PROGRAM ANNOUNCEMENT
TO DOE NATIONAL LABORATORIES

U. S. Department of Energy
Office of Science
Office of Basic Energy Sciences (BES)
Office of Advanced Scientific Computing Research (ASCR)

Scientific Discovery through Advanced Computing:
Partnerships in Basic Energy Sciences

DOE National Laboratory Announcement Number: LAB 17-1748
Announcement Type: Amendment 0001

Issue Date:	**May 10, 2017**
Letter of Intent Due Date	**May 24, 2017 at 5:00 PM Eastern Time** **A Letter of Intent is Required**
Pre-Proposal Due Date:	**Not Applicable**
Proposal Due Date:	**June 21, 2017 at 5:00 PM Eastern Time**
Amendment:	**This announcement is amended to correct the typographical error on page 24.**

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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 17-1748.**

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 proposals 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/.

AVOIDING ERRORS

The following advice is compiled from actual experiences of applicants for Office of Science financial assistance awards.
- Please ensure that the research narrative is comprised of one and only one PDF file, including all appendices, when it is attached to the SF-424(R&R) form.
- When using the Office of Science PAMS website at https://pamspublic.science.energy.gov, please avoid using the back-arrow button in your web browser to navigate.
- Please ensure that the proposal contains no personally identifiable information (PII).
- Please ensure that the budget is calculated using the applicable negotiated indirect cost and fringe benefit rates.

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 well before the deadline.

Section I – DOE NATIONAL LABORATORY OPPORTUNITY DESCRIPTION

GENERAL INQUIRIES ABOUT THIS ANNOUNCEMENT SHOULD BE DIRECTED TO:

Technical/Scientific Program Contacts:

 Dr. James W. Davenport, Office of Basic Energy Sciences
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SUMMARY

The Office of Basic Energy Sciences (BES) and the Office of Advanced Scientific Computing Research (ASCR) of the Office of Science (SC), U.S. Department of Energy (DOE), announce their interest in receiving proposals from interdisciplinary teams to establish Partnerships under the SC-wide Scientific Discovery through Advanced Computing (SciDAC) program in specific targeted topic areas that relate to the BES and ASCR missions.

Targeted topics are described in the Supplementary Information section below. Proposals which do not address one or more of these specific topics will not be accepted and will be declined without review if submitted.

BES generally supports fundamental research in materials science, chemical sciences, geosciences, energy related biosciences, and science related to BES-funded user facilities. The ASCR mission is to discover, develop, and deploy computational and networking capabilities to analyze, model, simulate and predict complex phenomena important to DOE and to the advancement of science. The goal of this announcement is to select proposals in specific targeted areas that combine capabilities in BES and ASCR mission areas and take full advantage of today's multi-petascale DOE high-performance computing (HPC) and networking systems to accelerate scientific discovery in BES research areas.

SUPPLEMENTARY INFORMATION

Scientific Discovery through Advanced Computing (SciDAC)

This solicitation is part of the 2017 re-competition of the SciDAC Partnerships, which consist of jointly funded and managed collaborations between scientists (sponsored by BES for this solicitation) and applied mathematicians or computer scientists (sponsored by ASCR). Partnerships enable deep, necessary, and productive collaborations between topic scientists (*e.g. physicists, chemists, biologists, materials scientists, etc.*) on the one hand and applied mathematicians and computer scientists on the other, that overcome the barriers between these disciplines and consequently fully exploit the capabilities of DOE HPC computational systems in

order to accelerate advances in science. In this way, Partnerships enable scientists to conduct complex scientific and engineering computations at a level of fidelity needed to simulate real-world conditions.

For the purposes of this solicitation, the term "DOE HPC" has been expanded to include the high performance production computational systems (Cori) at the National Energy Research Scientific Computing Center (NERSC), as well as those existing, or planned to be available by 2019, at the Argonne Leadership Computing Facility (ALCF), Oak Ridge Leadership Computing Facility (OLCF), or similar DOE computing facilities. For a summary of available or planned ASCR Computing Systems see:
https://science.energy.gov/~/media/ascr/pdf/facilities/ASCR_Computiing_Facility_Upgrades.pdf

Descriptions of previously funded SciDAC projects are at http://www.scidac.gov and BES SciDAC Partnership projects are at http://www.scidac.gov/matchem/matchem.html.

The BES/ASCR SciDAC Partnership portfolio, solicited here, will focus on the targeted topical areas listed below in the section "Targeted Topics for BES-ASCR SciDAC Partnership Projects."

BES Mission and Objectives

The mission of the Basic Energy Sciences (BES) program is to support fundamental research to understand, predict, and ultimately control matter and energy at the electronic, atomic, and molecular levels in order to provide the foundations for new energy technologies and to support DOE missions in energy, environment, and national security. BES research provides a knowledge base to help understand, predict, and ultimately control the natural world and helps build the foundation to achieve the vision of a secure energy future. BES also supports world-class, open-access scientific user facilities consisting of a complementary set of intense x-ray sources, neutron sources, and research centers for nanoscale science. BES-supported activities are entering a new era in which matter can be built with atom-by-atom precision and computational models can accurately predict the behavior of materials and molecules based on theoretical calculations before they are synthesized experimentally.

