

**Office of Science  
Financial Assistance  
Funding Opportunity Announcement  
DE-FOA-0000438**

***Collider Detector Research and Development Program***

**SUMMARY:**

The Office of High Energy Physics of the Office of Science (SC), U.S. Department of Energy, hereby announces its interest in receiving proposals for Research and Development (R&D) efforts directed at challenges to support the development of the new detector technologies needed to perform future high energy physics experiments at present, upgraded or planned colliders at the Energy Frontier.

A companion Program Announcement to DOE Laboratories (LAB 11-438) will be posted on the Office of Science Grants and Contracts web site at: <http://www.science.doe.gov/grants/>

**SUPPLEMENTARY INFORMATION:**

**Program Objective:**

Future high energy physics experiments will need to be of larger volume, greater channel density or higher precision/lower noise per channel. Many will need two of these three features and some will need all three. All this capability advancement must be accomplished for approximately the same cost as present generation experiments. We seek applications to identify and develop technologies that show particular promise for advancing the state-of-the-art in particle detectors in one or more of these fundamental aspects.

Specifically many experiments will require higher performance detectors and data acquisition systems to exploit the higher beam energies of new or upgraded accelerators at the Energy Frontier. Higher performance and/or lower background detectors and data acquisition systems are also needed to probe for new physical processes in collider accelerator-based experiments. Proposed collider detector research should be driven by the anticipated needs of experiments to be built within the foreseeable future and should be applicable to multiple detectors. Generic detector research that could be applied to upgrades that have not yet been approved is also appropriate. Final engineering or fabrication of detectors for specific experiments will not be funded by this program. Interesting technologies include but are not limited to: tracking triggers,

low-mass, high-channel-density radiation hard charged particle tracking detectors or calorimeters; particle identification detectors that have higher resolution, are lower in cost, or can be read out faster than currently available detectors; novel photon and charged particle detectors; or detector readout systems minimizing or eliminating wires and fibers. Applications for new ways of applying advances in computing to the trigger, data acquisition and data analysis are welcome.

Applications to develop detector technology that is targeted at experiments for nearer term enhancements of existing detectors should not be submitted under this Notice unless additional scientific research applications for the technology are described and justified in the application.

### **Collaboration**

Applicants are welcome to collaborate with researchers in other institutions, such as universities, industry, non-profit organizations, federal laboratories and Federally Funded Research and Development Centers (FFRDCs), which include the DOE National Laboratories. In the case of collaborative applications submitted from different institutions that are directed at a single research activity, each application must have a different scope of work and a qualified principal investigator who is responsible for the research effort being performed at his or her institution. There must be a single technical description of the proposed work, and separate face pages and budget pages for each institution. The scope of work at each institution must be clearly specified. While collaboration with researchers at FFRDCs (Fermi National Accelerator Lab and other DOE national labs are examples of FFRDCs), is encouraged, no funds will be provided to those organizations under this FOA. The procedure for submitting a collaborative application can be accessed via the web at: <http://www.sc.doe.gov/grants/colab.asp>. This section provides specific details regarding collaborating institutions.

### **LETTER OF INTENT:**

**Due Date: February 15, 2011, 4:30 PM Eastern Time**

Applicants are requested to submit a Letter of Intent (LOI) which includes the title of the application, the name of the principal investigator(s), the requested funding, and a one-page abstract. Failure to submit a letter of intent will not negatively prejudice a responsive formal application submitted in a timely manner.

Letters of Intent referencing Funding Opportunity Number DE-FOA-0000438 should be submitted via E-mail at the following E-mail address: [Frederick.Borcherding@science.doe.gov](mailto:Frederick.Borcherding@science.doe.gov). Please include the phrase "Collider Detector Research Letter of Intent" in the subject line.

**APPLICATION DUE DATE: March 18, 2011, 11:59 PM Eastern Time**

Formal applications submitted in response to this Funding Opportunity Announcement must be received by March 18, 2011, 11:59 p.m. Eastern time, to permit timely consideration of awards.

