

E.11 PAYLOADS AND RESEARCH INVESTIGATIONS ON THE SURFACE OF THE MOON

NOTICE: Amended November 12, 2020. This amendment delays the Step-2 due date for this program element. The Step-2 due date is now February 3, 2021.

Amended November 5, 2020. This amendment presents a new opportunity in ROSES-2020 in the form of this program element. Proposals to this program will be submitted by a two-step process in which the Notice of Intent is replaced by a mandatory Step-1 proposal that must be submitted by an organization Authorized Organizational Representative. Only proposers who submit a Step-1 proposal are eligible to submit a Step-2 (full) proposal. See Section 3 of this program element. Step-1 Proposals are due December 11, 2020 and Step-2 proposals are due ~~January 19~~ February 3, 2021.

1. Introduction and Funding Opportunity Description

This Payloads and Research Investigations on the Surface of the Moon (PRISM) program element solicits proposals for investigations that include development and flight of science-driven suites of instruments payloads that will be delivered to the lunar surface by the [Commercial Lunar Payload Services](#) (CLPS). This PRISM solicitation calls for science investigations that will be delivered to the lunar surface in late Calendar Year (CY) 2023 and early CY2024 to predetermined lunar landing sites. These deliveries will go to Reiner Gamma (a lunar swirl) in Quarter 4 2023, and a Schrödinger Basin impact melt (lunar far side) in Q2 2024. Proposals must identify one of these lunar landing sites and propose an investigation uniquely achieved at that location. No other landing sites shall be proposed. Some technology demonstration, development, and/or maturation within the proposed project is allowed; however, proposals need to show how this will enhance the overall science return and one of the primary review criteria for selection will be the proposer's ability to deliver on schedule.

PRISM science investigations must address NASA's science objectives as described in [2018 NASA Strategic Plan](#), the relevant NASA Science Mission Directorate (SMD) division *Decadal Surveys*, and/or the [2019 NASA Science Strategy for the Moon](#). Also of relevance are those objectives outlined in the [NAS Scientific Context for Exploration of the Moon](#). This PRISM call is issued by SMD, thus, proposed investigations shall primarily address SMD's objectives for the Moon. However, investigations that additionally address exploration or technology objectives are also welcome (see [Human Exploration and Operations Mission Directorate's \(HEOMD\) Artemis Plan](#) or Space Technology Mission Directorate Strategic Outcomes under "other documents" on the [NSPIRES page for this program element](#), where potential proposers may find other documents of interest including a FAQ.

NASA recognizes and supports the benefits of having diverse and inclusive scientific, engineering, and technology communities and fully expects that such values will be reflected in the composition of all proposal teams as well as peer review panels (science, engineering, and technology), science definition teams, and mission and

investigation teams.

2. Background and Scope of Program

NASA's CLPS project coordinates and contracts with commercial providers to land scientific and technology payloads on the lunar surface. CLPS is a delivery service and may carry NASA and non-NASA payloads; thus, NASA is one of many customers on a particular lunar surface delivery. Once payloads selected through this call have been identified, NASA will issue a separate Request For Task Order Proposals (RFTOP) to procure lunar lander services from among the list of current CLPS providers, and the selected provider will deliver the PRISM awarded payload suite to the lunar surface.

PRISM is SMD's primary mechanism for identifying payloads to be delivered through CLPS. A Request for Information (RFI) was released in April 2020 ([NNH20ZDA007L](#)) for PRISM that requested ideas for investigations from the broader science and technology communities. The results of that RFI and various community-documented priorities have guided the landing site selections for the two CLPS deliveries identified in this call and will subsequently inform landing sites for future solicitations as well.

Separate NASA payloads acquired through directed work, international contributions, or solicitations specific to other NASA mission directorates may be co-manifested with PRISM investigations. Where possible, these separate payloads will be identified in the PRISM solicitation to promote complementary research and reduce redundancies in proposed investigations.

