

Charter for the Astrophysics Focused Telescope Assets Study Science Definition Team (SDT)

Purpose

The Science Definition Team (SDT) for an Astrophysics Focused Telescope Assets study is chartered by the NASA Headquarters (HQs) Astrophysics Division Director. The SDT will assess the possible astrophysical use(s) of the optical telescope assets received from the National Reconnaissance Office (NRO) to address the science priorities described in the Astrophysics 2010 Decadal Survey *New Worlds New Horizons* (NWNH) for a wide field infrared survey telescope.

The telescope assets

NASA has recently received assets, which include optical hardware the equivalent of two Hubble-class optical telescope assemblies and related space-qualified hardware (hereafter the “telescope assets”). Specifically, the telescope assets consist of two 2.4 meter optics, a payload radiator subsystem, and an outer barrel assembly. More details can be found at <http://science.nasa.gov/science-committee/subcommittees/nac-astrophysics-subcommittee/> (click on the presentation by Moore for the July 30-31, 2012 meeting).

Study Requests

The SDT is to provide science requirements, investigation approaches, key mission parameters, and any other scientific studies needed to support the definition of an optimized space mission concept (Design Reference Mission) for the use of one of the telescope assets by the Astrophysics Division to further the science priorities described in NWNH for a wide field infrared survey telescope. Justification for conducting the proposed science investigations from space and an assessment of how such investigations will complement existing and planned domestic and international ground and space facilities will be included in the SDT’s report. Among the products to be produced by the SDT, working with the Wide Field Infrared Survey Telescope (WFIRST) Study Office, will be a Design Reference Mission (DRM) that includes:

1. A baseline DRM which uses one of the telescope assets “as is” and is technically viable for a launch by calendar year 2022 if funding starts for implementation in fall of 2016 (beginning of government fiscal year 2017). The baseline DRM will also include modularity to facilitate on-orbit servicing, including servicing mechanisms and I&V testing at the modular component level. Overall mission cost is to be kept as low as possible while still achieving all or part of the science priorities for a wide field infrared survey telescope.
2. Options required to be studied but not included in the baseline DRM:
 - a. Internal coronagraph instrument to advance the science priorities described in NWNH for the detection and study of exoplanets;
 - b. High Earth or geosynchronous orbit to support commercial, robotic servicing (unless a high Earth or geosynchronous orbit is chosen for the baseline DRM);
 - c. Optical communication to transmit large data volumes (unless optical communication is chosen for the baseline DRM).

The findings of the SDT will be provided in a final report to NASA no later than April 30, 2013.

Organization

The SDT will be assisted by the WFIRST Study Office, which is located at GSFC and includes the telescope and coronagraph teams at JPL. The SDT and the Study Office are independent of each other, but need to work in close coordination. They will iterate on science requirements and the mission concepts that flow from these and will share results with each other in a two-way exchange. The SDT may ask the Study Office for additional data or to study particular mission concept(s), technical and/or programmatic trades, or other studies, including variations of concepts already studied or new concepts.

The SDT may seek inputs from scientists and technologists external to the SDT. Though permission is not required, the SDT will inform the WFIRST Study Office of these interactions. The Study Office may ask the SDT for scientific or technical assessments, perspectives, and/or studies. Any external scientific inputs and discussions needed by the Study Office should flow through the SDT only. The Study Office may seek internal scientific or technical perspectives from NASA scientists for help in developing mission concepts based on the findings of the SDT. Such scientists will be named by the Study Office, and their perspectives will be shared with the SDT.

The SDT Chair(s) will act as the official point of contact between the SDT members and NASA representatives for any issue of programmatic, technical, or budgetary nature.

Public Release of Information

Any public release or discussion of the SDT or Study Office status or results of findings, studies or concepts shall be coordinated directly with NASA HQ beforehand. All reports and other output of the SDT studies will be made publicly available to the extent that is consistent with Federal export regulations (e.g., ITAR).

Membership

SDT members will be selected by NASA HQ from the pool of applicants that responded to the call for applications. Members will be selected for balance among expertise in relevant science areas, relevant hardware and technology, optics, and both ground and space-based approaches to the implementation of the science priorities. Only US citizens or US permanent residents (green-card holders) are allowed to be members of the SDT.

Structure

The SDT Chair(s) will be appointed from the SDT membership by the NASA Astrophysics Division Director.

The NASA WFIRST Program Scientist (HQ), WFIRST Study Scientist (GSFC), Exoplanet Exploration Program Office Chief Scientist (JPL), and possibly other agency representatives will be *ex officio* members of the SDT.

Termination

The SDT will be disbanded after the release of the report to NASA and prior to any future Announcement of Opportunity (AO) for participation in the possible mission(s).

Meetings

The initial meeting of the SDT will occur on October 11, 2012, via telecon, followed by the first in-person meeting on November 19-20, 2012, at Goddard Space Flight Center. Two additional meetings are anticipated on February 21-22, 2013, and March 14-15, 2013. The SDT will also have phone-in meetings on a regular (~weekly) basis. Meetings will be called by the SDT Chair(s), and the agendas will be set by the Chair(s) in coordination with NASA HQ and the Study Office to ensure that planned activities are aligned with programmatic needs and expectations. All meetings of the SDT are open to nonmembers who are US citizens or permanent residents.

Time Commitment

Members will be expected to attend the 3 in-person meetings and participate in the telecons. There will be work and writing assignments for members that will take an additional 1-2 days per meeting.

Reports

The SDT report outlining the findings for the possible uses of the telescope assets as well as the options described above is to be completed and delivered to NASA by April 30, 2013.

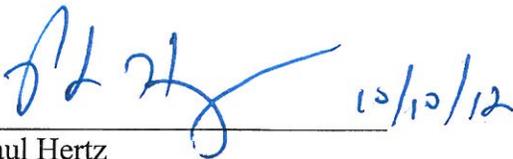
Logistics

The WFIRST Study Office will provide logistical support for the SDT, including arranging meetings, in person and by phone, and providing online resources. Travel to the SDT meetings will be funded by the WFIRST Study Office, subject to NASA policies and availability of funds from NASA. The Study Office will provide support and direction in conjunction with NASA HQ for all ITAR sensitive activities and products.

No support other than travel will be provided by NASA to the SDT members.

Point of Contact

The NASA HQ point-of-contact is Dr. Rita Sambruna (rita.m.sambruna@nasa.gov).



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