

**FINANCIAL ASSISTANCE
FUNDING OPPORTUNITY ANNOUNCEMENT**



**U.S. Department of Energy
Office of Science
Office of Fusion Energy Sciences**

Diagnostic Systems for Magnetic Fusion Energy Sciences

Funding Opportunity Number: DE-FOA-0000744

Announcement Type: Initial

CFDA Number: 81.049

ISSUE DATE:	June 22, 2012
Letter of Intent Due Date:	July 27, 2012
Application Due Date:	August 14, 2012

NOTE: REQUIREMENTS FOR GRANTS.GOV

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 Central Contract Registry (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 (i.e., obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, register with the CCR, register with the credential provider, and register with Grants.gov). To register with Grants.gov go to “Get Registered” at http://grants.gov/applicants/get_registered.jsp. 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. Part VII of this Funding Opportunity Announcement (FOA) explains how to submit other questions to the Department of Energy (DOE).

Application Receipt Notices

After an application is submitted, the Authorized Organization Representative (AOR) will receive a series of four e-mails. It is extremely important that the AOR watch for and save each of the emails. It may take up to two (2) business days from application submission to receipt of email Number 2. The titles of the four e-mails are:

Number 1 - Grants.gov Submission Receipt Number

Number 2 - Grants.gov Submission Validation Receipt for Application Number

Number 3 - Grants.gov Grantor Agency Retrieval Receipt for Application Number

Number 4 - Grants.gov Agency Tracking Number Assignment for Application Number

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PART I – FUNDING OPPORTUNITY DESCRIPTION

GENERAL INQUIRIES ABOUT THIS FOA SHOULD BE DIRECTED TO:

Technical/Scientific Program Contact:

Dr. Francis Thio, Office of Fusion Energy Sciences, SC-24.2

PHONE: (301) 903-4678

E-MAIL: francis.thio@science.doe.gov

STATUTORY AUTHORITY

Public Law 95-91, US Department of Energy Organization Act

Public Law 109-58, Energy Policy Act of 2005

APPLICABLE REGULATIONS

U.S. Department of Energy Financial Assistance Rules, codified at 10 CFR Part 600

U.S. Department of Energy, Office of Science Financial Assistance Program Rule, codified at 10 CFR Part 605

SUMMARY:

The Office of Fusion Energy Sciences (OFES) of the Office of Science (SC), U.S. Department of Energy (DOE), hereby announces its interest in receiving applications to conduct experimental research for the development of innovative and advanced measurement capabilities for magnetic fusion plasmas, leading to improved understanding of plasma behavior in fusion experiments relevant to magnetic fusion energy sciences. All individuals or groups planning to submit applications for new or renewal funding in Fiscal Year 2013 should submit in response to this FOA.

More specific information is provided under SUPPLEMENTARY INFORMATION below.

SUPPLEMENTARY INFORMATION:

The mission of the Fusion Energy Sciences (OFES) program is to expand the fundamental understanding of matter at very high temperatures and densities and to build the scientific foundation needed to develop a fusion energy source. Diagnostic systems are critical to the success of any experimental campaign. In order to ensure continued progress in plasma experiments in pursuit of magnetic fusion energy, applications are sought for the development of diagnostic techniques to measure plasma parameters not previously accessible, or at a level of detail greater than previously possible, or at a substantially reduced cost or complexity. Preference will be given to research and development of advanced and innovative diagnostics that will advance our scientific understanding and predictive capability of toroidal magnetic fusion devices. Applications addressing diagnostic needs of research on long-pulse facilities are also encouraged. Interest for this FOA is in experimental research; however, it is recognized that part of a coordinated application may include a minimal amount of theory and/or modeling in support of the proposed experimental research. Stand-alone theory, modeling, computation, code development, and/or software development applications will be declined. Requests seeking funding for the

application of proven diagnostic techniques to major fusion experimental facilities will not be considered under this FOA. Such diagnostic applications are typically funded via separate announcements as part of experimental facilities, based on their own research program priorities.

Additional Guidance to Applicants

Applications must be formulated for a project with duration of one to four years with specific goals and deliverables that demonstrate the scientific merit and impact of the proposed research. See also PART V APPLICATION REVIEW INFORMATION for the principal evaluation criteria that peer reviewers will be asked to use in evaluating the application.

