

Dear Colleague Letter to the Community

Call for Letters of Application for Membership in the Community Science Team for Gravitational-Wave Mission Concepts

Dear colleague letter released: October 7, 2011
Responses due 4:30 pm Eastern Time on October 25, 2011

Identification number: NNH12ZDA004J

This letter is an invitation to U.S. scientists to serve as members of the NASA Physics of the Cosmos (PCOS) Community Science Team (CST) for Gravitational-Wave (GW) Astrophysics Mission Concepts. On September 27, 2011, NASA's Astrophysics Division (ApD) issued a Request for Information (RFI) for mission concepts in the area of gravitational-wave astrophysics that address the science objectives of the Laser Interferometer Space Antenna (LISA) project. The Gravitational-Wave CST is being constituted to assist the ApD, through its PCOS Program Office, in identifying and studying concepts of high scientific, technical, and programmatic merit based on responses to the RFI. For this activity, we are seeking individuals with expertise and experience in all aspects of gravitational-wave astrophysics, including observation, theory, and instrumentation.

Background: Following the termination of the NASA/ESA partnership in the Laser Interferometer Space Antenna (LISA) mission, NASA's Physics of the Cosmos (PCOS) Program is developing alternative plans to address high priority gravitational-wave scientific objectives described in the 2010 Astrophysics Decadal Survey, "New Worlds, New Horizons" (NWNH) (NRC 2010, <http://www.nap.edu/catalog/12951.html>). The PCOS Program Office will work with the science community to develop new gravitational-wave mission concepts satisfying some or all of the scientific objectives listed in the RFI. In this process, NASA will utilize input from the Gravitational-Wave CST to identify those mission concepts most nearly satisfying those objectives. These concepts will be further refined by NASA's mission design laboratories at GSFC, JPL, or MSFC and will eventually be presented to the National Academy of Sciences Committee on Astronomy and Astrophysics (CAA) for consideration. Recommendations from the CAA will subsequently be used to guide more detailed development of some or all of these gravitational-wave mission concepts. These concept studies will ultimately be used to guide future technology development efforts for the Astrophysics Division.

The specific role of the Gravitational-Wave CST is as follows:

- Evaluate the RFI responses for the degree to which they fulfill the LISA gravitational-wave science objectives and to assess their technical readiness.
- Participate in, and assist in the organization of, a concept study workshop.
- Identify a small number of concepts for further study based on input from the RFI and the workshop.
- Participate in the mission studies, including potential involvement in the mission

design laboratory activities.

- Write a report summarizing the study findings and their implications for future technology developments, and present the report to NASA and possibly the CAA.

It is anticipated that individuals selected in response to this call would nominally serve through completion of the PCOS Program Office assessment, currently anticipated to be Summer 2012. The RFI may be found at the following website:

<http://nspires.nasaprs.com>. Additional information, such as recent updates and frequently asked questions, about this RFI may be found at:

<http://pcos.gsfc.nasa.gov/studies/gravitational-wave-mission.php>.

This Call: NASA is soliciting letters from U.S. scientists to apply for membership in the Graviational-Wave CST. This solicitation is open to all U.S. scientists, including individuals planning to respond to the RFI. Application letters are invited from individuals, not groups.

Letters shall be limited to three pages, with 11-pt font and 1-inch margins, and should include the following content:

- a) Describe your current involvement in the research areas of direct relevance to the RFI science goals.
- b) Describe your specific area(s) of expertise in the field of gravitational-wave astrophysics. These may include leadership positions, observational work, theoretical work, or instrumentation.
- c) Provide references to papers that you have published that establish your expertise.
- d) Provide a statement of your commitment to support your participation in the Gravitational-Wave CST from Fall 2011 through Summer 2012.

NASA will select the membership and the Chair of the Gravitational-Wave CST after reviewing the letters received in response to this call.

A key element of the assessment of the RFI responses is a two-day workshop involving individuals who respond to the RFI as well as all other interested individuals from the broader high-energy astrophysics community. This is expected to take place in December 2011. At this workshop, individuals responding to the RFI may be invited to provide a brief presentation of their submission. Gravitational-Wave CST members will assist with planning this workshop and are expected to attend in person to gain a deeper understanding of the proposed mission concepts.

The Gravitational-Wave CST will meet regularly by teleconference. A total of 3-4 face-to-face meetings are anticipated, including a workshop planning meeting, the mission concept study workshop itself, and one or two meetings to synthesize study results and prepare the final report. CST members will also be invited to participate in mission design laboratory activities (remote participation is anticipated). NASA will reimburse travel expenses.

NASA expects to select approximately 10 individuals for membership on the

Gravitational-Wave CST and plans to announce its selection by November 4, 2011. An initial meeting (by telecon) is tentatively scheduled for the week of November 14, 2011. Prospective applicants need to ensure that they will have the necessary time and commitment to support their participation in the Gravitational-Wave CST through the anticipated presentation to the CAA in Summer 2012.

Your reply to this Call should be submitted by email only and be received by 4:30 PM Eastern Time on October 25, 2011. Please email your letter (with subject line "Gravitational-Wave CST Application") to Dr. William C. Danchi, NASA HQ, at william.c.danchi@nasa.gov. Questions may be addressed to Dr. Danchi at the email address provided or at 202-358-2463.

Thank you for your interest in participating in the NASA Gravitational-Wave Community Science Team.

Geoffrey L. Yoder
Director (Acting), Astrophysics Division
NASA Science Mission Directorate