

**Amendment to
NASA Research Announcement
NRA 02-OSS-01,
"Research Opportunities in Space
Science 2002"**

**Entitled
"Rossi X-ray Timing Explorer
Guest Observer Program - Cycle 8"**

Release Date: August 23, 2002
Notice of Intent Due: September 23, 2002
Proposals Due: November 21, 2002

A.1.7 Rossi X-ray Timing Explorer Guest Observer Program – Cycle 8

1. Scope of Program

1.1 Overview

This program element solicits proposals for the acquisition and analysis of new scientific data from the Rossi X-ray Timing Explorer (RXTE). The primary goal of this mission is to investigate the nature and physics of compact astrophysical objects as revealed through temporal variations in their high energy emission on time scales from microseconds to years. This solicitation is for Cycle 8 of RXTE Guest Observations, to be carried out beginning on or around March 1, 2003, and lasting approximately 12 months.

One hundred percent of the observing time on RXTE is available to the scientific community through this solicitation--there is no guaranteed time for the instrument teams. All proposals submitted in response to this program must be for new pointed observations with RXTE using either or both of the Proportional Counter Array (PCA) and High Energy X-ray Timing Experiment (HEXTE) instruments (see Section 1.2 below). Analyses of All-Sky Monitor (ASM) observations are the responsibility of the RXTE ASM team and the results are placed in the High Energy Astrophysics Science Archive Research Center (HEASARC) public archive as soon as possible after the data are obtained.

Note that, consistent with the above, investigations that do not require new pointed RXTE observations are not within the scope of the RXTE GO program, including:

- (1) Proposals for specific configurations or observing sequences using the ASM or for analysis of ASM data;
- (2) Proposals for analysis of archival RXTE data; and,
- (3) Proposals for complementary observations or theoretical work that do not require new pointed observations.

1.2 The RXTE mission

The Rossi X-ray Timing Explorer (RXTE) satellite was launched on December 30, 1995, and carries three scientific instruments: (i) the Proportional Counter Array, (PCA), developed at the NASA Goddard Space Flight Center (GSFC); (ii) the High-Energy X-ray Timing Experiment (HEXTE), developed at the University of California at San Diego (UCSD); and (iii) the All-Sky Monitor (ASM), developed at the Massachusetts Institute of Technology (MIT). The project is managed by the NASA Goddard Space Flight Center (GSFC) and is sponsored by the National Aeronautics and Space Administration Office of Space Science (OSS). The observing time on RXTE is freely available to the international user community through peer reviewed proposals.

The primary purpose of RXTE is to study the structure and dynamics of compact X-ray sources, including accreting neutron stars, white dwarfs, and black holes in our galaxy, as well as compact, massive objects thought to be present in the nuclei of active galaxies

through observations of temporal and broad-band spectral phenomena. The wide variety of physical processes involved in RXTE targets are typically characterized by substantial X-ray emission in the 2-250 keV energy range and variations in X-ray intensity on a wide range of time scales. RXTE is designed to study the intensity variations of these objects over times as short as microseconds and as long as years. The scientific objectives of successful RXTE investigations will address questions concerning the fundamental physics and astrophysics of such systems, including:

- characteristics of dense matter;
- behavior of plasma in high magnetic fields;
- identification of stellar black holes;
- interaction of binary stars through mass exchange and radiation;
- tests of General Relativity;
- the nature of quasi-periodic oscillators;
- the evolution and fate of compact X-ray sources; and/or
- the nature of the central engine of active galactic nuclei.

2. Programmatic Information

2.1 Proposal Submission and Evaluation

IMPORTANT INFORMATION

As discussed in the Summary of Solicitation of this NRA, the Office of Space Science (OSS) is now using a single, unified set of instructions for the submission of proposals. This material is contained in the document entitled *NASA Guidebook for Proposers Responding to NASA Research Announcement – 2001* (or NASA Guidebook for Proposers for short) that is accessible by opening URL <http://research.hq.nasa.gov/>, and linking through the menu item "Helpful References," or may be directly accessed online at URL <http://www.hq.nasa.gov/office/procurement/nraguidebook/>. However, owing to the use of electronic proposals for this program (see details below) only certain parts of its Chapters 2 and 3 apply as described below.