3. Proposal Information

3.1 PRISM Payload Objectives

This program element solicits investigation suites to conduct science that can be uniquely accomplished at specific lunar locations. In this program element, a "suite" is defined as two or more separate payload elements that work together to achieve the investigation's objectives. Destination agnostic, campaign, and non-suite investigations are not a part of this call, but may be solicited in future PRISM calls. The CLPS delivery platforms for this PRISM call will be stationary landers that are not expected to survive more than a single lunar day (~9-10 Earth days). However, proposed investigations may include deployed mobility, articulation, and/or surviving-the-lunar-night components that demonstrably enhance the expected scientific return, as long as those solutions remain within the total mass per delivery and cost limitations outlined in this element (see Section 8.0). The total budget for this call is \$60M for both deliveries combined and at least one investigation will be awarded for each delivery within this total cost cap; however, multiple investigations may be selected for each delivery if the total cost remains below the overall budget available to PRISM. Thus, lower-cost investigations and cost-efficient operations are encouraged. This PRISM call is not open to responses that propose the use of Radioisotope Heater Units (RHUs).

NASA expects to select investigations that will be manifested on the next two CLPS deliveries scheduled to arrive at the lunar surface in late 2023 and early 2024. These deliveries will go to Reiner Gamma (a lunar swirl) in Q4 2023, and a Schrödinger Basin

impact melt (lunar far side) in Q2 2024. Specific coordinates of the landing sites will be negotiated between NASA, the selected payloads, and the selected lander provider based on science needs, capabilities of the lander, and safety requirements.

Each selected investigation may be co-manifested with other PRISM or unrelated payloads on each lander. For the Reiner Gamma delivery, the European Space Agency will provide a lunar laser retroreflector as a payload. For the Schrödinger Basin delivery, SMD's remaining Lunar Surface Instrumentation and Technology Payloads (LSITP) instrument - the Lunar Surface Electromagnetics Experiment (LuSEE) - has already been manifested. LuSEE is a flight-spare payload from the FIELDS experiment on the recently launched Parker Solar Probe spacecraft and will measure the electromagnetic and electrostatic environment of the lunar surface, including surface electric potentials, magnetic fields, and electrostatic signatures of dust. LuSEE will also measure radio emissions from the Sun and outer planets. Please see additional LuSEE information under "other documents" [on the NSPIRES page for this program element](#). PRISM proposals may propose investigations that complement, but do not overlap, the science expected from LuSEE (Schrödinger Basin) or the lunar laser retroreflector (Reiner Gamma).

The time frame for this solicitation is: Update when reviews are done.

Pre-proposal Conference**	November 10, 2020
Step-1 Proposals due	December 11, 2020
Step-2 Proposals due	January 19 February 3 , 2021
Selection	~4 months post proposal due date
Suite/Lander Integration for Reiner Gamma...	March 2023 (target)
Suite/Lander Integration for Schrödinger...	August 2023 (target)
Launch for Reiner Gamma.....	December 2023 (target)
Launch for Schrödinger.....	May 2024 (target)

** For the pre-proposal conference, you may join the conversation via Webex at [this link](#) on November 10, 2020 at 1:00p EST.

3.2 PRISM Payload Technical Requirements

The investigation proposed in response to this solicitation must be accommodated by commercial service providers. The commercial service provider will be competitively selected after PRISM awards have been made, so PRISM investigations must be lander agnostic and utilize common interfaces where possible. Proposed suites shall not exceed 50 kg, including any required brackets, booms, deployment hardware, inter-box cabling, etc. As with most spaceflight hardware, responders should aim to minimize the resource requirements (mass, power, volume, cost, etc.) necessary to support the proposed payload. Proposers should consider the following guidelines for experiment design and interface with the landers:

- Communications:
 - o Wired RS-422
 - o Wireless: 2.4 GHz IEE 801.11n
 - o Data Rate Downlink: ~300 kbps

- Power:
 - o 28Vdc
 - o 150 Watts Maximum Steady State Power
 - o Less than 200 Watts Startup Transient Power
- Vibration loads (dynamic environment): [General Environmental Verification Standard \(GEVS\)](#) levels

