**Mathematical and Physical Sciences Ascending Faculty Catalyst Awards (MPS-AFCA)**

**MPS-Ascend Faculty Catalyst Awards**

**PROGRAM SOLICITATION**

NSF 23-628

[Image]

**National Science Foundation**

Directorate for Mathematical and Physical Sciences
Division of Astronomical Sciences
Division of Chemistry
Division of Materials Research
Division of Mathematical Sciences
Division of Physics

**Full Proposal Deadline(s) (due by 5 p.m. submitter’s local time):**

Proposals Accepted Anytime

By Invitation Only (see Sections II and V of this solicitation for further details)

**IMPORTANT INFORMATION AND REVISION NOTES**

Any proposal submitted in response to this solicitation should be submitted in accordance with the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) that is in effect at the time the proposal is submitted. The NSF PAPPG is regularly revised and it is the responsibility of the proposer to ensure that the proposal meets the requirements specified in this solicitation and the applicable version of the PAPPG.

**SUMMARY OF PROGRAM REQUIREMENTS**

**General Information**

**Program Title:**

Mathematical and Physical Sciences Ascending Faculty Catalyst Awards (MPS-AFCA)
MPS-Ascend Faculty Catalyst Awards

**Synopsis of Program:**

The purpose of the Mathematical and Physical Sciences Ascending Faculty Catalyst Awards (MPS-Ascend Faculty Catalyst Awards, MPS-AFCA) is to support successful MPS-Ascending Postdoctoral Research Fellows (MPS-Ascend Fellows) as they transition into tenure track (or equivalent) faculty positions at Institutions of Higher Education (IHE) in any scientific area within the purview of the five MPS Divisions: the Divisions of Astronomical Sciences (AST), Chemistry (CHE), Materials Research (DMR), Mathematical Sciences (DMS), and Physics (PHY). The program is intended to support these investigators of significant potential by providing them with resources for research and broadening participation activities that are in addition to initial resources typically provided through institutional start-up packages. This support is strategically designed to enable their continued scientific contributions and their exemplary leadership in the area of broadening participation. MPS-Ascend Postdoc Fellows are invited to apply for an MPS-Ascend Faculty Catalyst Award after consultation with the managing or cognizant Program Director of the MPS-Ascend Postdoc Fellowship Award.

**Cognizant Program Officer(s):**

*Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.*

- Catalina Achim, OSI, telephone: (703) 292-2048, email: cachim@nsf.gov
- Andrea Prestwich, AST, telephone: (703) 292-2210, email: aprestwi@nsf.gov
- Samy El-Shall, CHE, telephone: (703) 292-7416, email: selshall@nsf.gov
Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 5 to 25

5 to 25 awards per year, contingent on availability of funds and receipt of competitive proposals.

Anticipated Funding Amount: $1,500,000 to $7,500,000

Subject to the availability of funds.

Each award will be for a duration of 24 months. Award budgets will up to $150,000 (combined direct and indirect costs) per year.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.

Who May Serve as PI:

Only prior recipients of MPS-Ascend Postdoc Fellowships (those awarded under NSF 21-573, NSF 22-501, or NSF 23-501) who completed no less than 12 months as an MPS-Ascend Postdoc Fellow, are eligible for MPS-Ascend Faculty Catalyst Awards.

Applications for MPS-Ascend Faculty Catalyst award are accepted by invitation extended by the Program Director who manages or is cognizant of their MPS-Ascend Postdoc Fellowship award. The invitation to apply for the MPS-Ascend Faculty Catalyst award can be extended by the managing or cognizant Program Director of the MPS-Ascend Postdoc Fellowship Award only after the MPS-Ascend Postdoc Fellows contacted and communicated with them.

Invited MPS-Ascend Faculty Catalyst proposals must be received no more than 12 months after the close of the MPS-Ascend Postdoc Fellowship, and no more than six months after the start of the first tenure-track appointment of the applicant at an Institution of Higher Education (IHE).

