2016 Astrophysics Medium Explorer (MIDEX), Mission of Opportunity (MO) & USPI Preproposal Conference

U.S. Participating Investigators

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2016 Astrophysics Explorer U.S. Participating Investigators Program Element for the Research Opportunities in Space and Earth Sciences (2016 APEX USPI ROSES-2016) – NNH14ZDA001N-APEXUSPI

Issued for the purpose of soliciting potential Explorer Program Mission of Opportunity (MO) investigations in which **investigators participate as a Co-I for an instrument, experiment, or technology demonstration** that is being built and flown by a sponsor agency other than NASA. The provision of flight hardware is not solicited through this USPI solicitation.

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Notice of Intent to Propose - Required

- To assist the planning of the proposal evaluation process, NASA *requires* all prospective proposers to submit a Notice of Intent (NOI) to propose.
- NOIs will help the evaluation teams to plan and secure the services of well qualified evaluators earlier in the evaluation cycle.
- Please include the names of as many team members as possible
- NOI must be submitted electronically through the NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES), at http://nspires.nasaprs.com/.

Proposal Submission

- Proposals must be submitted electronically via NSPIRES at http://nspires.nasaprs.com/.
- The proposal must be received no later than 11:59 p.m. Eastern Time on December 15, 2016.

Science Objectives

Investigations may target any astrophysics scientific investigation that advances NASA's astrophysics objectives.

NASA's astrophysics strategic goals are to:

"Discover how the universe works, explore how it began and evolved, and search for life on planets around other stars."

For astrophysics research, the science research objectives are to:

- Probe the origin and destiny of our universe, including the nature of black holes, dark energy, dark matter, and gravity;
- Explore the origin and evolution of the galaxies, stars, and planets that make up our universe; and,
- Discover and study planets around other stars and explore whether they could harbor life.

Science Objectives

- Further information on NASA's strategic goals may be found in NASA Policy Directive (NPD) 1001.0B, ***NASA 2014 Strategic Plan***, available through the 2016 Astrophysics Explorers MIDEX or Mission of Opportunity Program Library.

- Further information on the goals and objectives of NASA's astrophysics programs may be found in the ***NASA 2014 Science Plan*** and the Astrophysics roadmap, ***Enduring Quests Daring Visions, NASA Astrophysics in the Next Three Decades*** available through the 2016 Astrophysics Explorers MIDEX or Mission of Opportunity Program Library.

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- **2016 APEX USPI Program Element (PE) is an appendix to the ROSES 2016 NASA Research Announcement (NRA).**
- **Requirements** are as given in ROSES, as amended by PE.
  - Requirements for the ROSES USPI can be quite different from those for the MO PEA.
- **Evaluation Factors** are identified in the PE, numbered, and specific.
  - 3 for Science Merit
  - 3 for Scientific Implementation Merit and Feasibility
- ROSES *Guidebook for Proposers*, Appendix B has **requirements on Proposal Preparation**

In the event of an apparent conflict between the guidelines, the order of precedence is: the PE, then the ROSES NRA, then the *NASA Guidebook for Proposers*.

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- Proposals submitted in response to the 2016 Astrophysics Explorers USPI ROSES PE must comply with the requirements in the ROSES-2016 NRA and in the Astrophysics Explorer USPI program element. Proposals submitted in response to this solicitation are not required to comply with the requirements in the SALMON-2 AO.
- The purpose is to solicit potential Explorer Program Mission of Opportunity (MO) investigations in which investigators participate as a **Co-I for an instrument, experiment, or technology demonstration** that is being built and flown by a sponsor agency other than NASA.
- **Investigations requiring the provision of flight hardware are not solicited through this USPI solicitation.**

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- A proposed investigation as a USPI on a non-NASA mission or instrument may take any form that clearly and demonstrably enhances the scientific output of the mission, benefits the U.S. scientific community, and enables U.S. astrophysics science community access to a highly valued scientific data set.

- The Co-I role can include, but is not limited to:
  - Instrument design,
  - Modeling and simulation of the instrument's operation and measurement performance,
  - Calibration of the instrument,
  - Scientific analysis and/or research of the data returned, and/or
  - Development of innovative data analysis techniques.

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•A U.S. Participating Investigator may also serve as a member of a non-NASA space mission science or engineering team and participate in science team activities, such as mission planning, mission operations, data processing, data analysis, and data archiving.

•Regardless of the nature of the U.S. Participating Investigator role, an investigation proposed under this category must be for a science or technology investigation and must include some meaningful data analysis component, archiving of the complete data set, and the publication of science results in the peer reviewed literature. All aspects of the investigation through publication must be within the proposed cost.

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- The proposed investigations can vary in duration, to include just the prime science mission phase, or to begin at the post confirmation development phase (e.g., for calibration analysis) through the prime mission operational phase, depending on the science requirements of the investigation.

- All investigations shall include adequate time for data analysis and archiving following the conclusion of the prime mission phase.