Proposals shall document which requirements/capabilities will be completed by the PI/suite vs which need to be provided by the lander (e.g. robotic arm, or egress method from the vehicle may be provided as a part of the instrument or as a native part of the lander). If a required capability is provided by the PI/suite, the cost shall be included in the proposed cost; if the required capability is expected to be provided by the lander, the requirements for that capability will be explicitly stated, and the cost will not be included in the proposal. Booms and gimbles, if required, shall be provided by the suite. Additionally, proposals shall document their environmental test approach in accordance with the General Environmental Verification Standard (GEVS; GSFC-STD-7000A) or better.

Proposals shall document expected suite mass and dimensions, and as many interface/concept of operations (conops) requirements as possible with special consideration given to the following, if applicable.

- Payload structural load limits
- Payload thermal conditioning requirements (operating/non-operating temperature limits, survival heater power, lander/payload thermal interface, etc.)
- Payload uplink and downlink communication requirements (volume, bandwidth, etc.)
- Payload data storage requirements (data stored on payload, data storage requirement on the lander, etc.)
- Payload communication interfaces and formats (wired, wireless, interface port(s), etc.)
- Payload power requirements (number of power channels, nominal, peak, power conditioning, etc.) and any grounding requirements
- Payload pointing, field-of-view, or orientation requirements
- Payload configuration on the lander requirements (e.g. deployment on the end of a boom, deployment from lander, distance from the lunar surface, etc.), inclusive of pyrolytic and non-pyrolytic activation devices, and how they would be activated
- Payload mechanical interface(s) and launch lock requirements, if any
- Payload optical sensitivities (dust, chemicals, line-of-sight to the Sun, etc.) and keep out zones for sensor operation, if applicable
- Payload cleanliness requirements (e.g. organic contamination, particulates, magnetic cleanliness, EM shielding, etc.)
- Payload-unique time synchronization requirements
- Payload operational timeline (operation during transit, operation during lunar orbit, etc.)
- Special handling and storage requirements

- Payload conops considerations (e.g. cruise phase/descent phase operations, local time operational constraints)

Upon award, NASA will work with the PI to produce specific interface information of selected investigations that will be given to the field of CLPS providers to enable them to bid on the delivery task. CLPS task orders are Firm Fixed Price contracts, so interface requirements need to be mature and final going into PRISM submission.

3.3 Suborbital Testing to Reduce Risk or Advance TRL

The NASA Flight Opportunities program has suborbital testing capabilities available that may be of utility to PRISM investigations for subsystem level testing, technology risk reduction, or other needs. Interested proposers may request one or more suborbital flights and the NASA Flight Opportunities program would work with selected PRISM investigations to help develop and execute the suborbital flight test plan. The Flight Opportunities program maintains an IDIQ (Indefinite Delivery/Indefinite Quantity) contract with several U.S. suborbital providers for reusable suborbital launch vehicle, sounding rocket, or high-altitude balloon flights

(see: <https://www.nasa.gov/directorates/spacetech/flightopportunities/flightproviders>).

While not currently on the IDIQ, parabolic and entry, descent and landing testbed capabilities may also be proposed. Proposers who would like to take advantage of this opportunity shall include in the page limited S/T/M Section, a description of how a suborbital flight would enhance their TRL and/or buy down overall risk associated with their investigation. In general, the Flight Opportunities program will partner with SMD to cover the costs of flight testing, but costs to the proposer associated with flight test preparation, suborbital test hardware, and post flight analysis shall be included in the PRISM proposal budget. To aid in prioritization of Flight Opportunities funds, upon PRISM award, the Flight Opportunities program may request a short white paper on the potential impact of the technology and suborbital testing plans.