Hence, it is strongly advised that MPS-Ascend Postdoc Fellows contact their managing or cognizant Program Director as soon as they accept the offer of the tenure-track appointment.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or co-PI: 1

Prior MPS-Ascend Postdoc Fellows may submit only one MPS-Ascend Faculty Catalyst proposal. They may do so only by invitation from an Ascend Program Director. Co-PIs are not allowed.

MPS-Ascend Faculty Catalyst Award recipients are not eligible for LEAPS-MPS awards.

Proposal Preparation and Submission Instructions
A. Proposal Preparation Instructions

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required
- **Full Proposals:**

B. Budgetary Information

- **Cost Sharing Requirements:**
  Inclusion of voluntary committed cost sharing is prohibited.
- **Indirect Cost (F&A) Limitations:**
  Not Applicable
- **Other Budgetary Limitations:**
  Not Applicable

C. Due Dates

- **Full Proposal Deadline(s) (due by 5 p.m. submitter’s local time):**
  - Proposals Accepted Anytime
  - By Invitation Only (see Sections II and V of this solicitation for further details)

### Proposal Review Information Criteria

**Merit Review Criteria:**

National Science Board approved criteria. Additional merit review criteria apply. Please see the full text of this solicitation for further information.

### Award Administration Information

**Award Conditions:**

Additional award conditions apply. Please see the full text of this solicitation for further information.

**Reporting Requirements:**

Standard NSF reporting requirements apply.

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I. INTRODUCTION

The future of the Nation’s scientific enterprise depends on including the best and most highly trained minds in the pursuit of cutting-edge scientific problems. This solicitation aims to support outstanding early career scientists through a focus on achieving excellence with diversity by supporting former MPS-Ascend Postdoctoral Fellows as they transition into early career faculty positions. These outstanding early career scientists are committed to broadening participation in academia as well as across the Nation’s scientific enterprise. The intent is to support these investigators as they continue to develop into the future leaders of their respective scientific fields by providing early career resources for impactful research endeavors as well as broadening participation activities that will propel them to leadership levels in both arenas after they have begun a tenure-track (or equivalent) faculty position at an Institution of Higher Education (IHE). The proposed research must be in an area within the purview of one of the Divisions within the Directorate for Mathematical and Physical Sciences (MPS). Broadening participation plans are expected to build on the candidates’ experience as postdoctoral fellows. MPS-Ascend Faculty Catalyst awards require proposers be in tenure-track (or equivalent) positions at Institutions of Higher Education (IHE). Early career researchers who are not eligible for the MPS-AFCA program are encouraged to consider the Launching Early-Career Academic Pathways in the Mathematical and Physical Sciences (LEAPS-MPS) program as one of the funding opportunities.

II. PROGRAM DESCRIPTION

The purpose of the Mathematical and Physical Sciences Ascending Faculty Catalyst Awards (MPS-Ascend Faculty Catalyst) is to support successful MPS-Ascend Postdoc Fellows who transition into tenure track (or equivalent) faculty positions at Institutions of Higher Education (IHE). The program supports these investigators of significant potential by providing them with resources for both research and broadening participation activities that are in addition to initial resources typically provided through institutional start-up packages. This support is designed strategically to enable their continued scientific contributions at the forefront of their fields and their exemplary leadership in the area of broadening participation.

MPS-Ascend Postdoc Fellows, who have accepted a tenure-track position (or its equivalent) at an IHE must contact the managing or cognizant Program Director to establish their eligibility. Proposals are accepted only upon invitation and must be received within 12 months of the end of the Fellowship, and within six months of the commencement of the faculty appointment. MPS-Ascend Faculty Catalyst awardees are expected to develop an independent research program in any scientific area within the purview of the five MPS Divisions: the Divisions of Astronomical Sciences (AST), Chemistry (CHE), Materials Research (DMR), Mathematical Sciences (DMS), and Physics (PHY).

NSF welcomes the submission of proposals to this funding opportunity that include the participation of the full spectrum of talent in STEM, e.g., as PI, senior personnel, postdoctoral scholars, graduate or undergraduate students or trainees. It is left to the proposer to describe impactful Broader Impacts of the work and these impacts can be more broadly scoped than is described in this solicitation. As part of their broadening participation activities, MPS-Ascend Faculty Catalyst awardees may have opportunities to participate in mentorship and cohort building experiences for MPS-Ascend Postdoc Fellows.