Additional information about measurement needs in the magnetic fusion energy sciences can be found in the following:

1. Magnetic Fusion Energy Sciences Research Needs Workshop (ReNeW) report, June 2009, http://science.energy.gov/~media/fes/pdf/workshop-reports/Res_needs_mag_fusion_report_june_2009.pdf
2. FESAC Report on Priorities, Gaps and Opportunities: Towards a Long-Range Strategic Plan for Magnetic Fusion Energy, October 2007, http://science.energy.gov/~media/fes/fesac/pdf/2007/Fesac_planning_report.pdf

Collaboration

Collaborative research projects with other institutions, such as universities, industry, non-profit organizations, and Federally Funded Research and Development Centers (FFRDCs), including the DOE National Laboratories, are allowed under this FOA. However, proposals from DOE National Laboratory collaborators should be submitted as Field Work Proposals and are subject to a funding limit of no more than 15% of the total funding for the collaboration. Collaborative proposals submitted in response to this FOA cannot be led by DOE National Laboratory Principal Investigators. Applications submitted from different institutions, which are directed at a single research activity, should clearly indicate they are part of a proposed collaboration and contain a brief description of the overall research project. Each application must have a distinct scope of work and a qualified principal investigator who is responsible for the research effort being performed at his or her institution. See Part IV, Subpart C, Section 2 Research and Project Related Information for further instructions.

These collaborative applications must all have the same title as the Lead Institution. Each collaborating institution submitting an application must use the same title in Block 11 of the SF 424 (R&R) form.

PART II – AWARD INFORMATION

A. TYPE OF AWARD INSTRUMENT.

DOE anticipates awarding grants and/or Cooperative Agreements under this FOA.

B. ESTIMATED FUNDING.

It is anticipated that up to about \$3,000,000 per year will be available to support this FOA. It is anticipated that up to six or ten awards may be made in FY 2013, contingent on the availability of appropriated funds. Awards are expected to be made for a period of one to four years at a funding level appropriate for the proposed scope, with out-year support contingent on the availability of appropriated funds and satisfactory progress.

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. OFES reserves the right to make fewer awards than would be possible for a total of \$3,000,000 per year, if an insufficient number of applications are judged to be of suitable scientific quality or of sufficient relevance to the programs.

C. MAXIMUM AND MINIMUM AWARD SIZE.

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

D. EXPECTED NUMBER OF AWARDS.

It is expected that six to ten awards will be made depending on the availability of appropriated funds.

E. ANTICIPATED AWARD SIZE.

The award size is expected to be approximately in the range of \$50,000 - \$500,000 per grant and will depend on the number of meritorious applications and the availability of appropriated funds.

F. PERIOD OF PERFORMANCE.

Period of performance of one to four years will be considered. Out-year funding will depend upon satisfactory progress and the availability of appropriated funds. An annual Progress Report must be submitted by the Grantee to assist the DOE Program Manager in reviewing the progress made under the grant.

G. TYPE OF APPLICATION.

DOE will accept new and renewal applications under this FOA.

PART III - ELIGIBILITY INFORMATION

A. ELIGIBLE APPLICANTS.

All types of domestic entities are eligible to apply, except other Federal agencies, Federally Funded Research and Development Center (FFRDC) Contractors, and nonprofit organizations described in section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995.

B. COST SHARING.

Cost sharing is not required.

C. OTHER ELIGIBILITY REQUIREMENTS.

N/A

PART IV – APPLICATION AND SUBMISSION INFORMATION

A. ADDRESS TO REQUEST APPLICATION PACKAGE.

Application forms and instructions are available at Grants.gov. To access these materials, go to <http://www.grants.gov>, select "**Apply for Grants**", and then select "**Download a Grant Application Package**". Enter the CFDA number and/or the funding opportunity number located on the cover of this FOA and then follow the prompts to download the application package.

B. LETTER OF INTENT AND PRE-APPLICATION.

1. Letter of Intent (LOI). (July 27, 2012)

A Letter of Intent (LOI) is **strongly encouraged** by July 27, 2012, 11:59 PM Eastern Time. It is important that the LOI be in a single PDF file. The 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 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 or a full proposal.** To register, click "Create New PAMS Account" on the website <https://pamspublic.science.energy.gov/> and follow the instructions for creating an account. You will be prompted to create a username and password and to enter your contact information. Registering to PAMS is a two-step process; once you create an individual account, you must associate yourself with ("register to") your institution. Follow the onscreen instructions to do this.

All PIs and those submitting on behalf of PIs are encouraged to establish PAMS accounts as soon as possible to avoid submission delays. You may establish a PAMS account at <https://pamspublic.science.energy.gov/>.

To access PAMS, please use either Internet Explorer or Firefox. Currently, PAMS is not supporting the Chrome or Safari browsers, but an upgrade in the future will make it possible to use them.