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- This program element solicits new investigations only. Proposals whose intent or purpose is to extend or directly supplement existing investigations already funded for approved space flight missions or other NASA-supported research programs are not appropriate for this program element.

- Investigators who are members of the science teams of ongoing missions and who propose to use data from those missions must clearly demonstrate that the proposed research is distinct from their existing efforts.

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- For individual investigators, the cost for selected proposals is expected to be on the order of $125K per selected investigation per year through the prime science mission phase, plus one year for additional data analysis and archiving for the baseline scientific investigation.

- For a team of investigators, the cost is expected to be on the order of $125K per investigator per year, up to a maximum combined team total on the order of $1M per year, through the prime science mission phase plus one year for additional data analysis & archiving.

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- Proposals should be for the entire duration of the proposed investigation. This may be no more than through the prime science mission, plus one year for additional data archiving for the baseline scientific investigation. The budget justification in the body of the proposal should cover this entire period. Note that proposers can only enter the first 5 years of budget into the cover page of the NSPIRES web interface, but this is simply an artifact of the NSPIRES system.

Technical requirements and constraints

In addition to the requirements given in ROSES, all proposed investigations must also demonstrate:

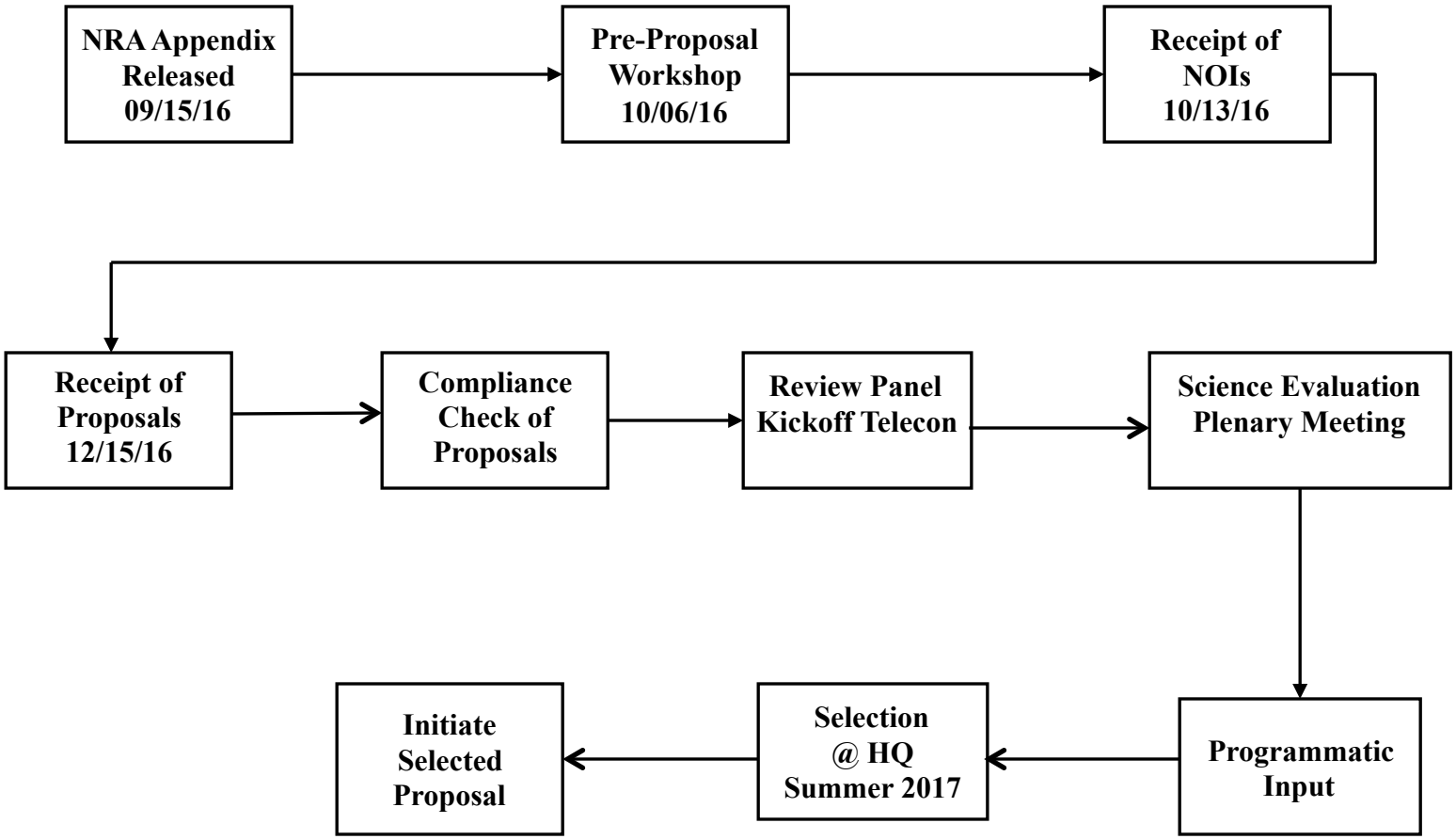
1. Their formal relationship with the sponsoring agency's mission (e.g., selected participant, invited participant, or proposed participant);