III. AWARD INFORMATION

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds.

Duration/Tenure and Budget for MPS-Ascend Faculty Catalyst Awards:

The duration of support of an MPS-Ascend Faculty Catalyst Award is 24 months. MPS Ascend Faculty Catalyst Awards begin within 12 months after the MPS-Ascend Postdoc Fellowship finishes, and within six months of the commencement of the faculty position. Awards are up to $150,000 per year (combined direct and indirect costs). Only prior MPS Ascend Postdoctoral Fellows (awarded under NSF 21-573, NSF 22-501, or NSF 23-501) are eligible to submit a proposal. Only invited proposals are accepted. Proposals can be invited only after a consultation of the applicant with the managing or cognizant Program Director of their MPS Ascend Fellowship award.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:
Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.

Who May Serve as PI:

Only prior recipients of MPS-Ascend Postdoc Fellowships (those awarded under NSF 21-573, NSF 22-501, or NSF 23-501) who completed no less than 12 months as an MPS-Ascend Postdoc Fellow, are eligible for MPS-Ascend Faculty Catalyst Awards.

Applications for MPS-Ascend Faculty Catalyst award are accepted by invitation extended by the Program Director who manages or is cognizant of their MPS-Ascend Postdoc Fellowship award. The invitation to apply for the MPS-Ascend Faculty Catalyst award can be extended by the managing or cognizant Program Director of the MPS-Ascend Postdoc Fellowship Award only after the MPS-Ascend Postdoc Fellows contacted and communicated with them.

Invited MPS-Ascend Faculty Catalyst proposals must be received no more than 12 months after the close of the MPS-Ascend Postdoc Fellowship, and no more than six months after the start of the first tenure-track appointment of the applicant at an Institution of Higher Education (IHE).

Hence, it is strongly advised that MPS-Ascend Postdoc Fellows contact their managing or cognizant Program Director as soon as they accept the offer of the tenure-track appointment.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or co-PI: 1

Prior MPS-Ascend Postdoc Fellows may submit only one MPS-Ascend Faculty Catalyst proposal. They may do so only by invitation from an Ascend Program Director. Co-PIs are not allowed.

MPS-Ascend Faculty Catalyst Award recipients are not eligible for LEAPS-MPS awards.

Additional Eligibility Info:

Proposers must have completed no less than 12 months as an MPS-Ascend Postdoc Fellow. Proposers must be untenured and have started a tenure-track (or equivalent) position at a IHE, within 12 months of the close of the MPS-Ascend Postdoc Fellowship. Proposals must be received within six months of the beginning of the tenure-track appointment.

For a position to be considered a tenure-track equivalent position it must meet each of the following requirements: (1) the employee has a continuing appointment that is expected to last the duration of the MPS-Ascend Faculty Catalyst Award; (2) the appointment has substantial research and educational responsibilities; and (3) the proposed project relates to the employee's career goals and job responsibilities as well as to the mission of the department or organization. As stated in the Proposal Preparation Instructions, for non-tenure-track faculty, the Department Chair's or Dean's Letter must affirm that the investigator's appointment is at an early-career level equivalent to pre-tenure status, and the Departmental Chair's or Dean's letter must clearly and convincingly demonstrate how the faculty member's appointment satisfies all the above requirements of tenure-track equivalency.

Faculty members who are Associate Professors or in equivalent appointments, with or without tenure, are not eligible for MPS-Ascend Faculty Catalyst awards. Faculty members who hold Adjunct Faculty, Visiting, or equivalent appointments are not eligible for MPS-Ascend Faculty Catalyst awards.

Recipients of an MPS Ascend Faculty Catalyst award are expected to devote time to research and the activities described in their proposal with continued activity through the academic year. At institutions with significant teaching loads, academic year teaching may need to be adjusted to allow this for the duration of the MPS Ascend Faculty Catalyst award. Recipients of an MPS Ascend Faculty Catalyst award may teach less but not more than is expected of other faculty in similar positions. If necessary, one course release per semester may be included in the budget with justification, to assist with reducing teaching loads to allow for sufficient time to conduct activities described in the project description. If additional course release is required, the arrangement can be described in the Facilities, Equipment and Other Resources documentation, or it can be described in the startup agreement.
V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Research.gov or Grants.gov.