To submit the letter of intent, log in to PAMS. Select "View Funding Opportunity Announcements" and find the current announcement in the list. Click on "Actions/Views" for this announcement, select "Submit Letter of Intent" from the dropdown, and follow the instructions from there. Note that you must select one and only one Principal Investigator (PI) per LOI; click on "Select PI" on the far right side of the screen and then select the appropriate PI from the list of all registered users from your institution returned by PAMS. If the PI for whom you are submitting does not appear on the list, 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, choose "Invite PI" at the top left of the "Select PI" screen. You can enter an optional personal message to the PI in the "Comments" box that PAMS presents, and it will be included in the email sent by PAMS to the PI. To upload the LOI as an attachment into PAMS, select "Attach File" at the far right side of the screen. Search for your file and then select "Attach" to upload the file. You may enter an optional description of the

file you are attaching. Using the dropdown at the bottom of the screen, save the LOI and then submit it to DOE. Upon submission, the PI will receive an email from the PAMS system 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, please contact the Office of Science PAMS Support Center. The PAMS Support Center can be reached Monday-Friday 7:00 AM-6:00 PM Eastern Time. Telephone: (301) 903-5313, Email: scsc@science.doe.gov. All submission and inquiries about this FOA must reference FOA 744.

The LOI should include a brief description of the proposed work (1-2 pages, including text with minimum font size 11 point, figures, and references), and a one-page curriculum vitae from each Principal Investigator (PI), co- Principal Investigator (co-PI), and senior collaborator or consultant. The Letter should include: (a) a Subject line identifying it to be a Letter of Intent in response to FOA # DE-FOA-0000744; (b) Lead PI information: name, institutional affiliation, telephone number, fax number, and e-mail address; and, (c) For collaborative applications, names and institutions of all Institutional PIs, and senior collaborators or consultants (excluding postdoctoral associates). Since the purpose of the LOI is to facilitate OFES in planning the merit review and the selection of peer-reviewers without conflicts of interest, it is important that applicants ensure their list of supported or unsupported participants is as comprehensive as possible.

2. Pre-Application.

N/A

C. CONTENT AND FORM OF APPLICATION – SF 424 (R&R).

You must complete the mandatory forms and any applicable optional forms (e.g., SF-LLL-Disclosure of Lobbying Activities) in accordance with the instructions on the forms and the additional instructions below. **Files that are attached to the forms must be in Adobe Portable Document Format (PDF) unless otherwise specified in this FOA.**

1. SF 424 (R&R).

Complete this form first to populate data in other forms. Complete all the required fields in accordance with the pop-up instructions on the form. The list of certifications and assurances referenced in Field 17 can be found on the DOE Financial Assistance Forms Page at <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>, under Certifications and Assurances.

By submitting an application in response to this FOA the Applicant certifies that:

- It is **not** a corporation that has been convicted (or had an officer or agent of such corporation acting on behalf of the corporation convicted) of a felony criminal violation under any Federal law within the preceding 24 months,

- It is **not** a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability,
- If the Applicant’s financial assistance application is chosen for award and the award is in excess of \$1,000,000, the applicant will, by the end of the fiscal year, upgrade the efficiency of their facilities by replacing any lighting that does not meet or exceed the energy efficiency standard for incandescent light bulbs set forth in Section 325 of the Energy Policy and Conservation Act (42 U.S.C. 6295).

2. RESEARCH AND RELATED PROJECT INFORMATION.

Complete questions 1 through 6 and attach files. The files must comply with the following instructions:

Project Summary/Abstract (Field 7 on the Form).

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/principal investigator(s) (PD/PI), the project title, the objectives of the project, a description of the project, including methods to be employed, the potential impact of the project (i.e., benefits, outcomes), and major participants (for collaborative projects). 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 1-2 pages when printed using standard 8.5” by 11” paper with 1” margins (top, bottom, left and right) with font not smaller than 11 point. To attach a Project Summary/Abstract, click “Add Attachment.”

Project Narrative (Field 8 on the Form).

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). **EVALUATORS WILL ONLY REVIEW THE NUMBER OF PAGES SPECIFIED IN THE PRECEDING SENTENCE.** The font must not be smaller than 11 point. Letters of coordination from unfunded collaborators should also be included, if applicable.

Please do not submit general letters of support as these are not used in making funding decisions and can interfere with the selection of peer reviewers.

Do not include any Internet addresses (URLs) that provide information necessary to review the application, because the information contained in these sites will not be reviewed. See Part VIII.D for instructions on how to mark proprietary application information. To attach a Project Narrative, click “Add Attachment.”

