

**Office of Science
Financial Assistance
Funding Opportunity Announcement
DE-PS02-07ER07-10**

***Development of Diagnostic Systems for
Magnetic Fusion Energy Sciences Experiments***

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 grant applications to conduct experimental research for the development of new measurement capabilities in magnetic fusion plasmas, leading to improved understanding of plasma behavior in fusion experiments relevant to the U.S. program in magnetic fusion energy sciences. All individuals or groups planning to submit applications for new or renewal funding in Fiscal Year 2008 should submit in response to this Announcement.

A parallel Program Announcement will **NOT** be issued to DOE Federally Funded Research and Development Centers (FFRDCs) at this time. It is anticipated that an Announcement for the Development of Diagnostic Systems for Magnetic Fusion Energy Sciences Experiments for FFRDCs will be issued at a later date.

LETTER OF INTENT DUE DATE: March 5, 2007

A Letter-of-Intent (LOI) to submit an application is **REQUIRED** and should be submitted by March 5, 2007. **Failure to submit a Letter of Intent by an applicant may preclude the full application from due consideration.** The Letter of Intent should be submitted electronically by E-mail to: john.sauter@science.doe.gov and darlene.markevich@science.doe.gov. Please include "Letter of Intent for Announcement DE-PS02-07ER07-10" in the subject line.

The purpose of the Letter of Intent (LOI) is to facilitate the OFES in planning the peer review and the selection of potential reviewers for the proposal. For this purpose, the LOI must include a one-page abstract of the proposed research and list the names and institutional affiliations of Principal Investigators, any Co-Principal Investigators, key investigators, collaborators or consultants, so as to identify any potential conflict of interest in the selection of qualified reviewers for the application.

APPLICATION DUE DATE: April 3, 2007, 8 PM Eastern Time

THE DEADLINE FOR FORMAL APPLICATIONS HAS BEEN CHANGED TO APRIL 6, 2007. [Added March 8, 2007]

Applications must be submitted using Grants.gov, the Funding Opportunity Announcement can be found using the CFDA Number, 81.049 or the Funding Opportunity

Announcement number, DE-PS02-07ER07-10. Applicants must follow the instructions and use the forms provided on Grants.gov.

PROGRAM MANAGER:

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SUPPLEMENTARY INFORMATION:

The Fusion Energy Sciences Advisory Committee (FESAC) Report "Scientific Challenges, Opportunities and Priorities for the U.S. Fusion Energy Sciences Program," April 25, 2005 (http://www.ofes.fusion.doe.gov/more_html/FESAC/ProgPrioritiesReport.pdf) states that "progress in plasma experiments has been closely linked to the development of improved diagnostic techniques, and that there has been impressive and steady progress in those techniques." In order to ensure continued progress in plasma experiments for the magnetic fusion energy sciences program, grant applications are sought for new techniques to measure quantities not previously accessible or at a level of detail greater than previously possible. The fusion community and the OFES must recognize the measurement as necessary for advancing the magnetic fusion energy sciences program. Interest for this Announcement is in experimental programs for the development of hardware for the measurement of magnetic fusion plasma parameters. 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. Grant requests seeking funding for the application of proven diagnostic techniques to experimental facilities will not be considered under this Announcement. Such diagnostic applications are typically funded as part of experimental facilities, based on their own research program priorities.

In addition, the proposed measurement must be of benefit to the research program of the fusion facility on which the diagnostic system will be installed and tested. A letter of support is required from the requisite person at the facility, explaining this benefit.

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

1. Proceedings of the 16th Topical Conference on High-Temperature Plasma Diagnostics, Williamsburg, VA, 2006, *Review of Scientific Instruments*, Vol. 77, No. 10, Part II, October 2006
2. Proceedings of the 15th Topical Conference on High-Temperature Plasma Diagnostics, San Diego, CA, 2004, *Review of Scientific Instruments*, Vol. 75, No. 10, Part II, October 2004

3. "Scientific Challenges, Opportunities and Priorities for the U.S. Fusion Energy Sciences Program," April 2005. (Report No. DOE/SC-0092) (URL: http://www.ofes.fusion.doe.gov/more_html/FESAC/PP_Rpt_Apr05R.pdf)
4. General Atomics, "Fusion Group DIII-D Program Diagnostic Needs" (URL: <http://fusion.gat.com/diii-d/DiagMeasureOpps>)
5. Massachusetts Institute of Technology, "Alcator C-Mod Program Diagnostic Needs" (URL: http://www.psfc.mit.edu/research/alcator/program/diagnostic_needs.html)
6. Princeton Plasma Physics Laboratory, "National Spherical Torus Experiment (NSTX) Diagnostic Needs" (URL: http://nstx.pppl.gov/Pages_folder/program_folder/NSTX_Diag_Needs.pdf)
7. Princeton Plasma Physics Laboratory, "National Compact Stellarator Experiment (NCSX) Diagnostic Needs" (URL: <http://ncsx.pppl.gov/Diagnostics/Diagnostics.html>); for additional information on NCSX, see <http://ncsx.pppl.gov/>.

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 Announcement. 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. However, 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. Further information on preparation of collaborative applications may be accessed via the Internet at: <http://www.science.doe.gov/grants/Colab.html>.

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