4.0 PRISM Management Process

After selection, NASA intends to maintain an essential degree of oversight of the selected project(s), and to that end, have designated the Planetary Missions Program Office (PMPO) at Marshall Space Flight Center (MSFC) to serve as the principal project management interface with the selected teams throughout the project lifecycle. It is anticipated that awards will be as cooperative agreements with management oversight and reviews as set forth in Sections 4.1 and 4.2. NASA considers PRISM investigations to be research and technology projects just like all other ROSES investigations, not space flight projects. Management requirements for research projects are fully documented in NASA Procedural Requirements document [NPR7120.8A](#). For the purposes of this solicitation, PMPO is firewalled off from the rest of MSFC; thus, no conflict of interest exists for proposers from MSFC.

4.1 Management Oversight and Reporting

Organizations selected for awards in response to proposals to this program element shall report to PMPO monthly (pending approval from grants policy). Monthly reporting and reviews will cover the project accomplishments, technical status, risk, cost and

schedule status, and other topics relevant to the accomplishment of the project. The projects will perform risk management that complies with NPR 8000.4 or equivalent.

Proposals shall include a Safety and Mission Assurance (SMA) Plan describing the approach and requirements being implemented for SMA. Institutional SMA requirements may be used for the PRISM projects. Selected investigations shall submit a hazard analysis to the PMPO that will include personnel safety during ground activities, hardware safety during flight operations, and any planetary protection concerns based on the latest [NASA Planetary Protection classifications](#). If selected investigations have a Quality Management System that meets the intent of SAE AS9100 or ISO 9001, no additional quality requirements will be imposed. Otherwise, an equivalency assessment of the institutional system will be required. NASA is not imposing reliability requirements.

4.2 Documentation and Gate Reviews

Within one month following award, selected PRISM projects are required to submit investigation accommodation information and interface/conops requirements to PMPO for inclusion within the solicitation to the CLPS vendors for the delivery task order (see example under "Other Documents" on [the NSPIRES page for this ROSES element](#)). Within 3 months following selection, PRISM projects are required to deliver to PMPO a Project Plan, comprising an agreement between the PI and NASA on science objectives, implementation approach, resources, cost, reviews, schedule, and other plans. A project plan template may be found in Appendix G of NPR 7120.8A. PMPO will work with the selected investigation PI on the content of the project plan after selection, which will include a Project Protection Plan.

Gate reviews will be conducted by the Independent Assessment Team (IAT) supporting PMPO per the draft schedule contained in the Project Plan. Decision Authority for these gate reviews is the Deputy Associate Administrator for Exploration at NASA HQ. If the project is at a Technology Readiness Level below 6, a Preliminary Design Review will be the first gate review. Regardless of TRL, all projects will conduct a Critical Design Review (CDR). For projects beyond TRL 6, CDR will be the first gate review and no PDR is required. Following the first gate review, either PDR or CDR, the project will participate in a Key Decision Point review where the project will be approved to proceed. Additionally, a System Integration Review combined with an Acceptance Review will be a required gate review with the IAT. The Project Plan will document the review plan based on the hardware maturity and must be approved prior to the first gate review.

Within 90 days of the completion of the investigation's surface operations, projects will submit a closeout report to the PMPO Manager. This report will document the accomplishments, operations and technical performance of the hardware including any failures and lessons learned. The Flight Phase will end within 6 months of the completion of surface operations. Prior to the end of the cooperative agreement, data archiving will be complete and a memo documenting the accomplishment of mission success criteria will be submitted to the PMPO Manger and subsequently signed by the

NASA HQ Program Scientist. A closeout review (Key Decision Point) may be conducted at the discretion of the Decision Authority.

4.3 Cost and Continuation Assessment

Should a project be significantly over budget, behind schedule at any time such that it represents an appreciable risk to success, or if unable to accomplish one or more of its proposed science objectives, a cost and continuation assessment will be performed to determine whether the project should continue and, if continuation is approved, how the project can increase its probability of success within its approved cost and schedule. If the cost and continuation assessment indicates that the project cannot succeed on budget and schedule then NASA may terminate the cooperative agreement in whole or in part consistent with [2 CFR § 200.339](#).