- Full Proposals submitted via Research.gov: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Proposal and Award Policies and Procedures Guide (PAPPG). The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg. Paper copies of the PAPPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from nsfpubs@nsf.gov. The Prepare New Proposal setup will prompt you for the program solicitation number.

- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (https://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from nsfpubs@nsf.gov.

See PAPPG Chapter II.D.2 for guidance on the required sections of a full research proposal submitted to NSF. Please note that the proposal preparation instructions provided in this program solicitation may deviate from the PAPPG instructions.

MPS-Ascend Postdoc Fellows who wish to submit proposals to transition to an MPS-Ascend Faculty Catalyst Award should contact the Program Director managing or cognizant of their MPS-Ascend Postdoc Fellowship when an offer of a tenure-track appointment is accepted. Only invited proposals are accepted. Approval for the transition will generally be given if the conditions listed below are met. However, transition from an MPS-Ascend Postdoc Fellowship to an MPS-Ascend Faculty Catalyst award is not automatic and may be subject to further review of the investigator's research and broadening participation accomplishments, plans for future work, and the commitment of the new institution to support the independent research and academic career advancement of the investigator.

Upon acceptance of a tenure-track or equivalent position as described in this solicitation, the MPS-Ascend Postdoc Fellow should contact their managing or cognizant Program Director to discuss plans for the submission of an MPS-Ascend Faculty Catalyst proposal. The timeline for submission, general research plans and scope, other eligibility aspects, and any possible overlaps with other planned NSF submissions, including CAREER submissions, should be discussed. The following documents should then be sent as email attachments to the Program Director managing or cognizant of the MPS-Ascend Postdoc Fellowship award:

- a draft of the project summary;
- a draft of the project description;
- a draft of the budget outline and justification;
- a draft of the Department Chair's or Dean's letter;
- a copy of the appointment letter and startup agreement.

If the final report for the Ascend Fellowship is not yet submitted, an interim report should be submitted.

After receiving the documents listed above, and reviewing the interim or final report, the Program Director managing or cognizant of the Fellowship award will upload the email and documents to the MPS-Ascend Postdoctoral Fellowship electronic file record. After consulting with other Program Directors as necessary, the MPS-Ascend Program Director will determine if the documents describe plans that are responsive to this solicitation. If the documents are satisfactory, the Program Director will indicate this in an email and invite the MPS-Ascend Postdoc Fellow to submit a proposal, for consideration to a specific program within one of the five MPS Divisions, after the starting date of the appointment.

If invited, the proposal should be submitted to this solicitation. For the unit of consideration, select the MPS Division indicated in the invitation from the Program Director. The email invitation to submit a proposal from the MPS-Ascend Postdoctoral Fellowship Program Director is to be uploaded by the proposer as a single copy document when the actual MPS-Ascend Faculty Catalyst proposal is submitted. If this email is missing, or if the draft documents significantly deviate from the submitted draft documents to the extent the plans are no longer responsive to this solicitation, for instance, that the scope of research is no longer considered to be within the funding purview of the receiving program, then the proposal will be returned without review. Upon receipt, the proposal will be transferred for consideration to the program mentioned in the invitation email.

Proposals will be accepted only if the following conditions are met:

- the proposer has completed at least 12 months as an MPS-Ascend Postdoc Fellow;
- the proposal is submitted within 12 months of the closing date of the Fellowship;
the proposal is submitted within 6 months of the start of the tenure-track (or equivalent) appointment;
the final report of the MPS-Ascend Postdoc Fellowship has been submitted and approved;
the research vision spans a scope of work within the funding purview of one of the five MPS Divisions;
the two-year research and broadening participation plans fall within the funding purview of one of the five MPS Divisions;
the Broader Impacts section includes a plan for broadening participation in the mathematical and physical sciences;
all required proposal components as outlined in the PAPPG and this solicitation are included;
a letter from the Department Chair or Dean, addressing all points outlined below, is uploaded as a supplemental document;
an email from the managing or cognizant of the MPS-Ascend Fellowship Award inviting the proposal submission is uploaded as a Single Copy Document; and
a copy of the letter of appointment and startup agreement is uploaded as a Single Copy Document.

