitted outside of PAMS will not be accepted.

B. LETTER OF INTENT AND PRE-PROPOSAL

1. Letter of Intent

LETTER OF INTENT DUE DATE
See Section IV, Part E.

A Letter of Intent is **required** and must be submitted by the deadline in Section IV, Part E.

The LOI is to help in planning the review and the selection of potential reviewers for the proposal. The LOI must include the following:

- the planned title of the research proposal; the name, e-mail address, and telephone number of the Project Coordinator, additional Senior Investigator(s), and Senior/Key personnel expected to be involved in the planned proposal
- List the expected number and names of collaborating institutions and names and positions of the institutional Principal Investigators s
- Provide a short summary of the proposed work
- The total LOI is restricted to a length of 2 pages total

All submission and inquiries about this Laboratory Announcement should reference LAB 17-1697

C. CONTENT AND PROPOSAL FORMS

PROPOSAL DUE DATE
See Section IV, Part E.

RESUBMISSION OF PROPOSALS

Proposals submitted under this Announcement may be withdrawn from consideration by using the Office of Science's PAMS website at https://pamspublic.science.energy.gov. Proposals may be withdrawn at any time between when the Laboratory submits the application and when DOE makes the application available to merit reviewers. Such withdrawals take effect immediately and cannot be reversed.

After a proposal is withdrawn, it may be resubmitted, if this Announcement is still open for the submission of applications. Such resubmissions will only count as one submission if this Announcement restricts the number of proposals from an applicant.

The Office of Science will usually consider the last submission, according to its timestamp, to be the intended version. Please consult with your program manager to resolve any confusion about which version of a proposal should be considered.

IMPROPER CONTENTS OF PROPOSALS

Proposals submitted under this Announcement will be stored in controlled-access systems, but they may be made publicly available if an award is made, and they will be made available to merit reviewers. As such, it is critical that Laboratories follow these guidelines:

- Do not include information subject to any legal restriction on its open distribution, whether classified, export control, or unclassified controlled nuclear information.
- Do not include personally identifiable information, including social security numbers, birthdates, citizenship, marital status, or home addresses. Pay particular attention to the content of biographical sketches and curriculum vitae.
- Do not include letters of support from Federal officials.
- Do not include letters of support on Federal letterhead. Letters that are not letters of support (such as letters confirming access to sites, facilities, equipment, or data; or letters from cognizant contracting officers) may be on Federal letterhead.
- Clearly mark all proprietary or trade-secret information.

LETTERS

The proposal must include letters of commitment from the institutions participating in the proposed work. Nevertheless, **please do not solicit nor include letters of support from anyone who is not a participant in the proposal**.

1. Summary of Proposal Contents and Information about PAMS

Each DOE National Laboratory proposal will contain the following sections:

- Budget, entered into PAMS as structured data using the PAMS budget form
- Abstract (one page), entered into PAMS as a separate pdf
- Budget justification, entered into PAMS as a separate pdf
- Proposal, combined into a single pdf containing the following information:
    - Proposal Cover Page
    - Table of Contents
    - Project Narrative (main technical portion of the proposal, including background/introduction, proposed research and methods, timetable of activities, and responsibilities of key project personnel – 25 page limit)
    - Appendix 1: Biographical Sketch(es)
    - Appendix 2: Current and Pending Support
    - Appendix 3: Bibliography and References Cited

- Appendix 4: Facilities and Other Resources
- Appendix 5: Equipment
- Appendix 6: Data Management Plan
- Appendix 7: Other Attachments (optional)

SUBMISSION INSTRUCTIONS

Full proposals must be submitted into the DOE Office of Science Portfolio Analysis and Management System (PAMS). For help with PAMS, click the "External User Guide" link on the PAMS website, https://pamspublic.science.energy.gov/. You may also contact the PAMS Help Desk, which can be reached Monday through Friday, 9:00 AM – 5:30 PM Eastern Time. Telephone: (855) 818-1846 (toll free number) or (301) 903-9610, Email: sc.pams-helpdesk@science.doe.gov. All submissions and inquiries about this Program Announcement should reference **LAB 17-1697.** Full proposals submitted in response to this Program Announcement must be submitted to PAMS no later than **2/27/2017**, at 5:00 PM Eastern Time.

