



LDRD at Fermilab

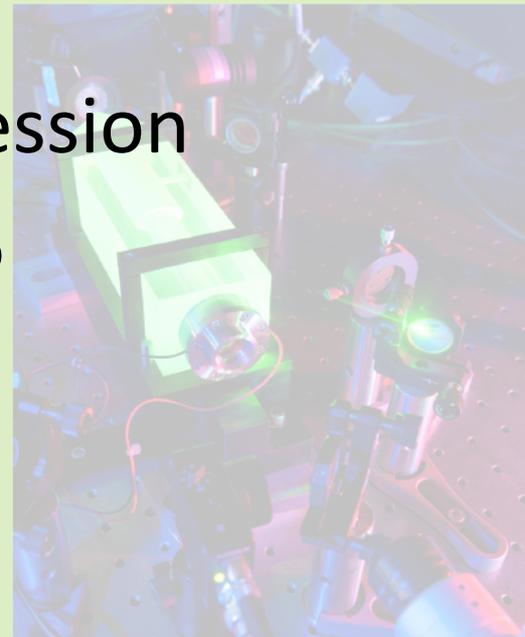


Information Session

July 2016



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LDRD Coordinator



Introduction

- The Department of Energy allows national labs to have and administer a “Laboratory Directed Research and Development,” LDRD, Program under DOE Order 413.2C
 - Maintain scientific vitality at the laboratory
 - Novel, cutting edge, demonstration, high risk/high reward projects at the forefront of science and technology.
 - Projects must be outside current programmatic activities and relevant to the missions of FNAL and DOE.
 - Maximum duration is 36 months. For FY17, projects are expected to start Mar 2017.

For Fermilab personnel with great ideas ...

LDRD represents a great opportunity to think creatively, to explore a new idea, a new concept, try out a new technique ... work at the forefront of science and technology.

While there are requirements and restrictions, the idea is that the process is as little burdensome as possible.

Your role is to be a “Principal Investigator of a LDRD Project”

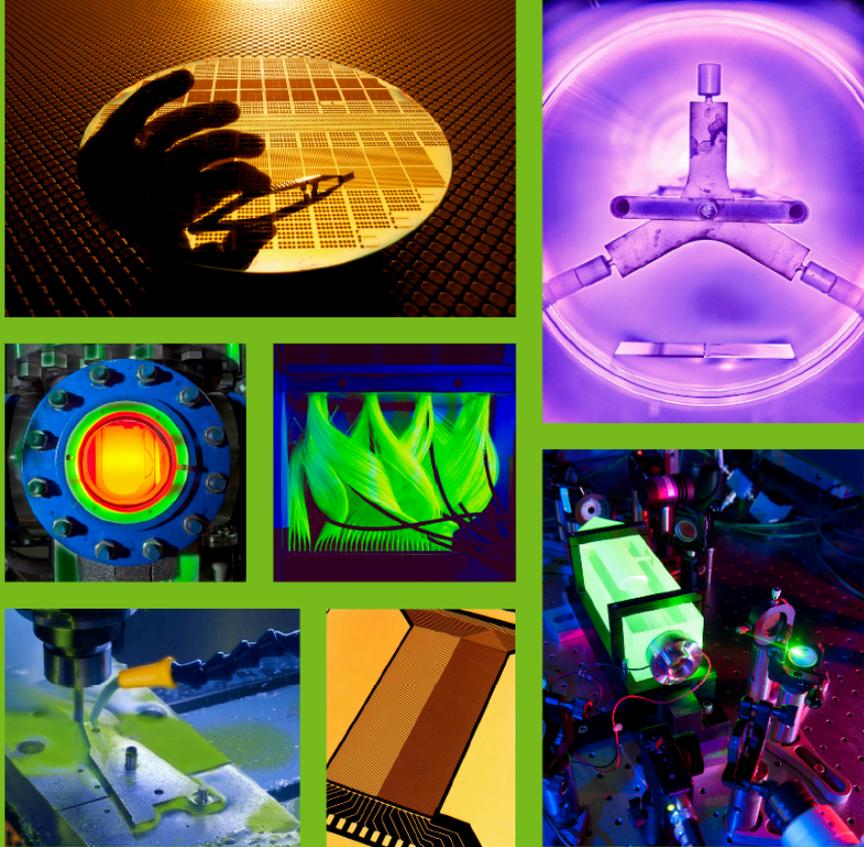
You propose a project, it gets reviewed, ultimately the Laboratory Director approves the project for funding. Your project gets assigned a project / task code and you manage the work plan outlined in your proposal. You obtain results in a deliverable milestone (publication, device, etc.) and complete end-of-project reporting. In some cases, your LDRD will “morph” into programmatic funding or funding from another source [this is considered a success!].

LDRD can also be used to support new strategic areas

LDRD Annual Program Plan

An LDRD Advisory committee has met and developed the implementation procedures for Fermilab's LDRD program. These appear as part of a LDRD Annual Program Plan and a set of documents that describe the process.