Further information about BES programs can be found at:

Materials Sciences: https://science.energy.gov/bes/mse/
Chemical Sciences, Geosciences and Biosciences: https://science.energy.gov/bes/csgb/

ASCR Mission and Objectives

The mission of Advanced Scientific Computing Research (ASCR) program is to discover, develop, and deploy computational and networking capability to analyze, model, simulate and predict complex phenomena important to the DOE and the advancement of science.

ASCR objectives are synergistic with those of the SciDAC program including those noted above for deep, necessary, and productive collaborations between scientists and engineers on the one

hand and applied mathematicians or computer scientists on the other, all who interact as peers in order to accelerate advances in science and engineering that would be unlikely otherwise. 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 computing systems. A record of funding from ASCR for such research, while not a prerequisite, may be regarded as evidence of relevant experience.

Some examples of exclusively ASCR funded past research via the SciDAC Institutes can be viewed at http://www.scidac.gov/institutes.html.

Targeted Topics for BES-ASCR SciDAC Partnership Projects

Topics for this solicitation are limited to those listed below. Proposals in other research areas will not be accepted and will be declined without review.

BES

Materials Science:
- **Quantum Materials**
  Topological materials, topological interface states, superconductors, spin liquids, and strongly correlated materials. Development of novel techniques for quantum many body systems. Proposals on the quantum Hall effect or device optimization/engineering will not be accepted.

Chemical Sciences, Geosciences, and Biosciences
- **Low-Temperature and Low-Pressure Catalysis, Photocatalysis, and Separations**
  Catalysis or separations, with or without driving fields, under low-temperature and low-pressure, for processes related to water splitting, ammonia production, and/or carbon-dioxide reduction in realistic systems. Proposals that rely upon initial excitation to a highly non-equilibrium state will not be accepted.

- **Nanoscale Transport**
  Transport in porous media at nanoscale to subnanoscale; flow and diffusion in systems dominated by heterogeneously charged surfaces; breakdown of Navier-Stokes/continuum scale; coupling of tomographic imaging and molecular scales. Proposals that do not connect molecular and continuum scale problems and proposals that do not address heterogeneously charged surfaces will not be accepted.

ASCR

In order to fulfill the SciDAC program goals, we expect that the proposed projects will have a well-defined plan to use DOE HPC resources (as described above under SciDAC) within the period of performance (4 years) and that the proposed scientific goals will be

achieved using computing platforms that are currently available or are expected to be available by 2019.

Some of the research conducted and expertise contributed to the Partnership projects by applied mathematicians and computer scientists would likely include but are not limited to the following:

- **Applied Mathematics**
  New methods for massively parallel diagonalization of generalized eigenvalue problems, three dimensional FFTs, accelerated methods for Fourier representations, wavelet and discontinuous Galerkin methods, scalability to million-way parallelism, problem specific sparse solvers, multi-scale temporal methods for describing rare events, long time integrators, tensor networks, optimization, discretization methods for structured and unstructured grids, particle methods, multi-physics and multiscale coupling techniques, machine learning, resilient algorithms, adaptive error estimation and uncertainty quantification (UQ) or UQ-aware methods, direct, iterative and multi-level solvers for linear and nonlinear systems.
- **Computer Science**
  Performance modeling and benchmarking, tuning and analysis, code profiling and optimization; fault tolerance and resilience; data caching; 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 further expect that the research and contributions of the 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, 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. Finally, we expect that both the applied mathematicians and computer scientists would contribute to a strong verification and validation (V&V) plan.

Management Structure

The applicants must identify a management structure that enables effective collaboration among the participants from various disciplines. The structure and management must be sufficiently flexible to adapt quickly to changing technical challenges and scientific needs. To that end, the applicants must identify a Project Director (one), Lead Principal Investigators (one for each

institution), and Task Leaders (one for each task); the proposal may also include additional Senior/Key Personnel. The Project Director may also be a Lead Principal Investigator and/or Task Leader; a Lead Principal Investigator may also be a Task Leader). Furthermore, the proposal must specify the requested level of support from BES and ASCR for each task. Note that some tasks may have both science and computational science components. Typical duties, responsibilities and authorities for the Project Director (who must be employed by the Lead Laboratory) 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 participants. 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 project as a whole will provide an annual report to the PMs.

The management plan should also describe how a project website will be developed and maintained and how the results will be disseminated.

Typical duties, responsibilities and authorities for the participants are provided below. These are collectively referred to as Team members:

TEAM MEMBERS:

- **Project Director (one for the entire project) -** The Project Director must be employed by the Lead Laboratory and will serve as the overall leader of the project and the primary contact responsible for communications with the DOE Program Managers on behalf of all of the Principal Investigators.
- **Lead Principal Investigator (one for each institution) -** A Lead Principal Investigator (LPI) is an individual designated by a collaborating institution and empowered with the appropriate level of authority and responsibility for the proper conduct of the research within that organization. These authorities and responsibilities include the appropriate use of funds and administrative requirements such as the submission of scientific progress reports to DOE.
- **Task Leader (one for each task) -** A Task Leader is an individual responsible for a particular task within the project. It may involve more than one institution.
- **Senior/Key Personnel (as many as needed) –** Senior/Key Personnel include individuals who contribute in a substantive, measurable way to the scientific or technical development or execution of the research.

The Letter of Intent must include a table listing all personnel and their collaborators as described below. The Proposal must include in addition tables of the institutional and task budgets as described in Section IV.