You are encouraged to transmit your application well before the deadline. **APPLICATIONS RECEIVED AFTER THE DEADLINE WILL NOT BE REVIEWED OR CONSIDERED FOR AWARD.**

### **IMPORTANT SUBMISSION INFORMATION:**

The full text of the Funding Opportunity Announcement (FOA) is located on FedConnect. Instructions for completing the Grant Application Package are contained in the full text of the FOA which can be obtained at: <https://www.fedconnect.net/FedConnect/?doc=DE-FOA-0000438&agency=DOE>. To search for the FOA in FedConnect click on "Search Public Opportunities". Under "Search Criteria", select "Advanced Options", enter a portion of the title "Scientific Discovery through Advanced Computing: Advanced Simulation of Fusion Plasmas", then click on "Search". Once the screen comes up, locate the appropriate Announcement.

In order to be considered for award, Applicants must follow the instructions contained in the Funding Opportunity Announcement.

**WHERE TO SUBMIT:** Applications must be submitted through Grants.gov to be considered for award.

You cannot submit an application through Grants.gov unless you are registered. Please read the registration requirements carefully and start the process immediately. Remember you have to update your CCR registration annually. If you have any questions about your registration, you should contact the Grants.gov Helpdesk at 1-800-518-4726 to verify that you are still registered in Grants.gov.

**Registration Requirements:** There are several one-time actions you must complete in order to submit an application through Grants.gov (e.g., obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, register with the Central Contract Registry (CCR), register with the credential provider, and register with Grants.gov). See <http://www.grants.gov/GetStarted>. Use the Grants.gov Organization Registration Checklist at <http://www.grants.gov/assets/OrganizationRegCheck.pdf> to guide you through the process. Designating an E-Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in the CCR registration process. Applicants, who are not registered with CCR and Grants.gov, should allow at **least 21 days** to complete these requirements. It is suggested that the process be started as soon as possible.

**IMPORTANT NOTICE TO POTENTIAL APPLICANTS:** When you have completed the process, you should call the Grants.gov Helpdesk at 1-800-518-4726 to verify that you have completed the final step (i.e. Grants.gov registration).

**Questions:** Questions relating to the registration process, system requirements, how an application form works, or the submittal process must be directed to Grants.gov at 1-800-518-4726 or [support@grants.gov](mailto:support@grants.gov). Part VII of this announcement explains how to submit other questions to the Department of Energy (DOE).

**All applications should be in a single PDF file.**

**GENERAL INQUIRIES ABOUT THIS FOA SHOULD BE DIRECTED TO:**

**Technical/Scientific Program Contact:**

**Program Manager:** Frederick Borcharding

**Phone:** 301-903-6989

**Fax :** 301-903-2597

**E-Mail:** [Frederick.Borcharding@science.doe.gov](mailto:Frederick.Borcharding@science.doe.gov)

**Merit Review**

Applications will be subjected to scientific merit review (peer review) and will be evaluated against the following evaluation criteria which are listed in descending order of importance codified at 10 CFR 605.10(d):

1. Scientific and/or Technical Merit of the Project;
2. Appropriateness of the Proposed Method or Approach;
3. Competency of Applicant's Personnel and Adequacy of Proposed Resources; and
4. Reasonableness and Appropriateness of the Proposed Budget.

In considering item 1 particular attention will be paid to:

- the importance of the physics that motivates developing the proposed detector,
- whether the proposed research is generic detector research that will benefit more than one experiment,
- the magnitude of the potential impact versus the risk of failure.

The evaluation process will include program policy factors such as the relevance of the proposed research to the terms of the announcement and the agencies' programmatic needs. Note that external peer reviewers are selected with regard to both their scientific expertise and the absence of conflict-of-interest issues. Both Federal and non-Federal reviewers may be used, and submission of an application constitutes agreement that this is acceptable to the investigator(s) and the submitting institution.

**PROGRAM FUNDING:**

It is anticipated that approximately \$3,000,000 will be available for new projects in Fiscal Year 2011, subject to availability of appropriated funds. The number of awards will depend on the number of meritorious proposals and the availability of appropriated funds. Multiple year funding should be requested. A minimum of three years and a maximum of five years will be considered. Out-year funding will be provided on an annual basis subject to availability of funds.

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

The Catalog of Federal Domestic Assistance (CFDA) number for this program is 81.049, and the solicitation control number is ERFAP 10 CFR Part 605.

Posted on the Office of Science Grants and Contracts Web Site: December   , 2010.