The application narrative should begin with a cover page that includes: the project title, the Lead PI’s name and complete contact information.

The cover page must also include the following information (this page will not count in the project narrative page limitation):

Applicant/Institution:

Street Address/City/State/Zip:

Principal Investigator:

Postal Address:

Telephone Number:

Email:

Funding Opportunity Announcement Number: DE-FOA-0000744

DOE/Office of Science Program Office: Office of Fusion Energy Sciences

DOE/Office of Science Program Office Technical Contact: Dr. Francis Thio

DOE Grant Number (if Renewal or Supplemental Application):

Is this a Collaboration? If yes, please list ALL Collaborating Institutions/Pis and indicate which ones will also be submitting applications. Also indicate the lead PI who will be the point of contact and coordinator for the combined research activity. All collaborative applications must include appropriate letters of coordination for the proposed collaboration from a program leader at each facility.

Collaborative applications submitted from different institutions should clearly indicate they are part of a topical project/team. Every partner institution must submit an application through its own business office. Each application within the team, including the narrative and all required appendices and attachments, should be identical with one exception: each application should contain unique budget and budget justification documents corresponding to the expenditures for that application's submitting institution only. Each team can have only one lead PI and one lead institution, which should be identified in the common narrative. The common narrative should also contain a summary table listing the institutions involved, the PI for each institution, and a budget breakdown by institution for all participants.

Each application belonging to a collaborative group **must** have the **same title** in Block 11 of the SF- 424 (R&R) form.

Our intent is to create from the various applications associated with a collaborative group one document for merit review that consists of the common, identical narrative, the required appendices and attachments combined with a set of detailed budgets from the partner institutions. Thus, it is very important that every application in the collaborative group be exactly identical (including the title) with the exception of the budget and budget justification pages.

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.

Appendix 1: Biographical Sketch.

Provide a biographical sketch for the project director/principal investigator (PD/PI) and each senior/key person listed in Section A on the R&R Budget form. **Provide the Biographical Sketch information as an Appendix to your Project Narrative. Do not attach a separate file. The Biographical Sketch Appendix will not count in the Project Narrative page limitation.**

The biographical information (curriculum vitae) for each person must not exceed 2 pages when printed on 8.5” by 11” paper with 1 inch margins (top, bottom, left, and right) with font not smaller than 11 point and must include:

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.

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 application. 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 application. 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) during the last 5 years. Also, list the names and current organizational affiliations of your graduate students and postdoctoral associates during the past 5 years.

Appendix 2: Current and Pending Support.

Provide a list of all current and pending support (both Federal and non-Federal) for the Project Director/Principal Investigator(s) (PD/PI) and senior/key persons, including subawardees, for ongoing projects and pending applications. For each organization providing support, show the total award amount for the entire award period (including indirect costs) and the number of person-months per year to be devoted to the project by the senior/key person. **Provide the Current and Pending Support as an Appendix to your Project Narrative. Do not attach a separate file. The Current and Pending Support Appendix will not count in the Project Narrative page limitation.** Concurrent submission of an application to other organizations for simultaneous consideration will not prejudice its review.

Appendix 3: Bibliography and 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. 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 application. **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 and 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. **Provide the Facilities and Other Resources information as an Appendix to your Project Narrative. Do not attach a separate file. The Facilities and Other Resources 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. The Equipment Appendix will not count in the Project Narrative page limitation.**

Appendix 6: 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. Do not attach a separate file. The Other Attachment Appendix will not count in the Project Narrative page limitation.**

Do not attach any of the requested Appendices described above as files for fields 9, 10, 11, and 12. Instead follow the above instructions to include the information as Appendices to the Project Narrative file (these Appendices will not count in the Project Narrative page limitation).

3. RESEARCH AND RELATED BUDGET.

Complete the Research and Related Budget form in accordance with the instructions on the form and the following instructions. You must complete a separate budget for each year of support requested. The form will generate a cumulative budget for the total project period. You must complete all the mandatory information on the form before the NEXT PERIOD button is activated. You may request funds under any of the categories listed as long as the item and amount are necessary to perform the proposed work, meet all the criteria for allowability under the applicable Federal cost principles, and are not prohibited by the funding restrictions in this FOA (See PART IV, G).

Budget Justification (Field K on the form).

Provide the required supporting information for the following costs: equipment; domestic and foreign travel; participant/trainees; material and supplies; publication; consultant services; ADP/computer services; subaward/consortium/contractual; equipment or facility rental/user fees; alterations and renovations; and indirect cost type. Provide any other information you wish to submit to justify your budget request. **Attach a single budget justification file for the entire project period in Field K.** The file automatically carries over to each budget year.

