NSF Opportunities in Directorates of Biology and Geosciences

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NSF occupies an important niche

- Only agency whose sole mission is to support basic research

- NSF supplies the majority of federally-financed, non-defense and non-medical basic research awards to academic institutions

- In the 2018 FY, NSF supported ~386,000 scientists, engineers, educators and students

- The NSF Budget for FY 2018 was $7.8 billion

Source: NSF 2016 Science and Engineering Indicators Table 5-4
NSF Champions Research and Education Across All STEM Fields

- Biological Sciences
- Engineering
- Mathematical & Physical Sciences
- Computer & Information Science & Engineering
- Geosciences
- Integrative Activities
- Education & Human Resources
- Social, Behavioral & Economic Sciences
- International Science and Engineering
4 Geoscience Divisions (GEO)

Atmospheric and Geospace Sciences (AGS)
Atmosphere Section
Geospace Section
NCAR/Facilities Section

Earth Sciences (EAR)
Disciplinary Programs Section
Integrative Activities Section

Ocean Sciences (OCE)
Ocean Section
Marine Geosciences Section
Integrated Programs Section

Polar Programs (OPP)
Antarctic Research
Arctic Research
Antarctic Artists and Writers
4 Biology Divisions (BIO)

**Division of Biological Infrastructure (DBI)**
- Human Resources
- Research Resources

**Division of Environmental Biology (DEB)**
- Ecosystem Science
- Evolutionary Processes
- Population and Community Ecology
- Systematics and Biodiversity Science

**Division of Integrative Organismal Systems (IOS)**
- Behavioral Systems
- Developmental Systems
- Neural Systems
- Physiological and Structural Systems
- Plant Genome Research Project

**Division of Molecular and Cellular Biosciences (MCB)**
- Cellular Dynamics and Function
- Genetic Mechanisms
- Molecular Biophysics
- Systems and Synthetic Biology
10 Big Ideas for Future NSF Investments

**Research Ideas**

**Navigating the New Arctic**
Build a cyber-enabled observing system to document the rapid changes throughout the Arctic region that have profound impacts on the global climate.

**Harnessing Data for 21st Century Science and Engineering**
Generate a worldwide data-enabled future for the U.S. through fundamental research and education in data science and systems.

**Work at the Human-Technology Frontier: Shaping the Future**
Understand how constantly evolving technologies are actively shaping our lives and how we in turn can shape those technologies, especially in the world of work.

**Understanding the Rules of Life: Predicting Phenotype**
Bridge the biggest gap in biological science by determining how an organism’s genes interact with the environment to influence its unique characteristics.

**The Quantum Leap: Leading the Next Quantum Revolution**
Develop ways to understand and manipulate the fundamental behavior of matter and energy to create the technologies of the future.

**Windows on the Universe: The Era of Multi-messenger Astrophysics**
Extend our understanding of the cosmos by using NSF’s unique facilities to observe the universe in previously impossible detail.

**Process Ideas**

**Growing Convergent Research at NSF**
Integrate knowledge, tools, techniques, and modes of thinking from widely diverse fields to address pressing societal problems and profound research questions.

**NSF-Includes: Enhancing Science and Engineering through Diversity**
Tap the innovation inherent in America’s diversity to strengthen the U.S. science and engineering enterprise.

**Mid-scale Research Infrastructure**
Develop a nimble process to fund crucial scientific infrastructure projects that fall between traditional funding boundaries.

**NSF 2050**
Cultivate bold, forward-thinking research that transcends traditional approaches and pushes the frontiers of discovery and innovation for years to come.
Search for funding opportunities
Where does your research fit?

www.nsf.gov
Essential Documents - Solicitation

Petrology and Geochemistry (CH)

CONTACTS

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For questions relating to Grants.gov contact:
- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov

PROGRAM GUIDELINES

Suballocation Policies for Proposers

Attention: Proposers using the Collaborators and Other Affiliations template for more than 10 senior project personnel will encounter proposal print preview issues. Please see the Collaborators and Other Affiliations Information website for updated guidance.