Verification and Validation

A strong verification and validation (V&V) component is essential for proposed efforts; therefore, applicants should discuss their V&V plans in sufficient detail. In addition, since cross-benchmarking of different codes is an indispensable and often-used verification tool for large-

scale simulation codes, successful applicants are expected to share data and other supporting information in a timely fashion with other researchers.

Data Management Plan

A Data Management Plan as described in Section IV C. "Proposal Contents and Application Forms" - Appendix 6, is required. Proposals that do not have a Data Management Plan will be deemed nonresponsive and will be declined without review.

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 at https://science.energy.gov/~/media/ascr/pdf/incite/docs/Allocation_process.pdf. Within the available computational resources, every effort will be made to ensure that successful proposals will have the resources needed to support their efforts.

Research Focus

Note that the specific, targeted research topics for this solicitation are that listed above.

Investigators currently supported by DOE or other federal agencies are reminded that proposed research must be clearly delineated from currently funded projects.

Additional Guidance to Applicants

- DOE computing systems should accelerate scientific discovery in areas of strategic importance to DOE. Applicants must explain the benefits accruing from these systems including:
  i) Impacts on Science (*how does it advance the BES mission?*)
  ii) Advancements in Computational Science (*how does it advance the ASCR mission?*)
- Proposed research must employ state-of-the-art approaches enabling the effective use of DOE HPC resources that are currently available or are expected to be available by 2019.
- Applicants should identify metrics that will allow progress and contributions to be measured.
- Applicants must build and manage interdisciplinary, multi-institutional collaborations including suitable partners in the applied mathematics and computer science communities.
- Applicants should describe how the proposed collaboration will result in advances that would not have been accomplished by those same researchers working separately.

Multi-Institutional Awards

DOE expects a single proposal for each project to be submitted by the Lead Laboratory. Other participant institutions such universities, industry, non-profit organizations and Federally Funded

Research and Development Centers (FFRDCs) should not submit their own proposals. Funding for participants other than the Lead Laboratory should be by subcontract, except for DOE National Laboratories, which will be funded directly by DOE through the usual FWP process. However, National Laboratories should not submit an FWP to searchable FWP unless selected for an award. National Laboratories are strongly encouraged to engage University partners.

The Letter of Intent must list all participants. The proposal (not the Letter of Intent) must additionally contain detailed budgets and budget justifications for each participating institution.

Collaboration

Collaborative proposals submitted from different institutions will not be accepted.

References:

The following reports, including reports from Basic Research Needs workshops are on the BES web site, or as indicated at: https://science.energy.gov/bes/community-resources/reports/

1. *Challenges at the Frontiers of Matter and Energy: Transformative Opportunities for Discovery Science*
2. *Basic Research Needs Workshop on Quantum Materials for Energy Relevant Technology*
3. *From Quanta to the Continuum: Opportunities for Mesoscale Science*
4. *Data and Communications in Basic Energy Sciences: Creating a Pathway for Scientific Discovery*
5. *Computational Materials Science and Chemistry: Accelerating Discovery and Innovation through Simulation-Based Engineering and Science*
6. *Exascale Requirements Review for Basic Energy Sciences,* http://exascaleage.org/bes/
7. *Materials Genome Initiative (MGI) Strategic Plan;* https://mgi.nist.gov/2014-mgi-strategic-plan-0
8. Information on current SciDAC projects: http://www.scidac.gov/
9. *Computational Materials Sciences Awards* https://science.energy.gov/bes/funding-opportunities/closed-foas/computational-materials-sciences-awards-2016-foa/

This solicitation is for DOE National Laboratories only. Proposals from institutions other than DOE National Laboratories will not be accepted.

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

DOE expects to make multiple awards for a period of up to four years for each award. Total funding for four years, pending Congressional appropriations, is estimated at $24,000,000.

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

C. MAXIMUM AND MINIMUM AWARD SIZE

DOE anticipates that individual award sizes will range from $1,000,000 per year to $2,000,000 per year. The individual award size will depend on the merit review, the number of meritorious proposals, and the availability of appropriated funds.

D. EXPECTED NUMBER OF AWARDS

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

E. PERIOD OF PERFORMANCE

Awards are expected to be made for a period of up to four years.

Continuation funding (funding for the second budget year and subsequent budget years) is contingent on: (1) availability of funds appropriated by Congress and future year budget authority; (2) substantial progress towards meeting the objectives of the approved proposal; (3) submittal and approval of required reports; and (4) compliance with the terms and conditions of the award. Additionally, funding for the final two budget years is contingent upon satisfactory completion of an extensive progress review during the second year of each project, which may include an external peer review. BES and ASCR will use this mid-term review to assess the productivity and impact of each project and progress toward meeting the stated four-year scientific research goals.

F. 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.

G. VALUE/FUNDING FOR DOE/NNSA NATIONAL LABORATORY CONTRACTORS AND NON-DOE/NNSA FFRDC CONTRACTORS

DOE will fund DOE Office of Science (SC) or NNSA National Laboratory contractors through the DOE field work authorization system or other appropriate process and will fund non-DOE/NNSA FFRDC contractors and other Federal agencies through an interagency agreement in accordance with the Economy Act, 31 U.S.C. 1535, or other statutory authority.