The Annual LDRD Program Plan for Fermilab has been approved by DOE which has authorized FY2016 LDRD expenditures to not exceed \$4.5M (this includes continuing LDRD projects!)



2016 | Laboratory Directed Research & Development Program Plan
Fermilab

Fermilab

U.S. DEPARTMENT OF **ENERGY** | Office of Science

Call for proposals

1st step: Preliminary Proposal

(due Aug 19 for full consideration)

- Brief description of your project with the scope of the work plan and resources required AND sign-off approval from your Supervisor and Division Head
 - Management is aware of your intentions and believes it can accommodate your requested resources
 - LDRD Selection Committee gets a first look at possible proposals and might suggest changes to be compliant with LDRD requirements

Fermilab Laboratory Directed Research and Development, LDRD
Preliminary Proposal

Project Title:
Principal Investigator:
Co-Investigators (w/institutions):

Supervisor/Line Management Approval: _____
Date

Lead Division/Sector/Center Approval: _____
Date

Project Summary (~150 words): Project objectives, novelty, relation to mission.

Project Work Plan (~200 words): Overview description the work to be performed, timescale, and approximate financial/personnel resources required.

Comments or Questions (optional). Short description of anything else relevant or if you have any initial questions of the LDRD Selection Committee.

Preliminary Proposal Process

- Supervisor / Division have a say in whether there is support for you working on an LDRD project
- The LDRD Selection Committee will review the preliminary proposals and make an initial determination on the relative strength of your proposal. Expect feedback by Sep 9. Full Proposals are due Nov 4 including working with your Division's field financial manager on your proposed budget.
- We expect ~30 Preliminary Proposals (all are very good ideas). Look for feedback to be such to encourage approximately ~15 Full Proposals. We expect to be able to fund 5-7 new projects.

Call for proposals

2nd step: up to ~6 page full proposal

(due Nov 4 for full consideration)

- Summary and full description of your project with a detailed research/work plan and resources required.
 - Emphasize novel nature, relation to Fermilab's/DOE's mission
 - Detailed research plan with key milestones and ending deliverable
- Budget table to be prepared with assistance of Division's Field Financial Manager (FFM).
 - FTE costs for various job categories
 - Overhead rates for various pieces of the proposal

Title

PI (co-I's)

Project Description

Significance

Research Plan

Future Funding

Budget Table

Qualifications (optional)

Full Proposal Process

- All of the members of the LDRD Selection Committee will evaluate each Full Proposal
- In early Dec, each PI of a Full Proposal will make a short presentation to the Selection Committee (no slides) where there is an opportunity to respond to initial questions. Additional questions might follow and require an email response.
- The LDRD Selection Committee will meet and deliberate according to a charge to recommend a list of projects to the Director. We present an ordered list of recommended projects to the Director who makes the final decisions.

Criteria for Evaluating LDRD Proposals

WORKSHEET FOR SCORING LDRD PROPOSAL

Proposal Name and/or ID Number	Principal Investigator's Name

Scoring Criteria	Rating (Check One Per Criteria)					Comments/Notes
	1 = Poor	2 = Fair	3 = Good	4 = Very Good	5 = Excellent	
Scientific/Technical Significance						
Innovativeness/Novelty						
Proposer Qualifications						
Proposal Quality						
Likelihood of Success						
Mission Relevance						
Initiative Relevance						
Strategic Fit						
Enduring Capability						
Laboratory Reputation						

Managing a LDRD Project

LDRD Selection Committee recommends LDRD Projects to the Director for approval subject to DOE Fermi site office concurrence.

Work on the LDRD project may begin when project/task code exists.

The PI is responsible for managing the LDRD project

- Cost effective use of funds

- Adhere to ES&H and Quality Assurance and other Lab policies

- Obtain Division approval of Work Plan (safety concerns addressed, etc.)

- Notify LDRD Coordinator of any changes in scope, other issues

- Prepare mid-year review materials for multi-year projects

- Provide management with periodic status reports

- Protect intellectual property

- Culminate the project in a clear deliverable such as a publication

- Prepare required end-of-project reports

LDRD Projects

- FY14: 50 Preliminary, 26 Full Proposals, 7 funded 4 completed (*)
- FY15: 34 Preliminary, 10 Full Proposals, 6 funded 3 nearly done (+)
- FY16: 34 Preliminary, 15 Full Proposals, 7 funded