Invited Full Proposal Instructions

Proposal preparation and submission through Research.gov is strongly encouraged because these Faculty Catalyst award proposals contain unique requirements. If the proposer elects to submit through Grants.gov, confirmation that ALL required documents have been successfully uploaded into NSF systems is recommended. Otherwise, the proposal will be considered incomplete and may be returned without review.

Proposals must include all of the required sections of a full research proposal submitted to NSF as specified in Chapter II.D.2 of the PAPPG. In cases where requirements given in this document supplement or deviate from the instructions provided in the PAPPG or the NSF Grants.gov Application Guide, this solicitation takes precedence. All page limitations include pictures, figures, tables, graphics, etc. Proposers are urged to take special care to strictly adhere to page limitations. Proposals that do not conform to the requirements will not be accepted or will be returned without review.


Step 1. Select this solicitation title in the Full Proposal wizard. Proposals responding to this solicitation must be submitted for consideration to the appropriate Division and Program within the Directorate for Mathematical and Physical Sciences (MPS).

Step 2. Select the MPS Division which hosts the Program identified in the email from the cognizant MPS-Ascend Postdoc Fellowship Program Director.

Step 3. Select “Research” as the type of proposal. The title of the proposal must begin with “MPS-Ascend Faculty Catalyst:”.

Cover Sheet: The duration of MPS-Ascend Faculty Catalyst awards is 24 months. Co-investigators are not permitted, but collaborations with other scientists are allowed.

Project Summary: (1 page limit). A Project Summary as outlined in the PAPPG that outlines the proposed research and training activities, including specific and separate statements in the Overview, Intellectual Merit, and Broader Impacts sections, and includes a meaningful broadening participation component.

Project Description: The narrative should include the subsections listed below. Recommended lengths for each section are provided. This narrative description, not to exceed 8 pages (including tables, figures, and other visual supplements):

- a 2-page research vision, broadly scoped, that outlines a research career trajectory within the funding purview of a specific MPS Division;
- a detailed 2-page research plan that includes research objectives, methods, and significance for the project compatible with duration of the MPS-Ascend Faculty Catalyst award. The relationship between the project and the broader research vision should be made clear;
- a 3-page section labeled “Broader Impacts”. This section should include a 2-page vision for broadening participation in mathematical and physical sciences;
- a 1-page section on Results from Prior NSF Support that should be dedicated to the intellectual merit and broader impacts of the Ascend-MPS Fellowship only.

Budget: MPS-Ascend Faculty Catalyst Awards are budgeted up to $150,000 per year (direct and indirect costs) for a period of 24 months. Budgets are not specifically restricted and should be prepared according to the PAPPG. While portions of the budget may be used for equipment purchases, MPS Ascend Faculty Catalyst awards are not intended to replace institutional startup packages and so requests solely or substantially focused on instrumentation are not responsive to this solicitation.

Facilities, Equipment and Other Resources: The description of the laboratory and office space that will be assigned, the available relevant equipment, and any arrangements outlined in the appointment letter or start-up agreement should be described.

Supplementary Documentation consisting of:
1. A letter from the Department Chair or Dean that addresses each of the following points. The maximum length of the letter is three pages.
   - The letter must affirm that the PI is eligible for the Ascend Faculty Catalyst program, that they are untenured and hold at least a 50%
tenure track (or tenure-track-equivalent) position as an assistant professor (or equivalent title). For non-tenure-track faculty, the
Departmental Chair's Letter or Dean's Letter must affirm that the investigator's appointment is at an early-career level equivalent to pre-
tenure status, pursuant to the eligibility criteria specified elsewhere in this solicitation. Further, for non-tenure-track faculty, the
Department Chair's Letter or Dean's Letter must clearly and convincingly demonstrate how the faculty member satisfies all the
requirements of tenure-track equivalency as defined in the eligibility criteria specified in this solicitation. For a position to be considered a
tenure-track-equivalent position, it must meet the following requirements: (1) the employee has a continuing appointment that is
expected to last the for the duration of the two year Ascend Faculty Catalyst award; (2) the appointment has substantial research and
educational responsibilities, and (3) employee has full faculty rights, privileges, and obligations as appropriate for an assistant professor or
starting level at the institution.