H. RESPONSIBILITY

All Disputes and Claims will be resolved in accordance with the terms and conditions of the DOE/NNSA National Laboratory's M&O contract, as applicable, in consultation between DOE and the prime awardee. The successful prime applicant/awardee (Lead Laboratory) will be the responsible authority regarding the settlement and satisfaction of all contractual and administrative issues, including but not limited to, disputes and claims arising out of any agreement between the applicant and any team member, and/or subawardee.

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.

D. OTHER ELIGIBILITY REQUIREMENTS

Letter of Intent

To be considered eligible for an award under this National Laboratory Announcement, potential prime applicants (lead Laboratories) are *required* to submit a Letter of Intent in accordance with the instructions provided in Section IV.B.2 of this National Laboratory Announcement below. Proposals received from an applicant who has not submitted the required Letter of Intent will be deemed non-responsive and will be rejected without further review.

The Lead Laboratory on a proposal must be the same as on the required Letter of Intent. **If a proposal is received for which the Lead Laboratory has changed since submission of the Letter of Intent, then the proposal will be deemed non-responsive and will be rejected without further review.** The Project Director should not be changed unless unavoidable and only minor edits should be made, if necessary, to the title. If necessary, the applicant may make changes to other senior/key personnel and other participating institutions, although DOE discourages extensive changes.

The Lead Laboratory and Limitation on Number of Letters of Intent

A Laboratory may not submit more than *two* Letters of Intent or proposals as the lead organization. If more than two qualified Letters of Intent are received from a Lead Laboratory, DOE will consider the first two received based on the DOE Office of Science Portfolio Analysis and Management Systems (PAMS) date and time stamp. The remaining Letters of Intent will be deemed non-responsive and the applicant will not be allowed to submit full proposals tied to those Letters of Intent. However, there is no limitation on the number of Letters of Intent in which an entity may participate as a team member or subawardee.

The Project Director and Limitation on Number of Letters of Intent

The Project Director must be employed or have an agreement in place to be hired by the Lead Laboratory. **An individual may not be named as the Project Director on more than one Letter of Intent or proposal.** If the proposed Project Director will not be employed by the Lead Laboratory, the proposal will be deemed non-responsive and will be rejected without further review. Further, if more than one proposal is received from an applicant identifying the same individual as the Project Director, DOE will consider only the proposal (if any) that matches a Letter of Intent (as described in Section IV.B.2). The remaining proposals will be deemed non-responsive and rejected without further review. However, there is no restriction on the number of proposals in which an individual may participate as a Lead Principal Investigator, Task Leader or Senior/Key Personnel.

Team Arrangements

Entities proposing as a team must designate a Lead Laboratory. Letters of Intent and proposals must be submitted on behalf of the team members by the Lead Laboratory and DOE will enter into a prime award relationship with the designated Lead Laboratory. Only one Letter of Intent and one corresponding proposal is to be submitted for each team. The designated Lead Laboratory, i.e., the prime applicant, must perform a greater percentage of the effort than any other partner organization or subawardee. The percentage of effort will be determined by reviewing the total budget for each participating organization as a percentage of proposed total project costs. **If a proposal is received in which the prime applicant is not performing a greater percentage of the effort (based on budget distribution) than each of the other institutional partners, team members, or subawardees, as determined by the budget, the proposal will be deemed non-responsive and rejected without further review.**

Eligible/Ineligible Entities

If a proposal is received that includes an ineligible entity, or an employee of an ineligible entity performing activities as a team member and/or subawardee, the proposal will be deemed non-responsive and rejected without further review. Note, however, that otherwise ineligible entities are not precluded from serving as vendors of materials, supplies, equipment, and providing scientific and technical advisory services to a proposed team, if they are acting purely in that role. Scientific and technical advisory services allow for the provision of scientific and technical expertise without actually performing research activities; examples of such services include serving as members of advisory committees and technical peer review panels or participation in scientific workshops or conferences.

Performance of Work in the United States

DOE requires all work performed by the prime recipient under funding agreements resulting from this Announcement to be performed in the United States except as discussed below: – i.e., a prime recipient must expend its total project costs in the United States.

This requirement does not apply to travel or to equipment, materials and supply purchases. Like all proposed costs, proposed travel, equipment, and material and supply costs will be evaluated to determine whether they are necessary and appropriate for the conduct of the effort. Furthermore, it is the sense of Congress that, to the greatest extent practicable, all equipment and products purchased with funds made available under awards resulting from this Announcement should be American-made. Work funded as a subaward from the prime recipient may be performed outside the United States.

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 (LOI)

A Letter of Intent is required and must be submitted by the due date.

LETTER OF INTENT DUE DATE:
MAY 24, 2017 AT 5:00 PM EASTERN TIME

All submission and inquiries about this Laboratory Announcement should reference LAB 17-1748

The Letter of Intent should include, at the top of the first page, the following information:
Title of Letter of Intent
Project Director Name, Job Title
Lead Laboratory
Project Director Phone Number, Email Address
Laboratory Announcement Number: LAB 17-1748

Only one Letter of Intent should be submitted for the entire project by the Lead Laboratory/Project Director.