4. R&R SUBAWARD BUDGET ATTACHMENT(S) FORM.

Budgets for Subawardees, other than DOE FFRDC Contractors. You must provide a separate cumulative R&R budget for each subawardee that is expected to perform work estimated to be more than \$100,000 or 50 percent of the total work effort (whichever is less). If you are selected for award, you must submit a multi-year budget for each of these subawardees. Download the R&R Budget Attachment from the R&R SUBAWARD BUDGET ATTACHMENT(S) FORM and e-mail it to each subawardee that is required to submit a separate budget. After the Subawardee has e-mailed its completed budget back to you, attach it to one of the blocks provided on the form. Use up to 10 letters of the subawardee's name (plus .xfd) as the file name (e.g., ucla.xfd or energyres.xfd).

5. PROJECT/PERFORMANCE SITE LOCATION(s).

Indicate the primary site where the work will be performed. If a portion of the project will be performed at any other site(s), identify the site location(s) in the blocks provided.

Note that the Project/Performance Site Congressional District is entered in the format of the 2 digit state code followed by a dash and a 3 digit Congressional district code, for example VA-001. Hover over this field for additional instructions.

Use the Next Site button to expand the form to add additional Project/Performance Site Locations.

6. SF-LLL Disclosure of Lobbying Activities.

If applicable, complete SF- LLL. Applicability: If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the grant, you must complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying."

Summary of Required Forms/Files

Your application must include the following documents:

Name of Document	Format	Attach to
SF 424 (R&R)	Form	N/A
RESEARCH AND RELATED Other Project Information	Form	N/A
Project Summary/Abstract	PDF	Field 7
Project Narrative, including required appendices	PDF	Field 8
RESEARCH & RELATED BUDGET	Form	N/A
Budget Justification	PDF	Field K
PROJECT/PERFORMANCE SITE LOCATION(S)	Form	N/A
SF-LLL Disclosure of Lobbying Activities, if applicable	Form	N/A

D. SUBMISSIONS FROM SUCCESSFUL APPLICANTS.

If selected for award, DOE reserves the right to request additional or clarifying information for any reason deemed necessary, including, but not limited to:

- Indirect cost information
- Other budget information
- Name and phone number of the Designated Responsible Employee for complying with national policies prohibiting discrimination (See 10 CFR Part 1040.5)
- Representation of Limited Rights Data and Restricted Software, if applicable
- Commitment Letter from Third Parties Contributing to Cost Sharing, if applicable

E. SUBMISSION DATES AND TIMES.

1. Letter of Intent: July 27, 2012, 11:59 PM Eastern Time

A Letter of Intent (LOI) is **strongly encouraged** by July 27, 2012, 11:59 PM Eastern Time. It is important that the LOI be in a single PDF file. The 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 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 or a full proposal.** To register, click "Create New PAMS Account" on the website <https://pamspublic.science.energy.gov/> and follow the instructions for creating an account. You will be prompted to create a username and password

and to enter your contact information. Registering to PAMS is a two-step process; once you create an individual account, you must associate yourself with (“register to”) your institution. Follow the onscreen instructions to do this.

All PIs and those submitting on behalf of PIs are encouraged to establish PAMS accounts as soon as possible to avoid submission delays. You may establish a PAMS account at <https://pamspublic.science.energy.gov/>.

To access PAMS, please use either Internet Explorer or Firefox. Currently, PAMS is not supporting the Chrome or Safari browsers, but an upgrade in the future will make it possible to use them.

To submit the letter of intent, log in to PAMS. Select “View Funding Opportunity Announcements” and find the current announcement in the list. Click on “Actions/Views” for this announcement, select “Submit Letter of Intent” from the dropdown, and follow the instructions from there. Note that you must select one and only one Principal Investigator (PI) per LOI; click on “Select PI” on the far right side of the screen and then select the appropriate PI from the list of all registered users from your institution returned by PAMS. If the PI for whom you are submitting does not appear on the list, 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, choose “Invite PI” at the top left of the “Select PI” screen. You can enter an optional personal message to the PI in the “Comments” box that PAMS presents, and it will be included in the email sent by PAMS to the PI. To upload the LOI as an attachment into PAMS, select “Attach File” at the far right side of the screen. Search for your file and then select “Attach” to upload the file. You may enter an optional description of the file you are attaching. Using the dropdown at the bottom of the screen, save the LOI and then submit it to DOE. Upon submission, the PI will receive an email from the PAMS system 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, please contact the Office of Science PAMS Support Center. The PAMS Support Center can be reached Monday-Friday 7:00 AM-6:00 PM Eastern Time. Telephone: (301) 903-5313, Email: scsc@science.doe.gov. All submission and inquiries about this FOA must reference FOA 744.