- The faculty appointment starting date must be stated.
- An indication that the PI's proposed Ascend Faculty Catalyst research and broadening participation activities are supported by and
advance the educational and research goals of the department and the organization, and that the department is committed to the
support and professional development of the PI.
- The letter should also include a brief description of the laboratory and office space that will be assigned to, equipment or other resources
to be provided, and the startup package (if any). It is understood that the final offer letter and/or other proposal sections may address
these elements, but these agreements should be briefly affirmed in this letter. Details should be provided by the PI in the Facilities,
Equipment and other Resource section of the proposal.
- A statement that the startup package (if any) is consistent with those offered to other faculty in comparable positions and affirmation that
it has not been reduced in anticipation of an Ascend Faculty Catalyst award. The start-up package and/or other institutional support must
be described in detail in this letter if not included in the agreement itself (uploaded as a single copy document), and it must be stated that
the agreement (or lack there of) is comparable to that given to other faculty recently hired into tenure-track or equivalent faculty positions
in this or similar disciplines. Institutions must provide a startup and salary package equivalent to that provided to similarly newly hired
faculty members at the institution regardless of external grants.
- Verify that the teaching and service expectations are compatible with starting a research program. Descriptions of adjustments to
teaching loads, beyond those justified in the budget, should be described in the Facilities, Equipment and Other Resources
documentation, or in the startup agreement.

Note that the Department Chair's Letter or Dean's Letter should not be construed as a Letter of Support for the PI and should address only the
items listed above.

2. Letters describing collaborative arrangements and commitments, if any, should also be submitted in the “Supplementary Documents” section.
These letters of collaboration should follow the PAPPG-recommended format in Chapter II.D.2.i; they should be limited to stating the intent to
collaboration and should not contain endorsements or evaluation of the proposed project.

Single-Copy Documents:
1. Upload the email from the MPS-Ascend Postdoc Fellowship cognizant Program Director which serves as the invitation to submit the proposal.
This letter must state:
The required draft documents have been received and have been determined to be within the funding purview of the “NAME OF RECEIVING
PROGRAM” within in the Division of “LIST ONE OF 5 MPS DIVISIONS.” This letter does not guarantee an award and if the proposal documents vary
significantly from the received draft documents, or are otherwise found to be unacceptable, the proposal may be declined.
The proposal must be submitted within the first six months of the faculty appointment as indicated in the appointment letter.
In the case of interdisciplinary proposals, a second program may be specified.
2. A copy of the appointment letter and startup agreement should be uploaded as single copy document(s).

B. Budgetary Information

Cost Sharing:
Inclusion of voluntary committed cost sharing is prohibited.

C. Due Dates

- Full Proposal Deadline(s) (due by 5 p.m. submitter’s local time):
  
  Proposals Accepted Anytime
  
  By Invitation Only (see Sections II and V of this solicitation for further details)

D. Research.gov/Grants.gov Requirements

For Proposals Submitted Via Research.gov:

To prepare and submit a proposal via Research.gov, see detailed technical instructions available at: https://www.research.gov/research-
portal/appmanager/base/desktop?
For Proposals Submitted Via Grants.gov:

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: https://www.grants.gov/web/grants/applicants.html. In addition, the NSF Grants.gov Application Guide (see link in Section V.A) provides instructions regarding the technical preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

**Submitting the Proposal:** Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to Research.gov for further processing.


When submitting via Grants.gov, NSF strongly recommends applicants initiate proposal submission at least five business days in advance of a deadline to allow adequate time to address NSF compliance errors and resubmissions by 5:00 p.m. submitting organization's local time on the deadline. Please note that some errors cannot be corrected in Grants.gov. Once a proposal passes pre-checks but fails any post-check, an applicant can only correct and submit the in-progress proposal in Research.gov.