In addition, the Lead Laboratory on the full proposal must be the same as on the Letter of Intent. If a proposal is received for which the Lead Laboratory has changed since submission, then the proposal will be deemed non-responsive and will be rejected without further review. The Project Director should not be changed unless unavoidable and only minor edits should be made, if necessary, to the title. If necessary, the applicant may make changes to other senior/key personnel and other participating institutions, although DOE discourages extensive changes.

This cover page must be signed by an official of the Lead Laboratory who has the authority to commit institutional support for the proposal <u>and</u> by the proposed Project Director. The official for the Lead Laboratory should be someone who has authority over research activities for the entire institution, such as the Vice President for Research, Chief Technology Officer, or the

equivalent. **All applicants must include both of these signatures on the Letter of Intent.** Applicants that fail to provide both signatures will be required to provide a corrected Letter of Intent with both signatures on or before May 24, 2017 in order for their full proposal to be considered for award.

The cover page must be followed by a clear and concise description of the goals, objectives, and technical approaches of the proposed research. The description of the proposed research may not exceed three pages when printed on 8.5 X 11 inch paper, with a minimum text font size no smaller than Times New Roman 11 point and margins no smaller than one inch on all sides. The required header information and any figures and references, if included, must fit within the three -page limit.

The Letter of Intent is also used to help in planning the review and the selection of potential reviewers for the proposal.

In addition, the Letter of Intent must include the following two Tables, which will not count toward the three-page limit:

Table 1: Team Members (Project Director, Lead PIs, Task Leaders and Senior/Key Personnel) on the proposal and institutional affiliations

Team Members			Institution
Last Name	First Name	Title	Institution Name

Table 2: Collaborators of Team Members

Collaborator			Institution
Last Name	First Name	Title	Institution Name

For all team members, Table 2 must include co-authors over the past 48 months, graduate and postdoctoral advisors, graduate students and postdoctoral associates that have been supervised during the past 60 months, and any other current close associations.

Table 2 should exclude all personnel at any of the institutions listed in Table 1.

It is important that the Letter of Intent be a single file with extension .pdf, .docx, or .doc. The Letter of Intent (LOI) must be submitted electronically through the DOE Office of Science Portfolio Analysis and Management System (PAMS) website https://pamspublic.science.energy.gov/. The Principal Investigator (Project Director for this Announcement) and anyone submitting on behalf of the Principal Investigator must register for

an account in PAMS before it will be possible to submit a Letter of Intent. All PIs and those submitting Letters of Intent on behalf of PIs are encouraged to establish PAMS accounts as soon as possible to avoid submission delays.

You may use the Internet Explorer, Firefox, Google Chrome, or Safari browsers to access

The LOI must be submitted electronically through the DOE Office of Science Portfolio Analysis and Management System (PAMS) website https://pamspublic.science.energy.gov/. It is important that the LOI be a single file with extension .pdf, .docx, or .doc. The Principal Investigator (PI) and anyone submitting on behalf of the PI must register for an account in PAMS before it will be possible to submit a letter of intent. **All PIs and those submitting LOIs on behalf of PIs are encouraged to establish PAMS accounts as soon as possible to avoid submission delays.**

You may use the Internet Explorer, Firefox, Google Chrome, or Safari browsers to access PAMS.

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.

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. (If you have been an Office of Science merit reviewer or if you have previously submitted a proposal, you may already be linked to an institution in PAMS. If this happens, you will be taken to the PAMS home page.
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 do not need to enter the exact name of the institution, but you should

enter a word or phrase contained within the institution name. (If your institution has a frequently used acronym, such as ANL for Argonne National Laboratory or UCLA for the Regents of the University of California, Los Angeles, you may find it easiest to 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.
- If, after searching, you think your institution is not currently in the database, click the "Cannot Find My Institution" button and enter the requested institution information into PAMS. Click the "Create Institution" button. PAMS will add the institution to the system, associate your profile with the new institution, and return you to the "Institutions – List" page when you are finished.

Submit Your Letter of Intent:
- Create your letter of intent outside the system and save it as a file with extension .docx, .doc, or .pdf. Make a note of the location of the file on your computer so you can browse for it later from within PAMS.
- Log into PAMS and click the Proposals tab. Click the "View / View / Respond to DOE National Laboratory Announcements" link and find the current announcement in the list. Click the "Actions/Views" link in the Options column next to this announcement to obtain a dropdown menu. Select "Submit Letter of Intent" from the dropdown.
- On the Submit Letter of Intent page, select the institution from which you are submitting this LOI from the Institution dropdown. If you are associated with only one institution in the system, there will only be one institution in the dropdown.
- Note that you must select one and only one Principal Investigator (PI) per LOI; to do so, click the "Select PI" button on the far right side of the screen. Find the appropriate PI from the list of all registered users from your institution returned by PAMS. (Hint: You may have to sort, filter, or search through the list if it has multiple pages.) Click the "Actions" link in the Options column next to the appropriate PI to obtain a dropdown menu. From the dropdown, choose "Select PI."
- If the PI for whom you are submitting does not appear on the list, it means he or she has not yet registered in PAMS. For your convenience, you may have PAMS send an email invitation to the PI to register in PAMS. To do so, click the "Invite PI" link at the top left of the "Select PI" screen. You can enter an optional personal message to the PI in the "Comments" box, and it will be included in the email sent by PAMS to the PI. You must wait until the PI registers before you can submit the LOI. Save the LOI for later work by clicking the "Save" button at the bottom of the screen. It will be stored in "My Letters of Intent" for later editing.
- Enter a title for your letter of intent.
- Select the appropriate technical contact from the Program Manager dropdown.
- To upload the LOI file into PAMS, click the "Attach File" button at the far right side of the screen. Click the "Browse" (or "Choose File" depending on your browser) button to search

for your file. You may enter an optional description of the file you are attaching. Click the "Upload" button to upload the file.