The LOI should include a brief description of the proposed work (1-2 pages, including text with minimum font size 11 point, figures, and references), and a one-page curriculum vitae from each Principal Investigator (PI), co-Principal Investigator (co-PI), and senior collaborator or consultant. The Letter should include: (a) a Subject line identifying it to be a Letter of Intent in response to FOA # DE-FOA-0000744; (b) Lead PI information: name, institutional affiliation, telephone number, fax number, and e-mail address; and, (c) For collaborative applications, names and institutions of all Institutional PIs, and senior collaborators or consultants (excluding postdoctoral associates). Since the purpose of the

LOI is to facilitate OFES in planning the merit review and the selection of peer-reviewers without conflicts of interest, it is important that applicants ensure their list of supported or unsupported participants is as comprehensive as possible.

2. Pre-Application.

N/A.

3. Formal Applications.

APPLICATION DUE DATE: August 14, 2012, 11:59 PM Eastern Time

Formal applications submitted in response to this FOA must be received by *Tuesday, August 14, 2012, 11:59 PM Eastern Time*, to permit timely consideration of awards in Fiscal Year 2013. **You are encouraged to submit your application well before the deadline. APPLICATIONS RECEIVED AFTER THE DEADLINE WILL NOT BE REVIEWED OR CONSIDERED FOR AWARD.**

F. INTERGOVERNMENTAL REVIEW.

This program is not subject to Executive Order 12372 Intergovernmental Review of Federal Programs.

G. FUNDING RESTRICTIONS.

Cost Principles. Costs must be allowable in accordance with the applicable Federal cost principles referenced in 10 CFR Part 600. The cost principles for commercial organization are in FAR Part 31.

Pre-award Costs. Recipients may charge to an award resulting from this FOA pre-award costs that were incurred within the ninety (90) calendar-day period immediately preceding the effective date of the award, if the costs are allowable in accordance with the applicable Federal cost principles referenced in 10 CFR Part 600. Recipients must obtain the prior approval of the contracting officer for any pre-award costs that are for periods greater than this 90-day calendar period.

Pre-award costs are incurred at the applicant's risk. DOE is under no obligation to reimburse such costs if for any reason the applicant does not receive an award or if the award is made for a lesser amount than the applicant expected.

H. OTHER SUBMISSION AND REGISTRATION REQUIREMENTS.

1. Where to Submit.

APPLICATIONS MUST BE SUBMITTED THROUGH GRANTS.GOV TO BE CONSIDERED FOR AWARD.

Submit electronic applications through the “Apply for Grants” function at www.Grants.gov. If you have problems completing the registration process or submitting your application, call Grants.gov at 1-800-518-4726 or send an email to support@grants.gov.

2. Registration Process.

You must COMPLETE the one-time registration process (all steps) before you can submit your first application through Grants.gov. We recommend that you start this process at least three weeks before the application due date. It may take 21 days or more to complete the entire process. To register with Grants.gov go to “Get Registered” at http://grants.gov/applicants/get_registered.jsp. Use the Grants.gov Organization Registration Checklist at <http://www.grants.gov/assets/OrganizationRegCheck.pdf> to guide you through the process. IMPORTANT: During the CCR registration process, you will be asked to designate an E-Business Point of Contact (EBIZ POC). The EBIZ POC must obtain a special password called "Marketing Partner Identification Number" (MPIN). 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).

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.

3. Application Receipt Notices.

After an application is submitted, the Authorized Organization Representative (AOR) will receive a series of four e-mails. It is extremely important that the AOR watch for and save each of the emails. It may take up to two (2) business days from application submission to receipt of email Number 2. The titles of the four e-mails are:

Number 1 - Grants.gov Submission Receipt Number

Number 2 - Grants.gov Submission Validation Receipt for Application Number

Number 3 - Grants.gov Grantor Agency Retrieval Receipt for Application Number

Number 4 - Grants.gov Agency Tracking Number Assignment for Application Number

PART V - APPLICATION 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 Part 605.10(b) to determine that (1) the applicant is eligible for the award; (2) the information required by the FOA has been submitted; (3) all mandatory requirements are satisfied; and (4) the proposed project is responsive to the objectives of the FOA. 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.

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. Included within each criterion are specific questions that the merit reviewers will be asked to consider:

a) Scientific and/or Technical Merit of the Project.