2.1.1 Submission of Proposals to the RXTE Cycle 8 GO Program

NASA will review proposals in a two-stage process. In the first stage, proposals will be evaluated with respect to their intrinsic merit and relevance to NASA's objectives. Proposals selected in the Stage 1 review will be awarded observing time on RXTE and become candidates for funding subject to the Stage 2 review process. The proposed cost of the investigation will be evaluated in the second stage.

Prospective proposers to Cycle 8 of the RXTE GO Program must adhere to the following procedures for the submission of Stage 1 and Stage 2 proposals:

Stage 1

- Go to <http://proposals.hq.nasa.gov> and submit electronically a Notice of Intent (NOI) to Propose in compliance with Chapter 3.1 of the Guidebook by the due date given in the Schedule in Section 2.2 of this appendix.
- Go to <http://proposals.hq.nasa.gov> and submit electronically the Cover Page (see Section 2.2 of the Guidebook for details). As budget information is not required until Stage 2, proposers should use a placeholder value of \$1 for the proposed cost of the investigation. Print and retain the Cover Page for use in Stage 2
- Go to the RXTE website at <http://rxte.gsfc.nasa.gov/docs/xte/cycle8.html> and complete and electronically submit all required forms. No hard copy submission is required. Note that scientific justifications should not exceed four pages for proposals requesting less than 500 ksec of RXTE observing time, or six pages for proposals requesting 500 ksec or greater.

Stage 2

Successful Stage 1 proposers will be contacted by the RXTE Guest Observer Facility (GOF) and invited to submit a cost proposal for evaluation during Stage 2. Upon notification of selection of a Stage 1 proposal, a proposer must respond as follows:

- Follow the instructions for submitting a budget (not to exceed one year in duration) using either the budget forms found at the RXTE Cycle 8 website or using the proposing institution's own budget format. Preface this with a signed Cover Page from Stage 1 and submit in hard copy to the RXTE GOF.
- As part of the Stage 2 proposal, investigators may request support for correlative observations at other wavelengths, provided that these were proposed and accepted as part of the Stage 1 proposal. Funding for such correlative studies will be considered only insofar as they directly support a specific investigation using RXTE.

2.1.2 Evaluation and Selection of Proposals submitted to the RXTE Cycle 8 GO Program

In Stage 1, proposals will be evaluated with respect to the criteria specified in Section C.3 of the Guidebook (excluding cost, to be evaluated in Stage 2 as described below), where it is understood that the intrinsic merit of a proposal shall include the following factors:

The suitability of using the RXTE observatory and data products for the proposed investigation; the degree to which the investigation uses RXTE's unique capabilities; the feasibility of accomplishing the objectives of the investigation within the time, telemetry, and scheduling constraints; and the feasibility of the proposed analysis techniques.

In Stage 2, a review team comprised of a subset of the Stage 1 peer evaluation panel will be convened by NASA to review the cost proposals against factor (4) of the evaluation criteria as specified in Section C.2 of the Guidebook.

Based upon the results of the above reviews, the RXTE Program Scientist will recommend a set of proposals to the Director, OSS Astronomy and Physics Division, for final selection. A total of about \$700K is planned for the support of up to 50 Cycle 8 Guest Investigations of one year duration each.

2.2 Supplemental Information

Further details of the proposal submission requirements and process may be found at the RXTE Cycle 8 Website

<http://rxte.gsfc.nasa.gov/docs/xte/cycle8.html>,

which includes a detailed mission description; technical information about the RXTE mission, instruments, and feasibility; detailed information regarding proposal submission, evaluation, selection and implementation; and, instructions for completing the required proposal forms.

Notices of Intent (NOI) and Stage 1 Proposals will be due at 4:30 PM Eastern Time on the following dates:

NOI Due Date: September 23, 2002

Stage 1 Proposal Due Date: November 21, 2002

Technical questions concerning this program element may be directed to the RXTE Guest Observer Facility:

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Programmatic information may be obtained from:

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