- At the bottom of the screen, click the "Submit to DOE" button to save and submit the LOI to DOE.
- Upon submission, the PI will receive an email from the PAMS system <PAMS.Autoreply@science.doe.gov> acknowledging receipt of the LOI.

You are encouraged to register for an account in PAMS at least a week in advance of the LOI submission deadline so that there will be no delays with your submission.

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.

2. Pre-proposal

A Pre-proposal is not required or invited.

C. CONTENT AND PROPOSAL FORMS

PROPOSAL DUE DATE
June 21, 2017 at 5:00 PM Eastern Time

Files that are attached to the forms must be in Adobe Portable Document Format (PDF) unless otherwise specified in this announcement. Attached PDF files must be plain files consisting of text, numbers, and images without editable fields, signatures, passwords, redactions, or other advanced features available in some PDF-compatible software. Do not attach PDF portfolios.

LETTERS
Letters of recommendation are discouraged and will not be reviewed by DOE.
Note however that an Organizational Letter of Commitment is required – see Appendix 8.

RENEWAL APPLICATIONS
This announcement is for new applications only. Renewal applications will not be accepted.

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 proposal and when DOE makes the proposal 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 proposals. 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.

CHANGE OF AWARDEE INSTITUTION

Not applicable.

DEPARTURE OF PROJECT DIRECTOR

If the Project Director ends his or her relationship with the applicant Laboratory before this Announcement closes, the application must be withdrawn.

If the Project Director ends her or his relationship with the applicant Laboratory while the application is under review, consult with the DOE program manager to discuss the available options. The application may be withdrawn, or a new Project Director could be proposed.

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 – 20 page limit)
- o Appendix 1: Biographical Sketch(es)
- o Appendix 2: Current and Pending Support
- o Appendix 3: Bibliography and References Cited
- o Appendix 4: Facilities and Other Resources
- o Appendix 5: Equipment
- o Appendix 6: Data Management Plan
- o Appendix 7: Statement of Conflict of Interest
- o Appendix 8: Organizational Letters of Commitment
- o Appendix 9: 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 17-1748.** Full proposals submitted in response to this Program Announcement must be submitted to PAMS no later than **June 21, 2017** at 5:00 PM Eastern Time.

All PIs and those submitting on behalf of PIs are encouraged to establish PAMS accounts as soon as possible to ensure timely submissions**.** To register, click "Create New PAMS Account" on the website https://pamspublic.science.energy.gov/ and follow the instructions for creating an account.

The following information is provided to help with proposal submission. Detailed instructions and screen shots can be found in the user guide. To find the user guide, click the "External User Guide" link on the PAMS home page. Onscreen instructions are available within PAMS.

- Log into PAMS. From the proposals tab, click the "View DOE National Laboratory Announcements" link and find the current announcement in the list. Click the "Actions/Views" link in the Options column next to this Announcement to obtain a dropdown menu. Select "Submit Proposal" from the dropdown.
- Note that you must select one and only one Principal Investigator (PI) per proposal; to do so, click the "Select PI" button on the far right side of the screen. Find the appropriate PI from the list of all registered users from your institution returned by PAMS. (Hint: You may have to sort, filter, or search through the list if it has multiple pages.) Click the "Actions" link in the Options column next to the appropriate PI to obtain a dropdown menu. From the dropdown, choose "Select PI."
- If the PI for whom you are submitting does not appear on the list, it means he or she has not yet registered in PAMS. For your convenience, you may have PAMS send an email invitation to the PI to register in PAMS. To do so, click the "Invite PI" link at the top left of the "Select PI" screen. You can enter an optional personal message to the PI in the

"Comments" box, and it will be included in the email sent by PAMS to the PI. You must wait until the PI registers before you can submit the proposal. Save the proposal for later work by selecting "Save" from the dropdown at the bottom of the screen and then clicking the "Go" button. It will be stored in "My Proposals" for later editing. As a minimum, you must complete all the required fields on the PAMS cover page before you can save the proposal for the first time.

- The cover page, budget, and attachments sections of the lab proposal are required by PAMS before it can be submitted to DOE.
- Complete the sections in PAMS one at a time, starting with the cover page and following the instructions for each section.
- Click the "+View More" link at the top of each section to expand the onscreen instructions. On the budget section, click the "Budget Tab Instructions" link to obtain detailed guidance on completing the budget form.
- Save each section by selecting either "Save" (to stay in the same section) or "Save… and Continue to the Next Section" (to move to the next section) from the dropdown menu at the bottom of the screen, followed by clicking the "Go" button.
- If you save the proposal and navigate away from it, you may return later to edit the proposal by clicking the "View My Existing Proposals" or "My Proposals" links within PAMS.
- You must enter a budget for each annual budget period.
- You must also enter a budget for each proposed sub-award. The sub-award section can be completed using the same steps used for the budget section.
- In the attachments section of the lab proposal, the abstract, the budget justification, and the proposal narrative are required and must be submitted as separate files.
- You must bundle everything other than the budget, abstract, and budget justification into one single PDF file to be attached under "Proposal Attachment."
- Do not attach anything under "Other Attachments."
- To upload a file into PAMS, click the "Attach File" button at the far right side of the screen. Click the "Browse" (or "Choose File" depending on your browser) button to search for your file. You may enter an optional description of the file you are attaching. Click the "Upload" button to upload the file.
- Once you have saved all of the sections, the "Submit to DOE" option will appear in the dropdown menu at the bottom of the screen.
- To submit the proposal, select "Submit to DOE" from the dropdown menu and then click the "Go" button.
- Upon submission, the PI will receive an email from the PAMS system <PAMS.Autoreply@science.doe.gov> acknowledging receipt of the proposal.
- The proposal will also appear under My Proposals with a Proposal Status of "Submitted to DOE."