- *Comment on the potential impact of proposed diagnostics on advancing plasma science relevant to magnetic fusion energy. Will it lead to new and significant advancement of plasma science relevant to magnetic fusion energy? Or, will it lead to a substantial reduction in cost or complexity in diagnosing magnetized plasma relevant to magnetic fusion energy?*
- *Comment on the soundness of the scientific basis and/or principles governing the working of the diagnostic techniques.*
- *If the main purpose of the proposed research is to advance the state of the art of a relatively new diagnostic, comment on whether the proposed diagnostic has reached the maturity level allowing routine implementation on major experimental facilities.*

b) Appropriateness of the Proposed Method or Approach.

- *Is the conceptual framework of the proposed research adequately developed and appropriate?*
- *Has the application clearly identified, discussed, and addressed the key scientific/technical issues or challenges?*
- *Has the application laid out a logical project plan with clearly defined milestones to address these issues or challenges?*
- *Are there significant potential problems in the proposed method or approach? If so, are the applicant's plans to address these problems—including the consideration of alternative strategies—adequate?*

c) Competency of Applicant's Personnel and Adequacy of Proposed Resources.

- *Comment on the competency of the applicant's personnel and adequacy of proposed resources.*

d) Reasonableness and Appropriateness of the Proposed Budget

- *Are the applicant's requested budget and staffing levels appropriate for carrying out the proposed research?*

e) Performance under existing award (for renewal applications):

- *Comment on the progress made during the most recent performance period.*
- *Have the applicants disseminated the results of their research through publications in peer-reviewed journals, meeting and conference presentations, workshops, or other appropriate means?*

The evaluation process will include program policy factors such as the relevance of the proposed research to the terms of the FOA and the agency's programmatic needs, such as developing a scientific workforce for fusion energy sciences and plasma science. 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 a application constitutes agreement that this is acceptable to the investigator(s) and the submitting institution.

C. ANTICIPATED NOTICE OF SELECTION AND AWARD DATES.

It is anticipated that selections will be completed by November 30, 2012.

PART 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. (See Part IV.G with respect to the allowability of pre-award costs.)

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

2. Notice of Award.

An Assistance Agreement issued by the contracting officer is the authorizing award document. It normally includes, either as an attachment or by reference: 1. Special Terms and Conditions; 2. Applicable program regulations, if any; 3. Application as approved by DOE; 4. DOE assistance regulations at 10 CFR Part 600; 5. National Policy Assurances to Be Incorporated As Award Terms; 6. Budget Summary; and 7. Federal Assistance Reporting Checklist, which identifies the reporting requirements.

For grants and cooperative agreements made to universities, non-profits and other entities subject to OMB Circular 2 CFR, the Award also includes the Research Terms and Conditions located at <http://www.nsf.gov/bfa/dias/policy/rtc/index.jsp>

B. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS.

1. Administrative Requirements.

The administrative requirements for DOE grants and cooperative agreements are contained in 10 CFR Part 600 and 10 CFR Part 605 (See: <http://ecfr.gpoaccess.gov>). Grants and cooperative agreements made to universities, non-profits and other entities subject to Title 2 CFR are subject to the Research Terms and Conditions located on the National Science Foundation web site at <http://www.nsf.gov/bfa/dias/policy/rtc/index.jsp>.

DUNS and CCR Requirements.

Additional administrative requirements for DOE grants and cooperative agreements are contained in 2 CFR, Part 25 (See: <http://ecfr.gpoaccess.gov>). Prime awardees must keep their data at CCR current. Subawardees at all tiers must obtain DUNS numbers and provide the DUNS to the prime awardee before the subaward can be issued.

Subaward and Executive Reporting.

Additional administrative requirements necessary for DOE grants and cooperative agreements to comply with the Federal Funding and Transparency Act of 2006 (FFATA) are contained in 2 CFR, Part 170. (See: <http://ecfr.gpoaccess.gov>). Prime awardees must register with the new

FSRS database and report the required data on their first tier subawardees. Prime awardees must report the executive compensation for their own executives as part of their registration profile in the CCR.

2. Special Terms and Conditions and National Policy Requirements.

The DOE Special Terms and Conditions for Use in Most Grants and Cooperative Agreements are located at: <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>. The National Policy Assurances to Be Incorporated As Award Terms are located at <http://www.nsf.gov/bfa/dias/policy/rtc/appc.pdf>.

Intellectual Property Provisions.

The standard DOE financial assistance intellectual property provisions applicable to the various types of recipients are located at <http://energy.gov/gc/standard-intellectual-property-ip-provisions-financial-assistance-awards>.