5.0 Proposal Requirements

5.1 Two Step Proposal Process

This program element uses a two-step proposal submission process, as described in Section 2 of C.1, the [Planetary Science Research Program Overview](#). Proposers are reminded that Step-1 proposals are mandatory and must be submitted by the proposing organization.

Please note that the page limit for the Science/Technology/Management section of Step-2 Proposals is 25 pages, this supersedes the defaults in [the ROSES Summary of Solicitation](#) and the *Guidebook for Proposers*. Step-2 Proposals must follow all formatting requirements that are described in program element C.1 and in the *ROSES Summary of Solicitation*. Violation of these formatting rules is grounds for a proposal to be returned without review.

5.2 General Requirements

For PRISM payloads, total costs (i.e., from initiation through data archiving) allowed under this program are expected not to exceed \$60M in real-year dollars for both deliveries combined (Reiner Gamma and Schrödinger). Through CLPS task orders, NASA will contract for services to deliver the payload to the lunar surface outside of the PI-managed cost. PRISM awards are expected to cover all phases of the proposed investigation, typically including payload development and construction, instrument integration and calibration, support for the team through launch/operations, publication of results, and data analysis/dissemination/archiving. The PI institution is expected to fund participating Co-Investigators via subawards, except when the Co-I is at a government laboratory or the Jet Propulsion Laboratory.

All investigations must be delivered to the CLPS provider no later than (NTL) 9 months prior to expected launch date to be eligible for integration on the lander.

5.3 Proposal Content Requirements

The Scientific/Technical/Management section of PRISM proposals shall be at most 25 pages long including figures and tables. A notional breakdown is as follows:

- Science Plan

- Payload Technical Plan
- References – as needed and not included in overall page count

Additionally, a two-page Data Management Plan must be included following the References. The Data Management Plan’s pages are not part of the 25-page limit for this section. Otherwise, the submission shall follow the form outlined in e.g., Table 1 of the *ROSES-2020 Summary of Solicitation*.

The proposal shall clearly define its science goals and objectives, shall demonstrate how the science objectives map into high-level science requirements, and shall show how the science requirements subsequently map into the measurement and instrument performance requirements and, as relevant, into the platform performance requirements. The proposal shall include a Science Traceability Matrix (STM) per the example found below, in Table 1 of this program element.

Proposals shall designate all key management team members including a Deputy PI (DPI), a project manager (PM), all Co-Investigators (Co-Is), as well as describe the role of each Co-I in the development of the investigation and justify the necessary nature of each role. These roles should be mapped to a Work Breakdown Structure (WBS) as outlined in Appendix I of [NPR7120.8A](#). Excessively large teams of Co-Investigators and Collaborators are discouraged.

A discussion of the plans for project management and for archiving of the data (a [Data Management Plan](#) as described in Section 3.6 of the [Planetary Science Research Program Overview](#)), consistent with SMD data management and archiving requirements, must be included in the proposal. The investigation team shall make all data fully available to the public through the [Planetary Data System \(PDS\)](#) or a NASA-approved equivalent archive in readily usable form, in the minimum time necessary, but, barring exceptional circumstances, within six months following the end of the investigation’s data acquisition.

Table 1. Example Science Traceability Matrix

A. Science Objective(s)	B. Science Questions	C. Investigation Objective Requirements			Mission Top Level Requirements
		Measurement	Requirement	Projected Performance	
Objective #	Question #	Examples:			Examples: Observing strategies: requires yaw and elevation maneuvers. Launch window: to meet nadir and limb overlap requirements. Window applies day to day.
Objective #	Question #	Temporal Resolution	XX Sec.	XXX Sec.	
Etc.	Etc.	Etc.			
		Precision	YY%	YYY%	
		Accuracy	ZZ %	ZZZ%	

If the proposal contains export-controlled material, the material shall be presented in a red font or enclosed in a red-bordered box, and the following statement shall be

prominently displayed as the first page of the uploaded PDF proposal document and will not count toward the proposal's page limits:

"The information (data) contained in [insert page numbers or other identification] of this proposal is (are) subject to U.S. export laws and regulations. It is furnished to the Government with the understanding that it will not be exported without the prior approval of the proposer under the terms of an applicable export license or technical assistance agreement. The identified information (data) is (are) printed in a red font and figure(s) and table(s) containing the identified information (data) is (are) placed in a red-bordered box."