2. Detailed Contents of the Proposal

BUDGET AND BUDGET EXPLANATION

The budget must be submitted into PAMS using the PAMS budget form. Research proposed under this Announcement may only have one annual budget period.

PAMS will calculate the cumulative budget totals for you.

A written justification of each budget item is to follow the budget pages. The budget justification should be placed in a separate, single pdf document and attached on the appropriate screen in PAMS. Further instructions regarding the budget and justification are given below and in the PAMS software.

PROJECT SUMMARY/ABSTRACT (NO MORE THAN ONE PAGE)

The project summary/abstract must contain a summary of the proposed activity suitable for dissemination to the public. It should be a self-contained document that identifies the name of the applicant, the Principal Investigator (PI), the project title, the objectives of the project, a description of the project, including methods to be employed, the potential impact of the project (i.e., benefits, outcomes). This document must not include any proprietary or sensitive business information as the Department may make it available to the public. The project summary must not exceed 1 page when printed using standard 8.5" by 11" paper with 1" margins (top, bottom, left and right) with font not smaller than 11 point. The one-page project summary/abstract should be placed in a separate, single pdf document and attached on the appropriate screen in PAMS.

The abstract may be used to prepare publicly accessible reports about DOE-supported research.

DOE COVER PAGE
(PART OF PROJECT NARRATIVE)

The following proposal cover page information may be placed on a plain page. No form is required. This cover page will not count in the project narrative page limitation.

- The project title:
- Applicant/Institution:
- Street Address/City/State/Zip:
- Postal Address:
- Administrative Point of Contact name, telephone number, email:
- Lead PI name, telephone number, email:
- DOE National Laboratory Announcement Number: **LAB 17-1697**
- DOE/Office of Science Program Office: **High Energy Physics**
- DOE/Office of Science Program Office Technical Contact: **Dr. Lali Chatterjee**
- PAMS Letter of Intent Tracking Number**:**
- Research area (site) identified in Section I of this Announcement

PROJECT NARRATIVE (NO MORE THAN 25 PAGES LONG)

The project narrative **must not exceed 25 pages** of technical information, including charts, graphs, maps, photographs, and other pictorial presentations, when printed using standard 8.5" by 11" paper with 1 inch margins (top, bottom, left, and right). The font must not be smaller than 11 point. Merit reviewers will only consider the number of pages specified in the first sentence of this paragraph. This page limit does not apply to the Cover Page, Budget Page(s), Budget Justification, biographical material, publications and references, and appendices, each of which may have its own page limit.

Do not include any Internet addresses (URLs) that provide supplementary or additional information that constitutes a part of the proposal. Merit reviewers are not required to access Internet sites; however, Internet publications in a list of references will be treated identically to print publications. See Part VIII.D for instructions on how to mark proprietary proposal information. To attach a Project Narrative, click "Add Attachment."

Background/Introduction: Explanation of the importance and relevance of the proposed work as well as a review of the relevant literature.

Proposed Research and Methods: Identify the hypotheses to be tested (if any) and details of the methods to be used including the integration of experiments with theoretical and computational research efforts.

Timetable of Activities: Timeline for all major activities including milestones and deliverables.

Project Management Plan: Consortium proposals must include a project management plan that clearly indicates the roles and responsibilities of each organization and indicates how activities will be coordinated and communicated among team members. The plan must include information about dissemination of results and other requirements listed in supplementary

information.

Project Objectives: This section should provide a clear, concise statement of the specific objectives/aims of the proposed project.

The Project Narrative comprises the research plan for the project. It should contain enough background material in the Introduction, including review of the relevant literature, to demonstrate sufficient knowledge of the state of the science. The major part of the narrative should be devoted to a description and justification of the proposed project, including details of the method to be used. It should also include a timeline for the major activities of the proposed project, and should indicate which project personnel will be responsible for which activities. There should be no ambiguity about which personnel will perform particular parts of the project, and the time at which these activities will take place.

Do not include any Internet addresses (URLs) that provide supplementary or additional information that constitutes a part of the proposal. Using Internet sites in an attempt to avoid page limits will fail: The content of those sites will not be reviewed. See Part VIII.D for instructions on how to mark proprietary proposal information.