LDRD-2014-010	Brad Benson	<u>Cosmic Microwave Background Detector Development at Fermilab</u>
+ LDRD-2014-038	Phil DeMar	<u>Application-Oriented Network Traffic Analysis based on GPUs</u>
* LDRD-2014-028	Juan Estrada	<u>Deployment and operation of a prototype CCD array at Reactor Site for detection of Coherent Neutrino-Nucleus Interaction</u>
* LDRD-2014-027	Sarah Lockwitz	<u>From Magic to Method: Characterizing High Voltage in Liquid Argon TPCs with Breakdown in liquid argon cryostat for high voltage experiments</u>
LDRD-2014-012	Henryk Piekarz	<u>Development of HTS Based Rapid-Cycling Accelerator Magnets</u>
* LDRD-2014-016	Greg Saewert	<u>HF GaN Driver</u>
LDRD-2014-025	Bob Zwaska	<u>The Sinuous Target</u>
LDRD-2015-020	Ryan Rivera	<u>Off-the-Shelf Data Acquisition System</u>
* LDRD-2015-029	Alexander Romanenko	<u>Nb₃Sn superconducting RF cavities to reach gradients up to 90MV/m and enable 4.2K operation of accelerators</u>
LDRD-2015-021	Victor Scarpine	<u>Transverse and Longitudinal Profile Diagnostics for H- Beams using Fiber Lasers and Synchronous Detection</u>
+ LDRD-2015-010	Marcelle Soares-Santos	<u>Dark Energy Survey and Gravitational Waves</u>
LDRD-2015-031	Alexander Valishev	<u>A comprehensive investigation of a transformational integrable optics storage ring as a “smart” rapid cycling synchrotron for high-intensity beams</u>
+ LDRD-2015-009	Michael Wang	<u>High Energy Physics Pattern Recognition with an Automata Processor</u>

LDRD Projects – FY16

Approved FY16 Projects

LDRD-2016-032	Jin Chang	<u>Implement open source HEP NoSQL database</u>
LDRD-2016-034	Swapan Chattopadhyay	<u>Instrumentation for the Initial set of Critical Scientific Experiments in IOTA and the FAST Injector</u>
LDRD-2016-010	Marc Paterno	<u>Preparing HEP reconstruction and analysis software for exascale era computing</u>
LDRD-2016-001	Eric Prebys	<u>Beam Precision Time Profile Monitor</u>
LDRD-2016-007	Andrew Sonnenshein	<u>Tuning Axion Detectors with Non-Linear Dielectrics</u>
LDRD-2016-004	Javier Tiffenberg	<u>Development of an ultra low energy threshold particle detector</u>
LDRD-2016-008	Genfa Wu	<u>Novel Methods for High Performance Superconducting Coating on Copper</u>

- PPD (5) Neutrino (1) Accelerator (7) Technical (2) Computing (5)
- Cross-divisional work enabled (i.e. funding for Soares-Santos includes computer professionals.)
- Director initiated “projects” (Benson, Chattopadhyay)

Summary and then questions

I would like to thank Nigel for being a champion for establishing LDRD at Fermilab. I personally think that there is tremendous potential within the Fermilab staff to do great things. LDRD allows for those great things to get started.

Web site: ldrd.fnal.gov

Please contact
wester@fnal.gov
with any questions

FY2016 deadlines are
fast approaching.

Fermilab **LDRD at Fermilab**
Laboratory Directed Research and Development

Accelerator | Accelerator Physics | Astrophysics | Computing | IARC | Neutrino | Particle Physics | Technical | Theory

About LDRD and FAQs for Principal Investigators
2016 Annual LDRD Program Plan
2015 Annual LDRD Report
LDRD at DOE
Current and On-going Projects
Completed Projects
LDRD Advisory Committee
LDRD Selection Committee

[LDRD FermiPoint Site](#)

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[Security, Privacy, Legal](#)

A complete description can be found in the [Annual LDRD Program Plan](#)

A brief description can be found in the [LDRD Information Session](#) slides

Fermilab has instituted a Laboratory Directed Research and Development program as outlined by DOE Order O413.2B in order to support employee initiated proposals that are novel, cutting edge, and explore forefront areas of science and technology. The program will enhance the Laboratory's ability to carry out the mission of DOE and the Laboratory in areas that are outside current programmatic activities but are well-aligned with the strategic goals of the Laboratory.

[The FY2017 Call for Proposals](#)

Status: The FY17 Call for Proposals has been announced. The Preliminary Proposal is due by August 19 2016 and invitations to submit a Full Proposal should be expected by Sept 9. Please start thinking through your great idea, vetting it with your line and Divisional management, and preparing the Preliminary Proposal using the Template below. There will be an Information Session on LDRD in the next couple of weeks (to be advertised in Fermilab This Week).

- Quick links for perspective Principle Investigators
 - Preliminary Proposal (template ([docx.pdf](#)))
 - Full Proposal (template ([docx.pdf](#)))
 - Budget Table template to be completed with Division Field Financial Manager([xlsx](#))
 - Evaluation criteria for full proposals ([criteria](#))
 - Reporting requirements for end of project ([instructions](#))
- What LDRD can be used to support
 - Advanced study of hypothesis, concepts, and innovative approaches to scientific, technical, or computational problems
 - Experiments, theoretical studies, simulations, and analyses directed toward "proof of principle" or early determination of the utility of new scientific ideas, technical concepts, and devices or research tools
 - Concept creation and preliminary technical analyses of advanced, novel experimental facilities and devices or of facilities for computational science.
- What LDRD is unable to support
 - R&D that is already part of programmatic activity / existing project
 - R&D that requires non-LDRD funds to complete

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