Office of Energy Research
Notice 98-17

Innovations in Magnetic Fusion Energy Diagnostic Systems

Department of Energy
Office of Energy Research

Energy Research Financial Assistance Program Notice 98-17;
Innovations in Magnetic Fusion Energy Diagnostic Systems

AGENCY: U.S. Department of Energy

ACTION: Notice inviting grant applications

SUMMARY: The Office of Fusion Energy Sciences (OFES) of the Office of Energy Research, U.S. Department of Energy (DOE) announces its interest in receiving grant applications for innovative research in magnetic fusion energy diagnostic systems. Research projects are sought that are unique, first of a kind, and provide new scientific insights. Applications for implementation of an **established** diagnostic technique on existing or planned facilities should **not** be submitted in response to this Notice. Successful applications will be funded in FY 1999.

DATES: To permit timely consideration for awards in Fiscal Year 1999, applications submitted in response to this notice must be received no later than 4:30 p.m., August 4, 1998. No electronic submissions of formal applications will be accepted.

ADDRESSES: Completed formal applications referencing Program Notice 98-17 should be forwarded to: U.S. Department of Energy, Office of Energy Research, Grants and Contracts Division, ER-64, 19901 Germantown Road, Germantown, Maryland 20874-1290, ATTN: Program Notice 98-17. The above address must also be used when submitting applications by U.S. Postal Service Express, any commercial mail delivery service, or when hand carried by the applicant.

FOR FURTHER INFORMATION CONTACT: Dr. Darlene Markevich, ER-55 GTN, U.S. Department of Energy, 19901 Germantown Road, Germantown, MD 20874-1290, Telephone: (301) 903-4920 or 3287, or by Internet address, darlene.markevich@mailgw.er.doe.gov.

SUPPLEMENTARY INFORMATION: The Office of Fusion Energy Sciences is interested in receiving applications for innovative diagnostic systems that have the

possibility of leading to improved understanding of plasma behavior in tokamaks, innovative confinement concepts, and burning plasma experiments. Research projects are sought that are unique, first of a kind, and provide new scientific insights. Although the main thrust of this initiative is for experimental work, consideration will be given to applications that are directed at a short-term scientific assessment of new diagnostic concepts that are not ready for extensive experimental investigation. Applications for the implementation of an established diagnostic technique on existing or planned facilities should not be submitted in response to this Notice. Also, applications for theory/modeling investigations or initiatives in Inertial Fusion Energy should not be submitted in response to this Notice.

In selecting applications for funding, the DOE Office of Fusion Energy Sciences will give priority to applications that can produce experimental results within three to five years after grant initiation. Except for assessment applications, the detailed description of the proposed project should contain the following items: (1) A detailed experimental research plan; (2) The specific results or deliverable expected at the end of the grant period; (3) The goal of the experiment; (4) A synopsis of the experimental program plan; (5) Adequacy of the facilities and budget; and (6) A proposed outline on how the diagnostic will be carried to a proof-of-principle (POP) demonstration. An estimated budget for POP demonstration must be included if the POP would be carried out after the end of the normal 3-year project period for a grant.

Applications concerned with scientific assessment of new diagnostic techniques that are not ready for experimental investigation should have a well-defined scope and a duration of no more than six months. These applications will be considered non-renewable. The product of such an assessment would be a clear scientific description of the diagnostic concept, the knowledge of fusion plasma behavior that would be gained from the diagnostic, and a critical analysis of major difficulties to be overcome in developing the concept.

Program Funding

It is anticipated that up to a total of $600,000 of Fiscal Year 1999 Federal funds will be available for new awards resulting from this Notice. Multiple-year funding of grant awards is anticipated, contingent upon the availability of funds. It is intended to support the research through proof-of-principle implementation on an existing fusion facility, consistent with availability of funds. However, future-year funding will depend on suitable experimental progress and the availability of funds. Because of the total amount of anticipated available funding and because of the intent to have a broadly based program, experimental applications with an annual requirement in any year in excess of $300,000 are unlikely to be funded. The cost-effectiveness of the application will be considered when comparing applications with different funding

requirements. Applications for scientific assessment of new concepts will be limited to a maximum of $50,000. DOE reserves the right to fund in whole or part any or none of the applications received in response to this Notice.

A parallel request for Field Work Proposals will be issued to DOE Federally Funded Research and Development Centers (FFRDCs). All projects will be evaluated using the same criteria, regardless of the submitting institution.

