

6 August 2013

Call for Letters of Application for Membership in the Science and Technology Definition Teams for Reduced Scale X-ray Mission Concepts

- **XAP STDT Charter** [[PDF](#)]

NASA's Physics of the Cosmos (PCOS) Program plans to establish a Science and Technology Definition Team (STDT) to study concepts for a potential reduced-scale strategic spectroscopy X-ray mission with total mission cost less than \$1B in FY 2013 constant year dollars. The X-ray Probe (XAP) STDT is being constituted to assist the Astrophysics Division, through its PCOS Program Office, in developing a reference mission concept of high scientific, technical, and programmatic merit that would both address the X-ray science goals and program prioritizations of the Decadal Survey [New World New Horizons](#) (NWNH) for X-ray astrophysics and be executable within the Astrophysics Division's notional budget profile. This letter is issued to solicit applications for participation in the STDT from scientists at U.S. institutions with expertise and experience in all aspects of X-ray astrophysics, including observation, theory, technology development, and instrumentation. The X-ray Astrophysics Probe (XAP) STDT will build on the notional probe-size mission concept developed by the X-ray Concept Study Team in 2012 (NCAL), focused on high-resolution X-ray spectroscopy of astrophysical sources with a microcalorimeter.

Background:

The Decadal Survey endorsed the scientific objectives of the International X-ray Observatory (IXO) and made recommendations regarding the capabilities of the next large X-ray observatory derived from those of IXO. The [2012 X-ray Astronomy Mission Concepts Study](#) concluded that a probe-class mission could achieve a substantial fraction of the IXO science objectives at a significantly lower cost. This study also concluded that the key focal plane instrument for a probe-class observatory is a microcalorimeter since the main IXO science themes endorsed by the Decadal Survey centered upon high-resolution, imaging X-ray spectroscopy. The notional mission in the X-ray Study named NCAL included a microcalorimeter and will serve as starting point for more thorough definition of an X-ray spectroscopy probe.

A STDT for an XAP is chartered to define a reference mission concept of high scientific, technical, and programmatic merit that would both advance the science goals and programs articulated for X-ray astronomy in the Decadal Survey and be executable within the Astrophysics Division's current notional budget profile. As described in the [NASA Astrophysics Strategic Implementation Plan](#), if a large mission like WFIRST cannot be

started this decade, then an X-ray Astrophysics Probe would be a candidate to start this decade as early as FY 2017. A FY 2017 new start, followed by efficient development of the mission, requires mature technology(ies), i.e., at or above TRL5, by the end of this decade. The mission definition study will identify technology requirements and design factors that will enable a probe-class microcalorimeter mission maximizing NWNH science goals and programs, and these will be used to guide technology investments during the remainder of this decade.

The results of the XAP STDT study will be considered by the NASA Astrophysics Division and jointly by the NRC Committee in Astronomy and Astrophysics along with studies from other STDTs.

Task Description:

The XAP STDT will optimize the scientific and technical options for a probe-class mission to meet the X-ray science goals and program prioritizations of the Decadal Survey, following the spectroscopy studies of the X-ray Concept Study Team in 2012, building on the NCAL probe designed by the latter.

The science goal of the STDT will be to establish science requirements, investigation approaches, key mission parameters, and other scientific studies needed to support the definition of an implementable space mission concept. The technical goals of the STDT will be to establish the programmatic, technical, risk, and implementation approach in the current environment where significant attention is paid to cost performance for NASA projects. Engineering support for the STDT will be provided by the PCOS Program Office. For details on the specific STDT tasks, please see the STDT Charter [[PDF](#)].

Members of the STDT will participate in activities in support of this effort. The results of the study will be summarized in a report to be delivered to NASA and publicly shared with the community (e.g., through the Committee on Astronomy and Astrophysics).

Call for Applications:

NASA is soliciting applications from scientists at U.S. institutions to participate in the X-ray probe STDT. Applications are invited from individuals, not groups.

To be considered for participation in the XAP STDT, interested individuals should submit both a letter of application and a current one-page Curriculum Vitae in a single PDF file. Application letters must be limited to three (3) pages, with 11-point font and 1-inch margins, and should include the following:

1. Current involvement in the research areas of direct relevance to the XAP STDT.

2. Specific area(s) of expertise in the field of X-ray astrophysics and/or technology development. These may include leadership positions, observational work, theoretical work, or instrumentation.
3. References to papers published within the last 10 years that demonstrate expertise in those areas.
4. A statement of commitment to support participation in the XAP STDT from September 2013 through the end of January 2015.

Application materials must be submitted electronically, in a single PDF file, via E-mail to Dr. Rita Sambruna, NASA Headquarters, at Rita.M.Sambruna@nasa.gov using the subject line "X-ray probe STDT Application." Applications must be received by 11:59 PM EST on August 22, 2013.

NASA expects to select approximately 10-12 individuals for the STDT and plans to announce its selections by September 2013. The activities of the XAP STDT will kick-off with a face-to-face meeting at the Goddard Space Flight Center in October 2013. The STDT will meet regularly by teleconference, and quarterly face-to-face meetings are anticipated over the course of the 18-month studies. There will be work and writing assignments for members that will take approximately an additional two days per meeting. Travel expenses for participating in study meetings/activities will be reimbursed by NASA. Members will be expected to attend in person or remotely and participate in the telecons. There will be work and writing assignments for members that will take approximately an additional two days per meeting.

Thank you for your interest in participating in the NASA X-ray probe Science and Technology Definition Team.

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