APPENDIX 1: BIOGRAPHICAL SKETCH

Provide a biographical sketch for the project director/principal investigator (PD/PI) and each senior/key person as an appendix to your technical narrative. As part of the sketch, provide information that can be used by reviewers to evaluate the PI's potential for leadership within the scientific community. Examples of information of interest are invited and/or public lectures, awards received, scientific program committees, conference or workshop organization, professional society activities, special international or industrial partnerships, reviewing or editorship activities, or other scientific leadership experiences. The biographical information (curriculum vitae) must not exceed 3 pages when printed on 8.5" by 11" paper with 1 inch margins (top, bottom, left, and right) with font not smaller than 11 point and must include the following:

Education and Training: Undergraduate, graduate and postdoctoral training; provide institution, major/area, degree and year.

Research and Professional Experience: Beginning with the current position list, in chronological order, professional/academic positions with a brief description.

Publications: Provide a list of up to 10 publications most closely related to the proposed project. For each publication, identify the names of all authors (in the same sequence in which they appear in the publication), the article title, book or journal title, volume number, page numbers, year of publication, and website address if available electronically. Patents, copyrights and software systems developed may be provided in addition to or substituted for publications. An abbreviated style such as the Physical Review Letters (PRL) convention for citations (list only the first author) may be used for publications with more than 10 authors.

Synergistic Activities: List no more than 5 professional and scholarly activities related to the effort proposed.

Identification of Potential Conflicts of Interest or Bias in Selection of Reviewers: Provide the following information in this section:

- **Collaborators and Co-editors**: List in alphabetical order all persons, including their current organizational affiliation, who are, or who have been, collaborators or co-authors with you on a research project, book or book article, report, abstract, or paper during the 48 months preceding the submission of this proposal. For publications or collaborations with more than 10 authors or participants, only list those individuals in the core group with whom the Principal Investigator interacted on a regular basis while the research was being done. Also, list any individuals who are currently, or have been, co-editors with you on a special issue of a journal, compendium, or conference proceedings during the 24 months preceding the submission of this proposal. If there are no collaborators or co-editors to report, state "None."
- **Graduate and Postdoctoral Advisors and Advisees**: List the names and current organizational affiliations of your graduate advisor(s) and principal postdoctoral sponsor(s). Also, list the names and current organizational affiliations of your graduate students and postdoctoral associates.

Personally Identifiable Information: Do not include sensitive personally identifiable information such as a Social Security Number, date of birth, or city of birth. Do not include information that a merit reviewer should not consider.

This appendix will not count in the project narrative page limitation.

APPENDIX 2: CURRENT AND PENDING SUPPORT

Provide a list of all current and pending support (both Federal and non-Federal) for the Project Director/Principal Investigator(s) (PD/PI) and senior/key persons, including subawardees, for ongoing projects and pending applications. List all sponsored activities or awards requiring a measurable commitment of effort, whether paid or unpaid.
For every activity, list the following items:

- The sponsor of the activity or the source of funding
- The award or other identifying number
- The title of the award or activity
- The total cost or value of the award or activity, including direct and indirect costs. For pending proposals, provide the total amount of requested funding.
- The person-months of effort per year being dedicated to the award or activity

Provide the Current and Pending Support as an appendix to your project narrative. Concurrent submission of an application to other organizations for simultaneous consideration will not prejudice its review.

- Do not attach a separate file.
- This appendix will not count in the project narrative page limitation.

APPENDIX 3: BIBLIOGRAPHY & REFERENCES CITED

Provide a bibliography of any references cited in the Project Narrative. Each reference must include the names of all authors (in the same sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication. For research areas where there are routinely more than ten coauthors of archival publications, you may use an abbreviated style such as the Physical Review Letters (PRL) convention for citations (listing only the first author). For example, your paper may be listed as, "A Really Important New Result," A. Aardvark et. al. (MONGO Collaboration), PRL 999. Include only bibliographic citations. Applicants should be especially careful to follow scholarly practices in providing citations for source materials relied upon when preparing any section of the proposal. Provide the Bibliography and References Cited information as an appendix to your project narrative.