Collaboration

Applicants to this Notice are encouraged to collaborate with researchers in other institutions, such as universities, industry, non-profit organizations, federal laboratories, and FFRDCs, including the DOE National Laboratories, where appropriate, and to incorporate cost sharing and/or consortia wherever feasible.

An individual may be named as primary principal investigator on only one application submitted in response to this Notice. It is permissible, however, for the same principal investigator to be named as a co-principal investigator on one other application submitted in response to either this Notice, or the corresponding request for Field Work Proposals for this initiative. Collaborative projects involving several research groups at more than one institution may receive larger awards if merited. The program will be competitive and offered to investigators in universities or other institutions of higher education, other non-profit or for-profit organizations, non-Federal agencies or entities, or unaffiliated individuals.

Collaborative research applications may be submitted in several ways:

(1) When multiple private sector or academic organizations intend to propose collaborative or joint research projects, the lead organization may submit a single application which includes another organization as a lower-tier participant (subcontract) who will be responsible for a smaller portion of the overall project. If approved for funding, DOE may provide the total project funds to the lead organization who will provide funding to the other participant via a subcontract arrangement. The application should clearly describe the role to be played by each organization, specify the managerial arrangements and explain the advantages of the multi-organizational effort.

(2) Alternatively, multiple private sector or academic organizations who intend to propose collaborative or joint research projects may each prepare a portion of the application, then combine each portion into a single, integrated scientific application. A separate Face Page and Budget Pages must be included for each organization participating in the collaborative project. The joint application must be submitted to

DOE as one package. If approved for funding, DOE will award a separate grant to each collaborating organization.

(3) Private sector or academic applicants who wish to form a collaborative project with a DOE FFRDC may not include the DOE FFRDC in their application as a lower-tier participant (subcontract). Rather, each collaborator may prepare a portion of the proposal, then combine each portion into a single, integrated scientific proposal. The private sector or academic organization must include a Face Page and Budget Pages for their portion of the project. The FFRDC must include separate Budget Pages for their portion of the project. The joint proposal must be submitted to DOE as one package. If approved for funding, DOE will award a grant to the private sector or academic organization. The FFRDC will be funded, through existing DOE contracts, from funds specifically designated for new FFRDC projects. DOE FFRDCs will not compete for funding already designated for private sector or academic organizations. Other Federal laboratories who wish to form collaborative projects may also follow guidelines outlined in this section.

Application Format

To enable all reviewers to read all applications, the application must be limited to a maximum of twenty (20) pages (including text and figures), plus not more than one page each of biographical information and publications of the principal investigator, plus any additional forms required as a part of the standard grant application.

An original and seven copies of each application must be submitted. Due to the anticipated number of reviewers, it would be helpful for each applicant to submit an additional five copies of each application.

Applications will be subjected to formal merit review and will be evaluated against the following criteria, which are listed in descending order of importance as set forth in 10 CFR Part 605:

1. Scientific and/or technical merit of the project;
2. Appropriateness of the proposed method or approach;
3. Competency of the applicant's personnel and adequacy of the proposed resources; and
4. Reasonableness and appropriateness of the proposed budget.

In addition to peer review, funding decisions will be based on program policy factors, such as the relevance of the proposed research to the terms of the announcement and the agency's programmatic needs. General information about development and submission of applications, eligibility, limitations, evaluations and selection

processes, and other policies and procedures may be found in the Application Guide for the Office of Energy Research Financial Assistance Program and 10 CFR Part 605. Electronic access to the Application Guide is possible via the Internet using the following Web site address: http://www.er.doe.gov/production/grants/grants.html

References for Background Information

In order to assist the potential applicant under this Notice, the summary of a recent workshop that addressed measurement needs in fusion devices is provided on the World Wide Web at: http://wwwofe.er.doe.gov/more_html/pdffiles/diag.pdf The summary is intended as background information on measurement needs. New diagnostic techniques that address these measurements are the ones most likely to be considered for funding under this Notice. However, new diagnostic techniques that address other measurements in fusion plasmas will also be considered for funding under this Notice.

For those without access to the World Wide Web, hard copies of the workshop summary may be obtained by contacting Mr. John Sauter at (phone) 301-903-3287, (fax) 301-903-4716, or in writing at U.S. Department of Energy, Office of Energy Research, ER-55, 19901 Germantown Road, Germantown, MD 20874-1290.

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

Ralph H. DeLorenzo, Acting Associate Director
for Resource Management
Office of Energy Research

Published in the Federal Register May 19, 1998, Volume 63, Number 96, pages 27571-27573.