

**Office of Science  
Financial Assistance  
Funding Opportunity Announcement  
DE-PS02-06ER06-29**

***Rare Isotope Beam Capabilities***

The Office of Nuclear Physics (NP), Office of Science (SC), U.S. Department of Energy (DOE), hereby announces its interest in receiving applications for Research and Development (R&D) projects directed at rare isotope beam capabilities. A next generation facility for nuclear structure and astrophysics is under consideration to address emerging research opportunities in low energy nuclear physics, and DOE is sponsoring pre-conceptual R&D activities on next generation rare isotope capabilities.

A companion Program Announcement to DOE Laboratories (LAB 06-29) will be posted on the Office of Science Grants and Contracts web site at: <http://www.science.doe.gov/grants/>.

**APPLICATION DUE DATE:** October 24, 2006, 8 PM Eastern Time

Applications must be submitted using [Grants.gov](http://www.grants.gov), the Funding Opportunity Announcement can be found using the CFDA Number, 81.049 or the Funding Opportunity Announcement number, DE-PS02-06ER06-29. Applicants must follow the instructions and use the forms provided on [Grants.gov](http://www.grants.gov).

**PROGRAM MANAGER:** Dr. Manouchehr Farkhondeh, Office of Nuclear Physics

**PHONE:** (301) 903-4398

**FAX:** (301) 903-3833

**E-MAIL:** [Manouchehr.Farkhondeh@science.doe.gov](mailto:Manouchehr.Farkhondeh@science.doe.gov)

**SUPPLEMENTARY INFORMATION:** The DOE/National Science Foundation (NSF) Nuclear Science Advisory Committee's (NSAC) has been charged to perform an evaluation of the options for a next-generation facility in the United States for rare isotope beam studies with a report expected in March 2007. Additional information on rare isotope beam capabilities are outlined in the 1999 NSAC ISOL Taskforce Report that can be found at: <http://www.sc.doe.gov/np/nsac/docs/ISOLTaskForceReport.pdf> and the 2002 NSAC Long Range Plan for Nuclear Science at [http://www.sc.doe.gov/np/nsac/docs/LRP\\_5547\\_FINAL.pdf](http://www.sc.doe.gov/np/nsac/docs/LRP_5547_FINAL.pdf)

**Program Objective:**

Community sponsored studies and workshops have identified a number of areas where focused R&D and prototyping could enhance performance, reduce costs, and impact the engineering and construction schedule risk for a next generation facility. Examples of R&D studies aimed at a

rare isotope beam facility can be at the following website:

<http://www.sc.doe.gov/np/program/riard.htm>

The proposed R&D should be generic and not site specific. Among the areas of potential R&D topics are:

- Beam simulations, including end-to-end and parallel computing;
- Front end concepts, including driver ion source and Radio Frequency Quadrupole (RFQ);
- Driver Linac concepts, including stripper parameters, cavity development and diagnostics.
- Isotope-Separator-on-Line (ISOL) and Projectile fragmentation based on ISOL concepts.
- Fragment Separation-for Fragment Separator concepts, including beam dumps and high power targets.
- Fragment Separation-for Gas Cell concepts, including alternative cell geometries.
- Post Acceleration including performance issues, isobar-separator and diagnostics.
- Multi User Considerations concept including beam splitting for realistic simultaneous independent experiments.

Applications requesting support for research and development in one or more of the areas outlined above should indicate a separate task for each area. Applications may include more than one task. For each task the application should address the goal of the effort; the method or approach to be taken; a cost-breakdown of the effort; the manpower to carry out the effort; the deliverable result of the work; and the performance, cost, or schedule benefit for a rare isotope beam facility. Each task should describe a realistic schedule which includes a minimum of one milestone per quarter. Applicants should note that they will be required to report formally on a quarterly basis regarding R&D expenditures and progress towards achieving the milestones and deliverables of the proposed effort. Institutional contributions to the effort should be clearly indicated.

### **Collaboration**

Applicants are encouraged to collaborate with researchers in other institutions, such as: universities, industry, non-profit organizations, federal laboratories and Federally Funded Research and Development Centers (FFRDCs), including the DOE National Laboratories, where appropriate, and to include cost sharing and/or consortia wherever feasible. All collaborators should be listed with the abstract or summary. Additional information on collaboration is available in the Application Guide for the Office of Science Financial Assistance Program that is available via the World Wide Web at: <http://www.science.doe.gov/grants/Colab.html>.

Posted on the Office of Science Grants and Contracts Web Site  
August 10, 2006.