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.

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 17-1748.**

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 Project Director (PD), 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:
- Project Director name, telephone number, email:
- DOE National Laboratory Announcement Number: **LAB 17-1748**

- DOE/Office of Science Program Office: Office of Basic Energy Sciences
- DOE/Office of Science Program Office Technical Contact: James W. Davenport
- PAMS Letter of Intent Tracking Number**:**
- Target research topic identified in Section I of this Announcement

On separate pages, as a supplement to the cover page, include the following four tables providing personnel and budget information for the entire project (including all institutions). Note Tables 1 & 2 are the same (possibly updated) as those submitted in the Letter of Intent.

Table 1: Team Members (Project Director, Lead Principal Investigators, Task Leaders and Senior/Key Personnel) on the application and institutional affiliations

Team Members			Institution
Last Name	First Name	Title	Institution Name

Table 2: Collaborators of Team Members

Collaborator			Institution
Last Name	First Name	Title	Institution Name

For all team members, Table 2 must include co-authors over the past 48 months, graduate and postdoctoral advisors, graduate students and postdoctoral associates that have been supervised during the past 60 months, and any other current close associations.

Table 2 should exclude all personnel at any of the institutions listed in Table 1.

Table 3: Budget by Institution

Institution	Team Member	Role	Y1 Budget BES	Y1 Budget ASCR	...	Y4 BES	Y4 ASCR	Total BES	Total ASCR

Total									

Table 4: Budget by Task

Task	Task Leader	Y1 Budget BES	Y1 Budget ASCR	...	Y4 Budget BES	Y4 Budget ASCR	Total BES	Total ASCR
Total								

Tables 1-4 will not count in the page limitation.

PROJECT NARRATIVE (**NO MORE THAN 20 PAGES LONG**)

The project narrative **must not exceed 20 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: Multi-institutional 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.

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.

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 2 pages when printed on 8.5" x 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.

Director Statement of Employment: Documentation must be submitted evidencing that the proposed Project Director is an employee or will become an employee of the prime applicant upon award. The statement of employment is limited to one page and must be signed by both the Project Director and an authorized representative of the prime applicant. This document is not included in the two page limit for each biographical sketch.

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 proposals. 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

- A description of the similarities, differences, and synergies of the award or activity with the research described in the current proposal.

Provide the Current and Pending Support as an appendix to your project narrative. Concurrent submission of an proposal 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 2 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: STATEMENT OF CONFLICT OF INTEREST

At the time of submission, the applicant shall include information identifying potential, apparent, or actual organizational and individual conflicts of interest and proposed mitigation. This shall include the applicant and their team members named in the application. Negative responses are also required. Prior to award, DOE reserves the right to require the submission of a Conflict of Interest Management Plan describing the applicants approach to managing conflicts of interest.
- Do not attach a separate file.
- This appendix will not count in the project narrative page limitation

APPENDIX 8: ORGANIZATIONAL LETTERS OF COMMITMENT

A single organizational letter of commitment is required from each organization participating as a team member. Each organizational letter of commitment is limited to one page and must be current, signed, and dated by a person authorized to commit the participating organization to a legally binding agreement for this project.
- Do not attach a separate file
- This appendix will not count in the project narrative page limitation

APPENDIX 9: 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

May 24, 2017 at 5:00 PM Eastern Time

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

2. Pre-proposal Due Date

A Pre-proposal is not required or invited.

3. Proposal Due Date

June 21, 2017 at 5:00 PM Eastern Time

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

4. Late Submissions

Applications received after the deadline are normally not reviewed or considered for an award. Applicants are strongly encouraged to submit several days ahead of the deadline to have time to correct software and other errors which may crop up.

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

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 17-1748.**

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 in accordance with 10 CFR 605.10(b) to determine that (1) the applicant is eligible for the award; (2) the information required by the Announcement has been submitted; (3) all mandatory requirements are satisfied; (4) **the proposed project is responsive to the targeted topics, utilizes DOE HPC facilities, and is composed of multi-disciplinary teams which include domain and applied math/computer scientists**, and (5) the proposed project is not duplicative of programmatic work. Applications 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

The application will be subjected to scientific merit review (peer review) and will be evaluated against the following criteria, which have approximately equal weight. The bulleted information after each are intended to guide the reviewers; reviewers will not be required to provide written responses to each of these.

