**NATIONAL SCIENCE FOUNDATION**
**2415 EISENHOWER AVENUE**
**ALEXANDRIA, VIRGINIA 22314**

**NSF 20-124**

# Dear Colleague Letter: Competition of Management and Operations of synchrotron-hosted analytical capabilities for Earth sciences research

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Dear Colleagues:

The Division of Earth Sciences (EAR) in the Directorate for Geosciences (GEO) at the National Science Foundation (NSF) plans a competition for the management and operation of a suite of synchrotron-based analytical capabilities. The existing infrastructure provides Earth scientists with access to world-leading techniques to answer major questions in Earth science research. NSF envisions that a future facility managed by a single, lead organization will: provide end-user access to a geographically-distributed suite of analytical instrumentation and capabilities hosted at US Department of Energy (DOE) supported, National Laboratory-based, synchrotron light sources; provide on-site technical support; spearhead development of new instrumentation and techniques; and foster research training and outreach to promote scientific progress and advance understanding of Earth materials and processes.

The planned competition will be held via an open, merit-based, external peer-review process. This process will be consistent with the rules and requirements of the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG). EAR is currently preparing the solicitation for this competition, which is expected to lead to a single cooperative agreement for an integrated facility with an anticipated award start in 2022.

This Dear Colleague Letter (DCL) provides general information regarding the upcoming competition.

## PROGRAM DESCRIPTION

The recent decadal survey from the National Academies of Science, Engineering, and Medicine, *A Vision for NSF Earth Sciences 2020-2030: Earth in Time (2020)*, notes that advances in capabilities at DOE synchrotron facilities will enable chemical, physical, and

mechanical characterization of a wider range of Earth materials under a wider range of conditions (e.g., pressure, temperature, oxygen fugacity, and strain rate). The *Earth in Time* report highlights that data obtained from synchrotron facilities are needed to address stated science priorities including: study of the evolution and dynamics of the geodynamo; plate tectonic history and evolution; critical element distributions and cycling in Earth materials; earthquake physics; volcanic processes; critical zone processes and climate feedbacks; paleoclimatology; water cycle dynamics; biogeochemical processes and biodiversity evolution; and geohazards mitigation. The future facility should advance synchrotron-based analytical capabilities, development of new techniques, technical support and research training and outreach that enables and promotes the wide range of disciplines that EAR funds. The single awardee will be expected to efficiently coordinate access to end-user equipment and technical support at DOE beamlines in support of Earth science frontier research.

EAR seeks to enable continued access to and perhaps expand synchrotron-based analytical capabilities in support of Earth sciences research. Current capabilities are supported through cooperative agreements with COMPRES (https://compres.unm.edu/) and GSECARS (https://gsecars.uchicago.edu/).

**PRIMARY CONTACTS**

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**ANTICIPATED COMPETITION SCHEDULE**

This DCL does not constitute a solicitation; therefore, no award of any kind will result from this DCL. Although the competition is still in the planning stage, NSF intends to follow this general schedule:

**First quarter of calendar year 2021**: Release of solicitation.

**Third quarter of calendar year 2021**: Anticipated due date for full proposals in response to the solicitation.

NSF anticipates that any award recommendation made following the merit review of proposals submitted under the expected solicitation would commence in 2022.

Sincerely,

William E. Easterling
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Directorate for Geosciences
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