Proposers that submitted via Research.gov may use Research.gov to verify the status of their submission to NSF. For proposers that submitted via Grants.gov, until an application has been received and validated by NSF, the Authorized Organizational Representative may check the status of an application on Grants.gov. After proposers have received an e-mail notification from NSF, Research.gov should be used to check the status of an application.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program for acknowledgement and, if they meet NSF requirements, for review. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF either as ad hoc reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in PAPPG Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: https://www.nsf.gov/bfa/dias/policy/merit_review/.

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in Leading the World in Discovery and Innovation, STEM Talent Development and the Delivery of Benefits from Research - NSF Strategic Plan for Fiscal Years (FY) 2022 - 2026. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the strategic objectives in support of NSF's mission is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions must recruit, train, and prepare a diverse STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of opportunities and expanding participation of groups, institutions, and geographic regions that are
underrepresented in STEM disciplines, which is essential to the health and vitality of science and engineering. NSF is committed to this principle of
diversity and deems it central to the programs, projects, and activities it considers and supports.

A. Merit Review Principles and Criteria

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables
breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF
relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute
more broadly to advancing NSF’s mission “to promote the progress of science; to advance the national health, prosperity, and welfare; to secure
the national defense; and for other purposes.” NSF makes every effort to conduct a fair, competitive, transparent merit review process for the
selection of projects.

1. Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when
reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while
overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and
education, the following three principles apply:

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These “Broader Impacts” may be accomplished
  through the research itself, through activities that are directly related to specific research projects, or through activities that are supported
  by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and
  approaches, but in either case must be well justified.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely
  correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited,
  evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done
  at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are
expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated
goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can
better understand their intent.

2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF
will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. Both criteria are to be given full consideration during the review and decision-making processes;
each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (PAPPG Chapter II.D.2.d(i).
contains additional information for use by proposers in development of the Project Description section of the proposal). Reviewers are strongly
couraged to review the criteria, including PAPPG Chapter II.D.2.d(i), prior to the review of a proposal.

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it,
how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of
the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals
against two criteria:

- Intellectual Merit: The Intellectual Merit criterion encompasses the potential to advance knowledge; and
- Broader Impacts: The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of
  specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
   a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
   b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan
   incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and other underrepresented groups in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

Additional Solicitation Specific Review Criteria

Within the standard NSF review criteria, the evaluation of proposals will place special emphasis on:

- the research vision is within the funding purview of an identified MPS Division;
- the final or interim report for the MPS-Ascend Postdoc Fellowship describes a successful Fellowship;
- the Broader Impacts component includes a broadening participation vision, broadly scoped, outlining activities that will have a positive impact on broadening the participation in mathematical and physical sciences of the full spectrum of talent; and
- the letter from the Department Chair or Dean adequately addresses the points outlined in the proposal instructions.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Internal NSF Review.

External review is waived for MPS-Ascend Faculty Catalyst awards. MPS-Ascend Postdoc Fellows, if invited to submit proposals, are generally transitioned into this phase of the solicitation based on internal review. Program Directors may seek ad-hoc external reviews if they deem external review necessary.

Reviewers will be asked to evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will generally be completed and submitted by each reviewer and/or panel. The Program Officer assigned to manage the proposal’s review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical, and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF strives to be able to tell proposers whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new recipients may require additional review and processing time. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director acts upon the Program Officer’s recommendation.

After programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements or the Division of Acquisition and Cooperative Support for review of business, financial, and policy implications. After an administrative review has occurred, Grants and Agreements Officers perform the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations, or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

Once an award or declination decision has been made, Principal Investigators are provided feedback about their proposals. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers or any reviewer-identifying information, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to the submitting organization by an NSF Grants and Agreements Officer. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on
the review process.)

B. Award Conditions

An NSF award consists of: (1) the award notice, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award notice; (4) the applicable award conditions, such as Grant General Conditions (GC-1)*; or Research Terms and Conditions* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award notice. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at https://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from nsfpubs@nsf.gov.