- Do not attach a separate file.
- This appendix will not count in the project narrative page limitation.

APPENDIX 4: FACILITIES & OTHER RESOURCES

This information is used to assess the capability of the organizational resources, including subawardee resources, available to perform the effort proposed. Identify the facilities to be used (Laboratory, Animal, Computer, Office, Clinical and Other). If appropriate, indicate their capacities, pertinent capabilities, relative proximity, and extent of availability to the project. Describe only those resources that are directly applicable to the proposed work. Describe other resources available to the project (e.g., machine shop, electronic shop) and the extent to which they would be available to the project. For proposed investigations requiring access to experimental user facilities maintained by institutions other than the applicant, please provide a document from the facility manager confirming that the researchers will have access to the facility. Please provide the Facility and Other Resource information as an appendix to your project narrative.

- Do not attach a separate file.
- This appendix will not count in the project narrative page limitation.

APPENDIX 5: EQUIPMENT

List major items of equipment already available for this project and, if appropriate identify location and pertinent capabilities. Provide the Equipment information as an appendix to your project narrative.

- Do not attach a separate file.
- This appendix will not count in the project narrative page limitation.

APPENDIX 6: DATA MANAGEMENT PLAN

Provide a Data Management Plan (DMP) that addresses the following requirements:

1. DMPs should describe whether and how data generated in the course of the proposed research will be shared and preserved. If the plan is not to share and/or preserve certain data, then the plan must explain the basis of the decision (for example, cost/benefit considerations, other parameters of feasibility, scientific appropriateness, or limitations discussed in #4). At a minimum, DMPs must describe how data sharing and preservation will enable validation of results, or how results could be validated if data are not shared or preserved.

2. DMPs should provide a plan for making all research data displayed in publications resulting from the proposed research digitally accessible to the public at the time of publication. This includes data that are displayed in charts, figures, images, etc. In addition, the underlying digital research data used to generate the displayed data should be made as accessible as possible to the public in accordance with the principles stated in the Office of Science Statement on Digital Data Management (http://science.energy.gov/funding-opportunities/digital-data-management/). This requirement could be met by including the data as supplementary information to the published article, or through other means. The published article should indicate how these data can be accessed.
3. DMPs should consult and reference available information about data management resources to be used in the course of the proposed research. In particular, DMPs that explicitly or implicitly commit data management resources at a facility beyond what is conventionally made available to approved users should be accompanied by written approval from that facility. In determining the resources available for data management at Office of Science User Facilities, researchers should consult the published description of data management resources and practices at that facility and reference it in the DMP. Information about other Office of Science facilities can be found in the additional guidance from the sponsoring program.
4. DMPs must protect confidentiality, personal privacy, Personally Identifiable Information, and U.S. national, homeland, and economic security; recognize proprietary interests, business confidential information, and intellectual property rights; avoid significant negative impact on innovation, and U.S. competitiveness; and otherwise be consistent with all applicable laws, regulations, and DOE orders and policies. There is no requirement to share proprietary data.

DMPs will be reviewed as part of the overall Office of Science research proposal merit review process. Applicants are encouraged to consult the Office of Science website for further information and suggestions for how to structure a DMP: http://science.energy.gov/funding-opportunities/digital-data-management/

- This appendix should not exceed 5 pages including charts, graphs, maps, photographs, and other pictorial presentations, when printed using standard 8.5" by 11" paper with 1 inch margins (top, bottom, left, and right)

- Do not attach a separate file.
- This appendix will not count in the project narrative page limitation.

APPENDIX 7: OTHER ATTACHMENT

If you need to elaborate on your responses to questions 1-6 on the "Other Project Information" document, please provide the Other Attachment information as an appendix to your project narrative. Information not easily accessible to a reviewer may be included in this appendix, but do not use this appendix to circumvent the page limitations of the proposal. Reviewers are not required to consider information in this appendix.

- Do not attach a separate file.
- This appendix will not count in the project narrative page limitation.

3. Detailed Instructions for the Budget

Budgets are required for the entire project period. A budget form should be completed for each budget period of the award, and a cumulative budget form for the entire project period will be populated by PAMS. A detailed budget justification narrative should be included after the budget pages. The justification should cover labor, domestic travel, equipment, materials and supplies, and anything else that will be covered with project funds.