Statement of Substantial Involvement.

Either a grant or cooperative agreement may be awarded under this FOA. If the award is a cooperative agreement, the DOE Contract Specialist and DOE Project Officer will negotiate a Statement of Substantial Involvement prior to award.

C. REPORTING.

Reporting requirements are identified on the Federal Assistance Reporting Checklist, DOE F4600.2, attached to the award agreement. For a sample Checklist, see <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>.

PART VII - QUESTIONS/AGENCY CONTACTS

A. QUESTIONS.

Questions regarding the content of the FOA must be submitted through the FedConnect portal. You must register with FedConnect to respond as an interested party to submit questions, and to view responses to questions. It is recommended that you register as soon after release of the FOA as possible to have the benefit of all responses. More information is available at:

https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf.

DOE will try to respond to a question within 3 business days, unless a similar question and answer have already been posted on the website.

Applications submitted through FedConnect will not be accepted.

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. DOE cannot answer these questions.

B. AGENCY CONTACTS.

Technical/Scientific Program Contacts:

Dr. Francis Thio, Office of Fusion Energy Sciences, SC-24.2

PHONE: (301) 903-4678

E-MAIL: francis.thio@science.doe.gov

PART VIII - OTHER INFORMATION

A. MODIFICATIONS.

Notices of any modifications to this FOA will be posted on Grants.gov and the FedConnect portal. You can receive an email when a modification or an FOA message is posted by registering with FedConnect as an interested party for this FOA. It is recommended that you register as soon after release of the FOA as possible to ensure you receive timely notice of any modifications or other FOAs. More information is available at <http://www.fedconnect.net>.

B. GOVERNMENT RIGHT TO REJECT OR NEGOTIATE.

DOE reserves the right, without qualification, to reject any or all applications received in response to this FOA and to select any application, 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 APPLICATION INFORMATION.

Patentable ideas, trade secrets, proprietary or confidential commercial or financial information, disclosure of which may harm the applicant, should be included in an application 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 application which are to be restricted:

“The data contained in pages ____ of this application have been submitted in confidence and contain trade secrets or proprietary information, and such data shall be used or disclosed only for evaluation purposes, provided that if this applicant receives an award as a result of or in connection with the submission of this application, DOE shall have the right to use or disclose the data herein to the extent provided in the award. This restriction does not limit the government’s right to use or disclose data obtained without restriction from any source, including the applicant.”

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 application, consents to the use of non-Federal reviewers/administrators. Non-Federal reviewers must sign conflict of interest and non-disclosure agreements prior to reviewing an application. Non-Federal personnel conducting administrative activities must sign a non-disclosure agreement.

F. INTELLECTUAL PROPERTY DEVELOPED UNDER THIS PROGRAM.

Patent Rights. The government will have certain statutory rights in an invention that is conceived or first actually reduced to practice under a DOE award. 42 U.S.C. 5908 provides that title to such inventions vests in the United States, except where 35 U.S.C. 202 provides otherwise for nonprofit organizations or small business firms. However, the Secretary of Energy may waive all or any part of the rights of the United States subject to certain conditions. (See “Notice of Right to Request Patent Waiver” in paragraph G below.)

Rights in Technical Data. Normally, the government has unlimited rights in technical data created under a DOE agreement. Delivery or third party licensing of proprietary software or data developed solely at private expense will not normally be required except as specifically negotiated in a particular agreement to satisfy DOE’s own needs or to insure the commercialization of technology developed under a DOE agreement.

G. NOTICE OF RIGHT TO REQUEST PATENT WAIVER.

Applicants may request a waiver of all or any part of the rights of the United States in inventions conceived or first actually reduced to practice in performance of an agreement as a result of this FOA, in advance of or within 30 days after the effective date of the award. Even if such advance waiver is not requested or the request is denied, the recipient will have a continuing right under the award to request a waiver of the rights of the United States in identified inventions, i.e., individual inventions conceived or first actually reduced to practice in performance of the award. Any patent waiver that may be granted is subject to certain terms and conditions in 10 CFR 784.12, http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title10/10cfr784_main_02.tpl.

Domestic small businesses and domestic nonprofit organizations will receive the patent rights clause at 37 CFR 401.14, i.e., the implementation of the Bayh-Dole Act. This clause permits domestic small business and domestic nonprofit organizations to retain title to subject inventions. Therefore, small businesses and nonprofit organizations do not need to request a waiver.

H. NOTICE REGARDING ELIGIBLE/INELIGIBLE ACTIVITIES.

N/A

I. 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.