6.0 Programmatic Information

6.1 Award Information and Description of NASA Contribution

It is anticipated that most awards to non-governmental organizations will be in the form of cooperative agreements. NASA's contribution to the investigation is primarily through a separate procurement of the CLPS lander service, which includes launch and delivery of the investigation to the lunar surface and data return from the lunar surface. NASA will also contribute a Payload Integration Manager responsible for working between the payload provider and the lander provider, integration of the investigation onto the CLPS lander, and provision of a project scientist to develop conops and landing site determinations among all NASA payload stakeholders and the CLPS provider.

Information on any Government furnished equipment (GFE) and/or Government services by NASA such as information about LuSEE may be found in the PDFs under other documents on [the NSPIRES page for this program element](#) and in Section 3.1.

This program's planning budget can accommodate two or more selections within this solicitation's cost cap with a typical (combined) funding profile. Proposers should request a funding profile that is appropriate for their investigation. However, NASA cannot guarantee that every proposed funding profile can be accommodated within the program budget. The inability of NASA to accommodate the requested funding profile may be a reason for non-selection of a proposal. Final funding profiles for all selected investigations will be negotiated between the program and the selected investigation teams.

All selected investigations must comply with the technical requirements, integration support obligations, and delivery schedules provided by NASA and/or the commercial provider(s), to include on-site storage of the payload from its deliver-in-place commitment date through shipment to the CLPS provider and subsequent integration and check-out at the CLPS provider facility.

6.2 Eligibility to Propose

Participation in this program follows the ROSES rules outlined in the [ROSES 2020 Summary Of Solicitation](#); however, one further restriction regarding foreign participation is in effect. Proposals from Non-US Organizations will not be accepted. However, international participation is welcomed as team members or hardware providers on a no-exchange of funds basis. Foreign participation may be up to 1/3rd the total cost of the

investigation. Proposals shall include a discussion of the scale of the internationally contributed instruments, how the proposed contribution is consistent with NASA's policy that the contribution does not exceed approximately one-third of the investigation cost, and how the programmatic risks associated with the contribution will be handled.

6.3 Cost Information

Proposals must clearly describe all of the investigation phases from project initiation through the archival of data acquired during the mission and aligned to project years 1-4. Some examples of the costs include: design, test, and evaluation of the payload, interactions between the payload and CLPS Payload Integration Manager, integration support costs, supporting documentation (e.g. thermal model, finite element model, master equipment list, etc.), support for PRISM suite/lander meetings and integration (e.g. payload integration kickoff meeting, support for a payload workshop, preparation of integration support documents, travel to the CLPS provider's site to support integration activities), storage costs from delivery in place to lander need date (~nine months prior to launch), and science team activities. NASA's budget profile for funding is approximately 40% in project year 1 of the investigation, 30% in year 2, 20% for year 3, and 10% for year 4. Proposal budgets should roughly reflect this phasing. Cost reserves will be held at the PMPO level and should not be included in the overall budget.

6.4 Request for Reviewer Names

Proposers are strongly encouraged to provide names and contact information of up to five experts qualified to review their proposal in the appropriate question field in NSPIRES when submitting your Step-1 proposal. These experts must not be from the institutions of the PI or Co-Is or stand to benefit financially from the selection (or otherwise) of the proposal. NASA does not commit to using these individuals as proposal reviewers but will seriously consider all suggestions.