To edit a section on the budget, click the edit icon () for each section on the page. Remember to save all budget periods before moving on to the next section. You can save the budget periods by selecting "Save All Budget Periods" from the dropdown on the lower right corner of the PAMS budget entry screen and then clicking the "Go" button. You can also save any data entry page in PAMS using the blue diskette icon () in the floating toolbar on the bottom of the screen.

Section A. Senior/Key Person (Required)
For each Senior/Key Person, enter the appropriate information. List personnel, salary funds, and the number of months that person will be allocated to the project. Also include a written narrative in the budget justification that fully justifies the need for requested personnel.

Section B. Other Personnel
List personnel, salary funds, and the number of months that person will be allocated to the project. Also include a written narrative in the budget justification that fully justifies the need for requested personnel.

Section C. Equipment Description
For the purpose of this budget, equipment is designated as an item of property that has an acquisition cost of $5,000 or more and an expected service life of more than one year. (Note that this designation applies for proposal budgeting only and differs from the DOE definition of capital equipment.) List each item of equipment separately and justify each in the budget justification section. Allowable items ordinarily will be limited to research equipment and apparatus not already available for the conduct of the work. General-purpose office equipment, such as a personal computer, is not eligible for support unless primarily or exclusively used in the actual conduct of scientific research.

Section D. Travel
In the budget justification, list each trip's destination, dates, estimated costs including transportation and subsistence, number of staff traveling, the purpose of the travel, and how it relates to the project. Indicate whether travel cost estimates are based upon quotes from travel agencies; upon past experience of similar number of trips to similar travel destinations; or something else (describe). To qualify for support, attendance at meetings or conferences must enhance the investigator's capability to perform the research, plan extensions of it, or disseminate its results.

Section E. Participant/Trainee Support Costs:

If applicable, submit training support costs. Educational projects that intend to support trainees (precollege, college, graduate and post graduate) must list each trainee cost that includes stipend levels and amounts, cost of tuition for each trainee, cost of any travel (provide the same information as needed under the regular travel category), and costs for any related training expenses. Participant costs are those costs associated with conferences, workshops, symposia or institutes and breakout items should indicate the number of participants, cost for each participant, purpose of the conference, dates and places of meetings and any related administrative expenses. In the budget justification, indicate whether trainee cost estimates are based upon past experience of support of similar number of trainees on similar projects; past experience of support of similar number of participants attending similar conferences/workshops/symposia; or something else (describe).

Section F. Other Direct Costs:

Enter Other Direct Costs information for each item listed.

- **Materials and Supplies:** Enter total funds requested for materials and supplies in the appropriate fields. In the budget justification, indicate general categories such as glassware, and chemicals, including an amount for each category (items not identified under "Equipment"). Categories less than $1,000 are not required to be itemized. In the budget justification, indicate whether cost estimates are based upon past experience of purchase of similar or like items; quotes/catalog prices of similar or like items; or something else (describe).
- **Publication Costs:** Enter the total publication funds requested. The proposal budget may request funds for the costs of documenting, preparing, publishing or otherwise making available to others the findings and products of the work conducted under the award. In the budget justification, include supporting information. In the budget justification, indicate whether cost estimates are based upon past experience of purchase of similar or like items; vendor quotes of similar publication services; or something else (describe).
- **Consultant Services:** Enter total funds requested for all consultant services. In the budget justification, identify each consultant, the services he/she will perform, total number of days, travel costs, and total estimated costs. In the budget justification, indicate whether consultant cost estimate is based upon previous experience/quotes for similar or like services; or something else (describe).
- **ADP/Computer Services:** Enter total funds requested for ADP/Computer Services. The cost of computer services, including computer-based retrieval of scientific, technical and education information may be requested. In the budget justification, include the established computer service rates at the proposing organization if applicable. In the budget justification, indicate whether cost estimates are based upon quotes/past experience of purchase of similar computer services; established computer service rates at the proposing institution; or something else (describe).
- **Subawards/Consortium/Contractual Costs:** Enter total costs for all subawards/consortium organizations and other contractual costs proposed for the project. In the budget justification, justify the details.
- **Equipment or Facility Rental/User Fees:** Enter total funds requested for Equipment or Facility Rental/User Fees. In the budget justification, identify each rental/user fee and justify. In the budget justification, indicate whether cost estimates are based upon past experience with similar or like items; vendor quotes of similar items; or something else

(describe).

