OFFICE OF THE DIRECTOR

TO: Bruce Dunham, Mike Dunne, Michael Fazio, Kelly Gaffney, Tony Heinz, JoAnne Hewett, Paul McIntyre, Piero Pianetta

FROM: Chi-Chang Kao

DATE: March 15, 2019

SUBJECT: FY2020 LDRD Call for Proposals (Proposal due date April 12, 2019)

The LDRD program is a mechanism for aligning our forefront scientific research and technical capabilities towards addressing vital and emerging challenges at the national level. By allocating investment for rapid and significant contributions, the LDRD program contributes to our scientific staff capability and vitality, transforms our existing programs and broadens our mission and its impact. Ultimately, the LDRD program is a source of enrichment for SLAC’s core competencies, new areas of discovery and lab growth.

LDRD projects are typically conducted with a scale of effort that utilizes existing experimental facilities (i.e. bench-scale research and development) or computational facilities at SLAC or Stanford University. **Consistent with DOE policy, LDRD awards cannot be used to co-fund new or existing research projects or for construction line-item, maintenance projects, or for general purpose equipment acquisitions.** For FY2020, LDRD proposals are solicited under the following two categories:

1. **Category 1 - Major Initiatives:** proposals in this category should lead towards the development of new research programs and/or capabilities in support of the SLAC Agenda major initiatives, with emphasis on multi-directorate, cross-disciplinary collaborations. Industry or other external partnerships that contribute unique capability or expertise to the effort proposed are highly encouraged. For FY2020, preference in Category 1 will be given towards proposals addressing the specific topics below:
   a. Applications of scientific machine learning and/or novel computational algorithms to address compelling scientific or technological challenges across the SLAC Agenda major initiatives. Machine learning is anticipated to have broad and transformative effect across the DOE mission, as described in the 2018 ASCR Basic Research Needs for Scientific Machine Learning workshop report ([https://science.energy.gov/ascr/community-resources/program-documents/](https://science.energy.gov/ascr/community-resources/program-documents/)); LDRD proposals should address innovative concepts from domain-specific applications of ML to broadly applicable methodologies with impact towards data-intensive scientific or technological problems.
   b. Novel scientific or technological concepts in the area of Quantum Information Science leveraging the unique capabilities and expertise of SLAC and Stanford University. The recent National Quantum Initiative Act recognizes the significant impact that DOE facilities, capabilities and expertise could bring to this critical area; LDRD proposals should address important preliminary efforts demonstrating such impact, and could range from a fundamental understanding of quantum phenomena in chemical and materials systems...
relevant to QIS, to quantum-based concepts for next generation quantum sensing and detection.

2. **Category 2- Exploratory R&D:** proposals in this category should explicitly address high-risk, proof-of-concept investigations and articulate the potential significant breakthroughs and impact across the science and technology areas of the SLAC Agenda. Proposals in this category will be limited in size to $180K per year.

For timely assessment of project feasibility and to allow a vibrant program that accommodates new ideas each year, LDRD projects are required to have a maximum duration of 2 years. In rare cases, exceptions to the 2-year project duration requirement may be granted. Flexibility in the planning of funds may be allowed to accommodate hiring timetables.

Each directorate should select qualified proposals using a suitable internal selection process before submitting to the LDRD program. Multi-directorate proposals should be coordinated with the relevant Associate Lab Directors before submitting to the LDRD program. A maximum of 30 proposals across the lab will be considered for evaluation by the LDRD program review. Please plan for your internal process such that it allows investigators sufficient time for narrative and budget development prior to the LDRD proposal due date of April 12, 2019. All SLAC scientific and engineering staff and faculty are eligible to apply for LDRD funding through their directorate's internal selection process. The call is open to Stanford faculty only as part of a collaboration with SLAC staff. Stanford faculty interested in submitting a joint proposal must consult with their SLAC collaborator and ALD to ensure that the LDRD criteria are satisfied, discuss alignment and benefit to SLAC's mission and agenda, and participate in the internal selection process of the relevant SLAC directorate. The SLAC Agenda can be found here [https://internal.slac.stanford.edu/directors-office/resources/documents](https://internal.slac.stanford.edu/directors-office/resources/documents).

The LDRD program will review initially the scientific merit and feasibility of the proposed efforts through external reviews solicited from subject matter experts and internal peer-review panels. Lead investigator presentations will take place in front of internal peer-review panels (SLAC/Stanford staff and faculty) on May 16, 2019. Highly-ranked proposals from this phase will advance to a strategic review where proposal impact on the mission areas and the lab's growth strategy will be evaluated. Ongoing LDRD projects will be reviewed by the mission ALDs in June and will receive approval to continue at the same time as newly awarded projects, no later than end of August. More information about the LDRD program and proposal templates can be found here [https://ldrd.slac.stanford.edu](https://ldrd.slac.stanford.edu).

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