2. The status of the mission within the sponsoring agency;

3. A description of the type and the characteristics of the data from this investigation, as well as any ancillary data, that will be archived as part of the investigation, and a description of the arrangements and resources included in the proposal to ensure the timely delivery of the necessary data in the required format;

4. A detailed explanation of how the astrophysics science community benefits from this participation

Evaluation and Selection Overview for Astrophysics Explorer Mission of Opportunity APEX USPI ROSES-2016 NRA



Overview of the Evaluation and Selection Process

Evaluation Criteria

- Scientific Merit of the Proposed Investigation
- Scientific Implementation Merit and Feasibility of the Investigation
- Relevance to NASA's Stategic Goals and Objectives
- Cost Realism and Reasonableness

Compliance Check

- All proposals will be initially screened to determine their compliance to requirements and constraints of the applicable NRA.

- Proposals that do not comply may be declared noncompliant and returned to the proposer without further review.

- USPI proposals must adhere to the standard ROSES compliance requirements (ROSES Section IV(a)).

Proposal Evaluation

2016 APEX USPI investigations will be evaluated and selected through a one-step competitive process.

- Compliant proposals will be evaluated against the criteria specified in Section 2.3 of the USPI PE by panels of individuals who are peers of the proposers.

- Panel members will be instructed to evaluate every proposal independently without comparison to other proposals.

- These panels may be augmented through the solicitation of non-panel external reviews, which the panels have the right to accept in whole or in part, or to reject.

Selection

- The final evaluation results will be presented to the Director of the Astrophysics Division (APD) of the Science Mission Directorate, who will make the final selection(s).
- As the Selection Official, the APD Director may consult with members of the APD, SMD and the Agency concerning the selections.
- Written debriefing materials will be provided to the PI of each proposal in a timely manner after the selection announcement.

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NSPIRES USPI Web Site

A Web site for submission of proposals via NSPIRES is available at http://nspires.nasaprs.com, and will provide updates and any addenda during the USPI solicitation process.

Program Library

The 2016 Astrophysics Explorers Mission of Opportunity Program Library provides additional regulations, policies, and background information on the Astrophysics Explorers Program. The 2016 Astrophysics Explorers Mission of Opportunity Program Library is accessible at http://explorers.larc.nasa.gov/APMIDEX2016/MO/programlibrary.html

Science Merit Evaluation Factors

The information provided in a proposal will be used to assess the intrinsic scientific merit of the proposed investigation.

The factors for scientific merit include the following:

Factor A-1. Compelling nature and priority of the proposed investigation's science goals and objectives.

This factor includes the clarity of the goals and objectives;

how well the goals and objectives reflect program, Agency, and National priorities;

the potential impact of the investigation on program, Agency, and National science objectives;

and the potential for fundamental progress, as well as filling gaps in our knowledge relative to the current state of the art.

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Factor A-2. Programmatic value of the proposed investigation.

This factor includes the unique value of the investigation to make scientific progress in the context of other ongoing and planned missions;

the relationship to the other elements of NASA's science programs;

how well the investigation may synergistically support ongoing or planned missions by NASA and other agencies;

and the necessity for a space mission to realize the goals and objectives.

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Factor A-3. Likelihood of scientific success. This factor includes how well the anticipated measurements support the goals and objectives; the adequacy of the anticipated data to complete the investigation and meet the goals and objectives; and the appropriateness of the mission requirements for guiding development and ensuring scientific success.

Science Implementation Merit Evaluation

Factors for scientific implementation merit and feasibility:

Factor B-1. Merit of the instruments and mission design for addressing the science goals and objectives.

This factor includes the degree to which the proposed mission will address the goals and objectives;

the appropriateness of the selected instruments and mission design for addressing the goals and objectives;

the degree to which the proposed instruments and mission can provide the necessary data;

and the sufficiency of the data gathered to complete the scientific investigation.

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<u>Factor B-3</u>. Merit of the data analysis, data availability, and data archiving plan.

This factor includes the merit of plans for data analysis and data archiving to meet the goals and objectives;

to result in the publication of science discoveries in the professional literature;

and to preserve data and analysis of value to the science community.

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<u>Factor B-5</u>. Probability of science team success.

This factor will be evaluated by assessing the experience, expertise, and organizational structure of the science team.

The role of each Co-Investigator will be evaluated for necessary contributions to the proposed investigation;

the inclusion of Co-Is who do not have a well defined and appropriate role may be cause for downgrading of the proposal.

All further questions pertaining to 2016 USPI MUST be addressed to:

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