Administrative and National Policy Requirements

Build America, Buy America

As expressed in Executive Order 14005, Ensuring the Future is Made in All of America by All of America's Workers (86 FR 7475), it is the policy of the executive branch to use terms and conditions of Federal financial assistance awards to maximize, consistent with law, the use of goods, products, and materials produced in, and services offered in, the United States.

Consistent with the requirements of the Build America, Buy America Act (Pub. L. 117-58, Division G, Title IX, Subtitle A, November 15, 2021), no funding made available through this funding opportunity may be obligated for an award unless all iron, steel, manufactured products, and construction materials used in the project are produced in the United States. For additional information, visit NSF's Build America, Buy America webpage.

Special Award Conditions:

MPS-Ascend Faculty Catalyst awards cannot be supplemented except in cases that address issues of equity such as Facilitation Awards Scientists and Engineers with Disabilities (FASED) (see Chapter II.F.7) and Career-Life Balance (CLB) Supplemental Funding Requests (see Chapter II.F.8).

If a PI plans to transfer to a new, eligible institution during the course of the grant, the award may transfer to the new institution only if the PI will be on the tenure-track, or in a tenure-track equivalent position at the new institution. A new Department Chair or Dean's letter that is acceptable to the cognizant Program Officer must also be submitted. If the new appointment or documents for the institutional transfer are not acceptable to the Program Officer, the award must be relinquished. Transfer of an MPS-Ascend Faculty Catalyst award to a substitute PI is generally not permissible. In some situations where a PI is temporarily incapacitated and unable to continue the work (for instance, for health reasons), continued support of the graduate and postdoctoral students supported under the MPS-Ascend Faculty Catalyst award may be possible. When these situations arise, the cognizant Program Officer should be contacted as soon as possible.

MPS-Ascend Faculty Catalyst Awardees are intended to catalyze careers and propel awardees into other NSF funding programs. While Grantee-Approved no-cost extensions may be authorized as per the PAPPG, NSF-Approved no-cost extensions are generally not allowed except in extraordinary circumstances.

MPS-Ascend Faculty Catalyst Awardees are not eligible for LEAPS-MPS.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report, will delay NSF review and processing of any future funding increments as well as any pending proposals for all identified PIs and co-PIs on a given award. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and
other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.


VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Catalina Achim, OSI, telephone: (703) 292-2048, email: cachim@nsf.gov
- Andrea Prestwich, AST, telephone: (703) 292-2210, email: aprestwil@nsf.gov
- Samy El-Shall, CHE, telephone: (703) 292-7416, email: selshall@nsf.gov
- Nitsa Rosenzweig, DMR, telephone: (703) 292-7256, email: nirosenz@nsf.gov
- Swatee Naik, DMS, telephone: (703) 292-4876, email: snaik@nsf.gov
- Kathleen V. McCloud, PHY, telephone: (703) 292-8236, email: kmccloud@nsf.gov

For questions related to the use of NSF systems contact:

- NSF Help Desk: 1-800-381-1532
- Research.gov Help Desk e-mail: rgov@nsf.gov

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.

IX. OTHER INFORMATION

The NSF website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this website by potential proposers is strongly encouraged. In addition, “NSF Update” is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Grants Conferences. Subscribers are notified through e-mail or the user’s Web browser each time new publications are issued that match their identified interests. “NSF Update” also is available on NSF’s website.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this mechanism. Further information on Grants.gov may be obtained at https://www.grants.gov.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is “to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering.”

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 55,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.
Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See the NSF Proposal & Award Policies & Procedures Guide Chapter II.F.7 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at https://www.nsf.gov

- **Location:** 2415 Eisenhower Avenue, Alexandria, VA 22314
- **For General Information**
  - (NSF Information Center):
    - (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**
  - Send an e-mail to: nsfpubs@nsf.gov
  - or telephone: (703) 292-8134
- **To Locate NSF Employees:** (703) 292-5111

**PRIVACY ACT AND PUBLIC BURDEN STATEMENTS**

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals, and project reports submitted by proposers will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding proposers or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See System of Record Notices, NSF-50, “Principal Investigator/Proposal File and Associated Records,” and NSF-51, “Reviewer/Proposal File and Associated Records.” Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection of information is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

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