Office of Science
Financial Assistance
Funding Opportunity Announcement
DE-PS02-09ER09-05

Fundamental Research in Superconducting RF Cavity Design

The Office of High Energy Physics (OHEP), U.S. Department of Energy (DOE), hereby announces its interest in receiving applications/proposals relevant to the development and design of Superconducting Radio Frequency (SRF) cavities that can substantially improve performance through better understanding of material properties, surface dynamics, processing procedures, and cavity geometric configurations. Subject to appropriations, funds are anticipated to be available within the SRF research program within OHEP to support this research.

LETTER OF INTENT DUE DATE: December 15, 2008

A Letter of Intent comprising information on collaborators and a brief summary of the proposed research (one paragraph), is strongly encouraged (but not required) and should be submitted by **December 15, 2008** directly to the Office of High Energy Physics. The Letter of Intent, referencing Funding Opportunity Announcement DE-PS02-09ER09-05, should be sent to Dr. Wu-Tsung Weng by e-mail: bill.weng@science.doe.gov. **Please include the phrase "SRF Letter-of-Intent" in the subject line of the e-mail.**

APPLICATION DUE DATE: January 15, 2009, 8:00 pm, Eastern Time

Applications from universities 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-PS02-09ER09-05. Applicants must follow the instructions and use the forms provided on Grants.gov.

Submissions from DOE FFRDCs must complete a formal FWP consistent with policies of the investigator's laboratory and the local DOE Operations Office. (Field Work Proposal Format (Reference
DOE O 412.1A)). Additional information is requested to allow for scientific/technical merit review. The FWP should be submitted via email as a single PDF file of the entire LAB proposal and FWP. The email should be addressed to Ms. Donna Lang at: Donna.Lang@science.doe.gov. Please use "Program Announcement DE-PS02-09ER09-05" as the subject of the email.

GENERAL INQUIRIES ABOUT THIS NOTICE SHOULD BE DIRECTED TO:

Scientific/Technical Program Contact:

PROGRAM MANAGER: Dr. Wu-Tsung Weng, Office of High Energy Physics
PHONE: (301) 903-2718
FAX: (301) 903-2597
E-MAIL: Bill.Weng@science.doe.gov

SUPPLEMENTARY INFORMATION:

The core of an accelerator is the accelerating device to provide the needed voltage for rapid acceleration of particle to high energy. A superconducting cavity can fulfill this goal at much reduced operating cost due to its low consumption of electrical power and its compatibility to higher current operation. A well-designed SRF cavity system can be utilized in the research of high energy physics, other disciplines in the DOE Office of Science, and many medical and industrious applications for the society at large.

The need of fundamental research in the design of a SRF cavity system has been recognized in many DOE advisory panel reviews in the past. For example, the HEPAP subpanel on Accelerator research reported in 2006 that "OHEP should ...establish programs for SRF similar to those for superconducting magnets, which included the Conductor Development Program (CDP) and the Low Temperature Superconducting Workshop (LTSW) efforts". The HEPAP P5 panel in 2008 reiterated the need of enhanced fundamental R&D on SRF cavities for the future of scientific exploration and industrial applications.

The DOE HEP office calls for applications/proposals with activities in Fiscal Year 2009 in the development and design of SRF cavities that can substantially improve their performance through better understanding of material properties, surface dynamics, processing procedures, and cavity geometric configurations.

The applications/proposals should describe the overall project, address the key techniques which will be advanced for the design of SRF cavities, detail how it will improve the performance goals in terms of gradient, yield, reliability, cost, or life time. A description and justification of the activities to be carried out with the requested funds and the institutions and personnel that will be involved in each effort should be included. The application/proposal should justify the benefits and progress to be gained if funding is provided and impacts if it is not. The budget requested should describe the salaries, equipment, supplies, travel and any other items.

Synergistic collaborations with researchers in Federal Laboratories and Federally Funded Research and Development Centers (FFRDCs), including the DOE National Laboratories are expected.

Program Funding

It is anticipated that up to $2,000,000 per year will be available for approximately 7 awards to be made in Fiscal Year 2009, contingent on the availability of appropriated funds. Applications/Proposals may request project support up to three years, with out-year support contingent on the availability of funds, progress of the research and programmatic needs. Annual budgets for project applications/proposals are expected to range from $150,000 to $500,000 total costs. DOE is under no obligation to pay for any costs associated with preparation or submission

of applications/proposals. DOE reserves the right to fund, in whole or in part, any, all, or none of the applications/proposals submitted.

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
October 15, 2008.