A revised version of the NSF Proposal & Award Policies & Procedures Guide (PAPPG) (NSF 18-1), is effective for proposals submitted, or due, on or after January 28, 2018. Please be advised that, depending on the specified due date, the guidelines contained in NSF 18-1 may apply to proposals submitted in response to this funding opportunity.
The Solicitation

- Deadline / Target Date/ No Deadline
- Synopsis and Goals
- Eligibility
- Budget limitations
- Do you need a Pre-Proposal or Letter of Intent?
- Special Criteria
Essential Documents - PAPPG

- Provides guidance for preparation and submission of proposals to NSF
  - Who can submit proposals?
  - What is allowed in the budget?
  - Format + required documents

- Describes process – and criteria – by which proposals will be reviewed

- Outlines reasons why a proposal may be returned without review
## Petrology and Geochemistry (CH)

### PROGRAM SOLICITATION

**NSF 17-547**

### REPLACES DOCUMENT(S):

**NSF 15-557**

- **National Science Foundation**
- **Directorate for Geosciences**
- **Division of Earth Sciences**

### Full Proposal Deadline(s) (due by 5 p.m., submitter's local time):

- Proposals accepted anytime after July 24, 2017

### IMPORTANT INFORMATION AND REVISION NOTES

- Target Dates have been removed for the program.
- PI’s are limited to 3 submissions per year as PI or Co-PI

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal and Award Policies & Procedures Guide (PAPPG)* (NSF 16-1), which is effective for proposals submitted, or due, on or after January 25, 2016.

### SUMMARY OF PROGRAM REQUIREMENTS

#### General Information

**Program Title:** Petrology and Geochemistry (CH)

**Synopsis of Program:**

The Petrology and Geochemistry Program supports basic research on the formation of planet Earth, including processes of planetary and meteoritic accretion, early differentiation, and subsequent petrologic and geochemical modification via igneous and metamorphic processes. Proposals in this program generally address the petrology and high-temperature geochemistry of igneous and metamorphic rocks (including mantle samples), mineral processes, economic geology, and volcanology. Proposals that are focused on the development of analytical tools, theoretical and computational models, and experimental techniques for applications by the igneous and metamorphic petrology, and high-temperature geochemistry and geochronology communities are also invited.
Merit Review Process

1. Submission and Compliance Check
2. Ad hoc review and/or
3. Panel
4. Program makes recommendation

Note that this varies across NSF programs
Merit Review Criteria

• **Intellectual Merit (IM):**
  the potential to advance knowledge

• **Broader Impacts (BI):**
  the potential to benefit society and contribute to the achievement of specific, desired societal outcomes
5 Review Elements

1. Will the work advance knowledge, and benefit society?

2. Is the work creative? even potentially transformative?

3. Is the work plan credible?

4. Is the team qualified to do what they propose?

5. Are the necessary resources available to the team?
Broader Impacts: Benefitting Society

- Advance discovery and understanding while promoting teaching, training, and learning
- Broaden participation of underrepresented groups
- Build or enhance partnerships
- Broad dissemination to enhance scientific and technological understanding
- Enhance infrastructure for research and education
- Local impacts

It is better to do one or two of these solidly and well, than to try and cover a number of them superficially.
Common Mistakes

- Conceptual framework is poorly developed
- Project has too large a scope to be feasible
- Project is too narrowly focused to be generalizable
- Proposed plan will not actually address the stated goals/questions of the project
- Work is too close to what has been done before (an incremental advance)
- No statement about how the data will be shared with the broader community
General Advice - BUDGET

• Be accurate, be reasonable.

• Make sure that all budget items are clearly described and justified.

• The detail here is a reflection of your priorities in terms of the research plan
General Advice - **WRITING**

• This is a proposal and not a manuscript – There is a big difference

• All parts of the proposal have a role to play in communicating your ideas to the reviewers and POs

• Make sure figures are clear and readable

• Proofread

• Use grant writing resources and peers

• Read successful proposals
Thank you
EHR and Broadening Participation

HBCU – UP (18-522)
Faculty at HBCUs, STEM Ed at HBCUs, Institution-wide programs, HUBs

TCUP (18-546)
Faculty at TCUs, STEM ed at TCUs, Institution-wide programs, Across Tribes, Multi-institution internship (discipline specific)

iUSE: Hispanic Serving Institutions (19-540)
Support STEM Ed, retention, faculty at HSIs, research partnerships w/ other institutions

And Many More....