- **Alterations and Renovations:** Enter total funds requested for Alterations and Renovations.
- **In the budget justification**, itemize by category and justify the costs of alterations and renovations, including repairs, painting, removal or installation of partitions, shielding, or air conditioning. Where applicable, provide the square footage and costs.
- **Other:** Add text to describe any other Direct Costs not requested above. Enter costs associated with "Other" item(s). Use the budget justification to further itemize and justify.

Section G. Direct Costs
This represents Total Direct Costs (Sections A thru F) and will be calculated by PAMS.

Section H. Other Indirect Costs
Enter the Indirect Cost information for each field. Only four general categories of indirect costs are allowed/requested on this form, so please consolidate if needed.

Section I. Total Direct and Indirect Costs
This amount will be calculated by PAMS (Sections G + H)

D. SUBMISSIONS FROM SUCCESSFUL APPLICANTS

If selected for award, DOE reserves the right to request additional or clarifying information.

E. SUBMISSION DATES AND TIMES

1. Letter of Intent Due Date

January 17, 2017 at 5 PM Eastern Time

You are encouraged to submit your Letter of Intent well before the deadline.

2. Pre-proposal Due Date

None

3. Proposal Due Date

February 27, 2017 at 5 PM Eastern Time

You are encouraged to transmit your proposal well before the deadline.

4. Late Submissions

Proposals received after the deadline will not be reviewed or considered for award.

F. FUNDING RESTRICTIONS

Funding for all awards and future budget periods are contingent upon the availability of funds appropriated by Congress and the availability of future-year budget authority.

G. OTHER SUBMISSION AND REGISTRATION REQUIREMENTS

1. Where to Submit

Proposals must be submitted through PAMS to be considered for award.

Please only submit a PAMS lab technical proposal in response to this Announcement; do not submit a DOE Field Work Proposal (FWP) at this time. The Office of Science will request FWPs via the Searchable FWP system later from those selected for funding consideration under this Announcement.

2. Registration Process

ONE-TIME REGISTRATION PROCESS

You must complete the one-time registration process (all steps) before you can submit your first proposal through PAMS. Registration instructions appear in the front matter of this Announcement.

For help with PAMS, click the "External User Guide" link on the PAMS website, https://pamspublic.science.energy.gov/. You may also contact the PAMS Help Desk, which can be reached Monday through Friday, 9AM – 5:30 PM Eastern Time. Telephone: (855) 818-1846 (toll free) or (301) 903-9610, Email: sc.pams-helpdesk@science.doe.gov. All submission and inquiries about this DOE National Laboratory Program Announcement should reference **LAB 17-1697.**

3. Proposal Receipt Notices

Upon submission, the PI will receive an email from the PAMS system <PAMS.Autoreply@science.doe.gov> acknowledging receipt of the proposal.

4. Viewing Submitted Proposals

Upon submission, the proposal will appear under My Proposals for the PI and the Submitter with a Proposal Status of "Submitted to DOE.

Section V - PROPOSAL REVIEW INFORMATION

A. CRITERIA

1. Initial Review Criteria

Prior to a comprehensive merit evaluation, DOE will perform an initial review to determine that (1) the applicant is eligible for the award; (2) the information required by the Program Announcement has been submitted; (3) all mandatory requirements are satisfied; (4) the proposed project is responsive to the objectives of the Program Announcement, and (5) the proposed project is not duplicative of programmatic work. Proposals that fail to pass the initial review will not be forwarded for merit review and will be eliminated from further consideration.

2. Merit Review Criteria

Proposals will be subjected to scientific merit review (peer review) and will be evaluated against the following criteria, listed in descending order of importance.