- Scientific and/or Technical Merit of the Project;
- Appropriateness of the Proposed Method or Approach;
- Competency of Applicant's Personnel and Adequacy of Proposed Resources;
- Reasonableness and Appropriateness of the Proposed Budget;
- Strength of the Management Plan;
- Synergy Among the PIs, including Cohesion and Integration of the Research Activities;
- Development and Utilization of Unique Facilities, Capabilities or Approaches.

SCIENTIFIC AND/OR TECHNICAL MERIT OF THE PROPOSED RESEARCH

- Assess how the results of the proposed work will impact the direction, progress, and thinking in relevant scientific fields of research. What is the likelihood of achieving influential results?
- Describe the science proposed by this collaboration that is not feasible now.
- Does the application present a plan for basic research that is consistent with BES priorities as expressed in BES reports and the specific topics targeted by this Announcement?
- Does the proposed research plan recognize the mathematical, algorithmic, software, or architectural challenges arising in the relevant computations?
- Is the Data Management Plan suitable for the proposed research; to what extent does it make the data available and useful to the scientific community?

APPROPRIATENESS OF THE PROPOSED METHOD OR APPROACH

- Assess the appropriateness of the proposed scientific methods and approaches detailed in the proposal to achieve the stated scientific goals.
- Assess the strategy and the plan for the development and operation of the project including the need for the proposed collaboration, the means for achieving an integrated team of the indicated BES scientists and applied mathematicians or computer scientists, and plans for leadership and guidance for the scientific and technical direction.
- Evaluate the appropriateness of the performance metrics that will allow progress and contributions to be measured.
- Are the plans (if any) for external collaborations and partnerships reasonable and appropriate?

COMPETENCY OF APPLICANT'S PERSONNEL AND ADEQUACY OF PROPOSED RESOURCES

- Do the Project Director and the other Team Members have a proven record of research in the disciplines needed for success in this project?
- Will the Project Director and the other Team Members be sufficiently available given their role particularly taking into account their potential involvement in other major projects?
- How does the proposed research exploit existing resources or contribute new resources (e.g., algorithms, software) or would it result in a duplication of existing resources?

REASONABLENESS AND APPROPRIATENESS OF THE PROPOSED BUDGET

- Assess the appropriateness of the budget to support all elements of the collaboration.
- Does the collaboration rely upon efforts by unpaid contributors? If so, what evidence suggests that these collaborations will continue over the lifetime of the proposed research?
- How does the requested budget relate to the proposed specified management structure?

THE STRENGTH OF MANAGEMENT PLAN

- Is there a clear lead organization and a qualified Project Director?
- Evaluate the comprehensiveness of the management plan and the organizational structure that delineates the roles and responsibilities of the PIs.
- Does the project timeline allow progress and contributions to be measured over the course of the research?
- If needed, is there a well-defined strategy to use state-of-the-art technology and frequent virtual meetings to enable meaningful, efficient long distance collaboration?

SYNERGY AMONG THE PIS, INCLUDING COHESION AND INTEGRATION OF THE DOMAIN SCIENTISTS, APPLIED MATHEMATICIANS, AND COMPUTER SCIENTISTS

- Evaluate the proposed approach to create a well-integrated, interdisciplinary team in order to address the scientific and computational goals. Does the team include expertise in the domain science, computer science and applied mathematics?
- Will the proposed collaboration result in advances that would not have been accomplished by those same researchers working separately? Have the applicants defined scientific problems that are likely to be addressed only through close collaboration among the researchers on the application?
- Are the applied mathematicians and computer scientists conducting significant research or are they merely acting as consultants?

DEVELOPMENT AND UTILIZATION OF UNIQUE FACILITIES, CAPABILITIES OR APPROACHES

- Will the proposed research accelerate scientific discovery through the effective use DOE HPC? Assess the proposed plan for the utilization of DOE HPC resources within the period of performance and the potential impact of these resources on both the domain science and computational science.
- Can this project be completed on computing platforms that are currently available or are expected to be available by 2019?
- Have the applicants proposed the development of unique facilities, capabilities, or approaches to achieve the stated scientific goals? How do these compare with similar developments in the field?

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.

2. Selection

The Selection Official will consider the findings of the Merit Review Panels and the recommendations of Federal officials, as well as the following program policy factors:
- Delineation of the scope of the proposed research from other research activities in which the principal investigators are involved, particularly those supported by DOE and by other federal agencies.
- Relevance of the proposed activity to Office of Basic Energy Sciences (BES) and Office of Advanced Scientific Computing Research (ASCR) priorities.
- Ensuring an appropriate balance of activities within BES/ASCR programs.

- Diversity of research activities that will address the scientific grand challenges and use-inspired basic research as articulated in ASCR and BES Advisory Committee and workshop reports.
- Relationship of the proposed project to other research and development programs in DOE.
- Potential for developing synergies between the proposed project and other ongoing BES and ASCR research activities.

As part of the selection process, DOE reserves the right to seek clarifications in writing from those applications deemed to have the highest scientific merit in order to facilitate the selection process.

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 anticipated that the award selection will be completed by September 1, 2017. 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 September 30, 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 17-1748.

      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	Basic Energy Sciences, SC-22 Dr. James W Davenport 301-903-0035 James.Davenport@science.doe.gov Advanced Scientific Computing Research, SC-21.1 Dr. Ceren Susut 301-903-0366 Ceren.Susut-Bennett@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.