

Astrophysics Probe Announcement of Opportunity Community Announcement

The NASA Science Mission Directorate (SMD) has released a Community Announcement www.SAM.gov notice ID NNH22ZDA008L concerning its intention to solicit investigations for the Astrophysics Probe Program.

The National Academies' 2020 Decadal Survey in Astronomy and Astrophysics, *Pathways to Discovery in Astronomy and Astrophysics for the 2020s* (<https://www.nap.edu/catalog/26141/pathways-to-discovery-in-astronomy-and-astrophysics-for-the-2020s>), recommends probe missions to be competed in broad areas identified as important to accomplish the survey's scientific goals. For the coming decade, the Decadal Survey recommends a far-infrared mission or an X-ray mission designed to complement the European Space Agency (ESA's) Athena mission.

Current planning calls for NASA SMD to release an Astrophysics Probe Announcement of Opportunity (AO) in January 2023 to solicit proposals for the Astrophysics Probe. The planned selection process has two steps. In Step 1, it is anticipated that approximately two or three mission proposals may be selected for nine-month Phase A concept studies. Each Probe concept study could be funded up to \$5M in real year dollars. For Step 2, NASA will conduct a review of the Phase A concept study reports. As a result of this second evaluation, NASA expects to select one mission to proceed into Phase B and subsequent mission phases. A draft Astrophysics Probe AO is expected to be released for comment in June 2022 through the NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES) at <https://nspires.nasaprs.com/>.

The policies in this special notice or community announcement are estimated as among those having the most significant impact on proposers' preparing responses to the AO. NASA will consider feedback to this announcement as part of the ongoing AO preparation process to refine these and other policies.

Mission Themes: Responses to the Astrophysics Probe AO will be limited to one of the two mission themes recommended by the Decadal Survey. These areas are

- A far infrared imaging or spectroscopy mission, and
- An X-ray probe to complement ESA's Athena Observatory.

Proposals must be responsive to the preponderance of the mission theme's objectives as provided in Sections 7.5.3.2 through 7.5.3.4 of the Decadal Survey.

Cost Cap: The PI-Managed Mission Cost (PIMMC) for an Astrophysics Probe mission is expected to be capped at \$1 billion in fiscal year (FY) 2023 dollars, not including any contributions, the cost of AO-provided access to space, or any General Observer (GO)/Guest Investigator (GI) program costs. NASA will provide standard launch services on a single launch vehicle outside the cost capped PIMMC. PI-provided alternative access to space may not be proposed.

Access to Space: The cost of standard launch services will be the responsibility of NASA. A standard launch performance capability will be defined and provided without charge to the PIMMC. The standard launch performance capability will be consistent with an intermediate

class Commercial Launch Vehicle. The cost of mission specific and special launch services, such as for a higher performance launch vehicle, will be charged against the PIMMC.

Science Investigations and Data: (1) A pointed observatory will have the bulk of its observing time made available to the community for General Observers (GO). The NASA-managed GO program will be funded outside of the PIMMC. The PI-led science team will conduct science investigation(s) with a limited amount of Guaranteed Time Observing (GTO); the PI-led science investigations will be funded within the PIMMC. (2) A survey observatory will have all of its survey data made available to the community for Guest Investigators (GI). The NASA-managed GI program will be funded outside of the PIMMC. The PI-led science team will conduct science investigation(s) with the survey data; the PI-led science investigations will be funded within the PIMMC. (3) All data will be made public as soon as practical through a NASA-managed astrophysics data archive. There is no limited data use period, even for pointed data.

Contributions: Contributions, including contributions from foreign partners, are welcome and will not be counted against the PIMMC, but the value of such contributions is constrained. The sum of contributions of any kind to the entirety of the investigation is not to exceed one-third (1/3) of the proposed PIMMC, and the value of contributions to the science payload may not exceed one-third (1/3) of the payload.

Additional Opportunities: Proposals for Student Collaborations are welcome but optional, and their evaluation is deferred to the Step-2 mission concept study. Proposals for Science Enhancement Options other than GO/GI programs are welcome but optional, and their evaluation is deferred to the Step-2 mission concept study. Proposals for Technology Demonstrations are not solicited.

The current Astrophysics Probe Program planning budget is sufficient to select and execute one Astrophysics Probe mission.

Proposals in response to the forthcoming Astrophysics Probe AO will be due not less than 90 days after its final release. Participation will be open to all categories of U.S. and non-U.S. organizations, including educational institutions, industry, not-for-profit organizations, Federally Funded Research and Development Centers, NASA Centers, and other Government agencies. Participation by NASA Centers must be consistent with NASA's Center Roles policies.

The schedule for the solicitation is intended to be:

Release of this special notice	January 2022
Release of draft AO:	June 2022 (target)
Release of final AO:	January 2023 (target)
Preproposal conference:	~ 3 weeks after final AO release
Proposals due:	90 days after AO release
Selection for competitive Phase A studies:	Early 2024 (target)
Concept study reports due:	Late 2024 (target)
Down-selection:	Mid 2025 (target)

The Astrophysics Probe AO may contain provisions that differ substantially from this special notice, in which case the provisions in the AO will take precedence. The Astrophysics Probe AO will currently be based on the SMD Standard PI-led Mission AO Template available at http://soma.larc.nasa.gov/standardao/sao_templates.html. However, proposers must read carefully the Draft and Final Astrophysics Probe AO when they are released on NSPIRES, as things may be revised.

NASA has not approved the issuance of the Astrophysics Probe AO and this notification does not obligate NASA to issue the AO and solicit proposals. Any costs incurred by prospective investigators in preparing submissions in response to this notification or the planned Draft Astrophysics Probe AO are incurred completely at the submitter's own risk.

Further information, as it becomes available, will be posted on the Astrophysics Probe Acquisition website at <https://explorers.larc.nasa.gov/2023APPROBE/>. Questions and feedback on the policies in this notice are due by March 15, 2022, in order to be considered as a part of the development of the Draft AO and may be addressed by email with “Astrophysics Probe” in the subject header to Dr. Patricia Knezek, Astrophysics Probe Program Lead Scientist, Astrophysics Division, patricia.m.knezek@nasa.gov. Questions and feedback will be acknowledged, and responses to inquiries will be posted at the Questions and Answers (Q&A) location on the Astrophysics Probe Acquisition website. Anonymity of persons or institutions submitting questions will be preserved.