- Scientific and/or Technical Merit of the Project;
- Appropriateness of the Proposed Method or Approach;
- Competency of Personnel and Adequacy of Proposed Resources;
- Reasonableness and Appropriateness of the Proposed Budget;
- Alignment with HEP – ASCR SciDAC 4 Guidelines
- Effectiveness of the Management Plan

The evaluation process will also include program policy factors such as the relevance of the proposed research to the terms of the DOE National Laboratory Announcement and the agency's programmatic needs, the balance of activities within the program, and the utility of the proposed activities to the broader scientific community. Note that external peer reviewers are selected with regard to both their scientific expertise and the absence of conflict-of-interest issues. Both Federal and non-Federal reviewers may be used, and submission of an proposal constitutes agreement that this is acceptable to the investigator(s) and the submitting institution.
The questions below are provided to the merit reviewers to elaborate the criteria:

B. REVIEW AND SELECTION PROCESS

1. Merit Review

Proposals that pass the initial review will be subjected to a formal merit review and will be evaluated based on the criteria above.

SCIENTIFIC AND / OR TECHNICAL MERIT OF THE PROPOSED RESEARCH

- Is the proposed research aligned with the HEP mission and the P5 Report?
- How will the proposed research impact the science and computational needs in high energy physics?

- Will the proposed research accelerate scientific discovery through computing on DOE HPC systems?
- Will the proposed collaboration result in advanced DOE HPC use by HEP that would not have been accomplished by those same researchers working separately?
- Is the Data Management Plan suitable for the proposed research?

Appropriateness of the Proposed Method or Approach

- Are there significant potential problems in the proposed method or approach? If so, are the proposer's plans to address these problems—including the consideration of alternative strategies—adequate?
- Does the project demonstrate a functional collaboration between the indicated physicists and applied mathematicians or computer scientists?
- Does the proposed research develop or employ state-of-the-art approaches that effectively exploit computing on DOE HPC systems? Can this project be completed on computing platforms that are currently available or are expected to be available by 2019?
- Does the proposed research plan recognize the mathematical, algorithmic, software, or architectural challenges arising in the relevant computations and include a plan for validation and verification?

Competency of Applicant's Personnel and Adequacy of Proposed Resources

- Does the team include experts in both the proposed physics and applied mathematics or computer science research topics?
- Does the proposal describe a well-integrated team based approach to addressing the scientific goals?
- Does the leadership team appear to be qualified to lead a multi-institutional and multidisciplinary collaboration?
- Does the collaboration rely upon efforts by senior managers (e.g. Division Directors)?

Reasonableness and Appropriateness of the Proposed Budget

- Does the budget provide for adequate commitment by senior contributors?
- Do any of the critical components of the project rely upon efforts by unpaid contributors? If yes, please provide examples.
- Does the requested budget support the applicant’s specified management structure in a meaningful way?
- Does the proposal budget include resources for a project website and dissemination of results?

Alignment with HEP-ASCR SciDAC 4 Guidelines

- Will the proposed research facilitate advanced use of DOE HPC by multiple HEP research areas or across experiments?
- Does the collaboration cross cut different HEP areas or multiple experiments?

- Is the proposal well integrated across its parts and partnerships?
- What parts of the HEP-ASCR SciDAC 4 Goals will be achieved by this work?

EFFECTIVENESS OF THE MANAGEMENT PLAN

- Does the management plan present an organizational structure that delineates the roles and responsibilities of senior or key personnel and the collaborating institutions?
- Does the collaborative team have an appropriate balance of scientists and applied mathematicians/computer scientists?
- Does the team include University partners?
- Does it provide a clearly defined mechanism to evaluate success and failure and to reconfigure the project as needed?
- Does the management plan adhere to the guidelines in this Announcement and are the plans credible to achieve success?

2. Selection

The Selection Officials will consider the following items, listed in no order of significance:

- Scientific and technical merit of the proposed activity as determined by merit review
- Availability of funds
- Relevance of the proposed activity to Office of Science priorities
- Ensuring an appropriate balance of activities within Office of Science programs
- Previous performance

3. Discussions and Award

The Government may enter into discussions with a selected applicant for any reason deemed necessary. Failure to resolve satisfactorily the issues identified by the Government will preclude award to the applicant.

C. ANTICIPATED NOTICE OF SELECTION AND AWARD DATES

It is expected that awards will be made in Fiscal Year 2017. DOE is interested in seeing projects supported under this Announcement begin work by August 1 2017.

