

**Program Announcement LAB 98-17**  
**Request for Field Work Proposals on**  
*Innovations in Magnetic Fusion Energy Diagnostic Systems*

**SUMMARY:** The Office of Fusion Energy Sciences of the Office of Energy Research, U.S. Department of Energy (DOE), hereby announces its interest in receiving peer-reviewable Field Work Proposals (FWPs) 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 announcement. Successful proposals will be funded in FY 1999.

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

**ADDRESSES:** Completed FWPs referencing this Request should be forwarded to: Mr. John F. Sauter, ER-55 GTN, U.S. Department of Energy, 19901 Germantown Road, Germantown, Maryland 20874-1290, ATTN: Innovations in Magnetic Fusion Energy Diagnostic Systems. The above address must also be used when submitting FWPs 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](mailto:darlene.markevich@mailgw.er.doe.gov).

**SUPPLEMENTARY INFORMATION:** The Office of Fusion Energy Sciences is interested in receiving FWPs 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 FWPs that are directed at a short-term scientific assessment of new diagnostic concepts that are not ready for extensive experimental investigation. FWPs for the implementation of an established diagnostic technique on existing or planned facilities should not be submitted in response to this Request. Also, FWPs for theory/modeling investigations or initiatives in Inertial Fusion Energy should not be submitted in response to this Request.

In selecting FWPs for funding, the DOE Office of Fusion Energy Sciences will give priority to projects that can produce experimental results within three to five years after initiation of funding. Except for assessment FWPs, a proposed outline on how the diagnostic will be carried to a proof-of-principle (POP) demonstration must be included as part of the technical information. An estimated budget for POP demonstration must also be included if the POP would be carried out after the end of the period for which a detailed budget has been provided.

FWPs 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 FWPs 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 approximately \$300,000 of Fiscal Year 1999 Federal funds will be available for funding FWPs resulting from this Request. 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. The cost-effectiveness of the FWP will be considered when comparing FWPs with different funding requirements. FWPs for scientific assessment of new concepts will be limited to a maximum of \$50,000.

**COLLABORATION:** Applicants to this Request 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. If any portion of the project described is to be done in collaboration with another institution, provide information on the institution and why it is to do the specific component of the project.

An individual may be named as primary principal investigator on only one FWP submitted in response to this Request. It is permissible, however, for the same principal investigator to be named as a co-principal investigator on one other FWP submitted in response to either this request or to the corresponding Program Notice 98-17.

**FORMAT:** FWPs submitted to the Office of Energy Research as a result of this Request will undergo scientific/technical merit review (peer review). To enable all reviewers to read all FWPs, the FWP 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 FWP.

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

FWPs will be subjected to formal merit review and will be evaluated against the following criteria, which are listed in descending order of importance:

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.

**REFERENCES FOR BACKGROUND INFORMATION:** In order to assist the potential proposer under this Request, the summary of a recent workshop that addressed measurement needs in fusion devices is provided on the World Wide Web at: [http://www.foe.er.doe.gov/more\\_html/pdffiles/diag.pdf](http://www.foe.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 Request. However, new diagnostic techniques that address other measurements in fusion plasmas will also be considered for funding under this Request.

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