7. Evaluation Criteria

All proposals for this ROSES element will be evaluated based on the following criteria that deviate from those defined in the *NASA Guidebook for Proposers*. Compliant proposals will be evaluated against these criteria:

- "Intrinsic science, exploration, or technology merit of the proposed investigation"
 - Compelling nature and priority of the proposed investigation's science, exploration, or technology goals and objectives
 - Likelihood of science, exploration, or technology success, including how well the anticipated measurements support the goals and objectives
 - Merit of any PI-developed technology demonstrations (if proposed);
 - Programmatic value of the proposed investigation (evaluated by NASA personnel, not the peer review panel)
- "Experiment science, exploration, and/or technology implementation merit and the feasibility of the proposed investigation," including the data management plan
 - Merit of the instruments and investigation design for addressing the science, exploration, or technology goals and objectives
 - Probability of technical success

- Merit of the data management plan
- Science, exploration, or technology resiliency. This factor includes both developmental and operational resiliency (as defined in Section 7.2.3 of [SALMON-3](#))
- Probability of investigation team success. This factor will be evaluated by assessing the experience, expertise, and organizational structure of the investigation team and the experiment design in light of any proposed instruments.
- Facilities, instruments, equipment, and other resources or support systems (including the flight opportunities identified in Section 3.3, if proposed) presented in the proposal that would affect the likelihood of achieving the proposed objectives.
- Merit of any PI-developed technology demonstrations (if proposed), including assessing whether the tech demo will enlarge the impact of the investigation, and/or add value to future investigations, and the potential risk to the investigation objectives posed by the tech demo
- Extent to which the proposal convincingly demonstrates that the payload will be available in time to support the lander integration schedules as described in Section 3.1
- "Technical, management, and cost feasibility of the proposed investigation", including cost risk
 - Adequacy and robustness of the instrument implementation plan.
 - Adequacy and robustness of the investigation design and plan for operations.
 - Adequacy and robustness of the flight hardware and software designs, heritage, and margins.
 - Adequacy and robustness of the management approach and schedule, including the capability of the management team
 - Adequacy and robustness of the cost plan

The selecting official for this program element will be the SMD Deputy Associate Administrator for Exploration.

8. Summary of Key Information

Maximum funding for both deliveries combined	\$60M PI cost over life cycle (real year dollars).
Maximum investigation mass	50 kg total for each delivery, including integration mass (e.g. brackets, cables, etc.)
Number of awards	At least 2, one to each destination. More may be selected based on available funding/mass.
Due date for Step-1 proposals	See Tables 2 and 3 of this ROSES NRA.
Due date for Step-2 proposals	See Tables 2 and 3 of this ROSES NRA.

Planning date for start of investigation	5 months after the Step-2 proposal due date
Payload delivery for integration	Nine months prior to launch
Launch dates (Target)	December 2023 (Reiner Gamma); May 2024 (Schrödinger Basin)
Page limit for the central Science-Management-Technical section of proposal	25 pages
Relevance	This program element is relevant to all goals/objectives of any SMD division as outlined within the NASA Science Plan, in addition to those of the SMD Biological and Physical Sciences Division. Proposals that are relevant to this program are, by definition, relevant to NASA.
General information and overview of this solicitation	See the ROSES Summary of Solicitation .
General requirements for content of proposals	See Section IV and Table 1 of the ROSES Summary of Solicitation .
Detailed instructions for the submission of proposals	See https://nspires.nasaprs.com/tutorials/ Sections 3.22-4.4 of the 2020 NASA Guidebook for Proposers and Section IV(b) of the ROSES Summary of Solicitation .
Submission medium	Electronic proposal submission is required; no hard copy is required or permitted.
Web site for submission of electronic proposals via NSPIRES	https://nspires.nasaprs.com/ (help desk available at 202-479-9376 or nspires-help@nasaprs.com)
Web site for submission of electronic proposals via Grants.gov	https://www.grants.gov/ (help desk available at support@grants.gov or (800) 518-4726)
Funding opportunity number for downloading an application package from Grants.gov	NNH20ZDA001N-PRISM
Point of contact	Brad Bailey Exploration Science Strategy and Integration Office (ESSIO). Science Mission Directorate NASA Headquarters Washington, DC 20546-0001 Email: HQ-PRISM@mail.nasa.gov