Section VI - AWARD ADMINISTRATION INFORMATION

A. AWARD NOTICES

1. Notice of Selection

Selected Applicants Notification: DOE will notify applicants selected for award. This notice of selection is not an authorization to begin performance.

Non-selected Notification: Organizations whose proposals have not been selected will be advised as promptly as possible. This notice will explain why the proposal was not selected.

2. Notice of Award

A work authorization/contract modification issued by the contracting officer is the authorizing award document.

B. REPORTING

Annual progress reports from the award investigator will be required and will be due 90 days before the end of each budget year.

Section VII - QUESTIONS/AGENCY CONTACTS

A. QUESTIONS

For help with PAMS, click the "External User Guide" link on the PAMS website, https://pamspublic.science.energy.gov/. You may also contact the PAMS Help Desk, which can be reached Monday through Friday, 9AM – 5:30 PM Eastern Time. Telephone: (855) 818-1846 (toll free) or (301) 903-9610, Email: sc.pams-helpdesk@science.doe.gov. All submission and inquiries about this DOE National Laboratory Program Announcement should reference **LAB 17-1697.**

Please contact the PAMS help desk for technological issues with the PAMS system.

Questions regarding the specific program areas and technical requirements may be directed to the technical contacts listed for each program within the DOE National Laboratory Program Announcement or below.

Please contact the program staff with all questions not directly related to the PAMS system.

B. AGENCY CONTACTS

PAMS Customer Support	855-818-1846 (toll-free) 301-903-9610 sc.pams-helpdesk@science.doe.gov
Program Manager Scientific Contact	Dr. Lali Chatterjee, High Energy Physics 301 903 0435 lali.chatterjee@science.doe.gov Dr. Randall Laviolette, Advanced Scientific Computing Research 301 903 5195 Randall.laviolette@science.doe.gov

Section VIII - OTHER INFORMATION

A. MODIFICATIONS

Notices of any modifications to this DOE National Laboratory Announcement will be posted on the Grants and Contracts website (http://science.energy.gov/grants/).

B. GOVERNMENT RIGHT TO REJECT OR NEGOTIATE

DOE reserves the right, without qualification, to reject any or all proposals received in response to this DOE National Laboratory Announcement and to select any proposal, in whole or in part, as a basis for negotiation and/or award.

C. COMMITMENT OF PUBLIC FUNDS

The Contracting Officer is the only individual who can make awards or commit the Government to the expenditure of public funds. A commitment by other than the Contracting Officer, either explicit or implied, is invalid.

D. PROPRIETARY PROPOSAL INFORMATION

Patentable ideas, trade secrets, proprietary or confidential commercial or financial information, disclosure of which may harm the applicant, should be included in a proposal only when such information is necessary to convey an understanding of the proposed project. The use and disclosure of such data may be restricted, provided the applicant includes the following legend on the first page of the project narrative and specifies the pages of the proposal which are to be restricted:

"The data contained in pages _____ of this proposal have been submitted in confidence and contain trade secrets or proprietary information, and such data shall be used or disclosed only for evaluation purposes."

To protect such data, each line or paragraph on the pages containing such data must be specifically identified and marked with a legend similar to the following:

"The following contains proprietary information that (name of applicant) requests not be released to persons outside the Government, except for purposes of review and evaluation."

E. EVALUATION AND ADMINISTRATION BY NON-FEDERAL PERSONNEL

In conducting the merit review evaluation, the Government may seek the advice of qualified non-Federal personnel as reviewers. The Government may also use non-Federal personnel to conduct routine, nondiscretionary administrative activities. The applicant, by submitting its proposal, consents to the use of non-Federal reviewers/administrators. Non-Federal reviewers must sign conflict of interest and non-disclosure agreements prior to reviewing a proposal. Non-Federal personnel conducting administrative activities must sign a non-disclosure agreement.

F. AVAILABILITY OF FUNDS

Funds are not presently available for this award. The Government's obligation under this award is contingent upon the availability of appropriated funds from which payment for award purposes can be made. No legal liability on the part of the Government for any payment may arise until funds are made available to the Contracting Officer for this award and until the awardee receives notice of such availability, to be confirmed in writing by the Contracting Officer.