

APPENDIX A: ASTRONOMY AND PHYSICS RESEARCH PROGRAMS

A.1 OVERVIEW

The objectives of research solicited in programs A.1.2 through A.1.11 are focused on achieving the goals of the Astronomical Search for Origins and/or the Structure and Evolution of the Universe OSS science themes. These programs are grouped in the clusters described below.

1.1 Astrophysics Data Analysis

The Astrophysics Data Analysis cluster consists of two program elements, Astrophysics Data (A.2) and Long Term Space Astrophysics (A.3). This cluster supports the broad range of data analysis efforts relating to past, current, or future NASA missions managed by the Astronomy and Physics Division regardless of the physical phenomena studied. Since there are changes to the type of research solicited under these two elements of the NRA, interested proposers are urged to read these elements carefully to make sure they are applying to the appropriate program.

1.2 Astrophysics Theory

The Astrophysics Theory program, A.4, supports theoretical investigations or modeling of the entire range of astrophysical phenomena examined by past, current, or future NASA space missions managed by the Astronomy and Physics Division. Note that there are changes in the types of research solicited under this element for 2004. Interested proposers should read the program element carefully..

1.3 Astronomy and Physics Research and Analysis

This program made its first appearance in the *ROSS-2003* NRA by combining two previously separate programs, viz., the Space Astrophysics Research and Analysis and the High Energy Astrophysics, into the single Astronomy and Physics Research and Analysis program A.5. The applicable wavelength region for proposals solicited for this program covers essentially the entire electromagnetic spectrum from radio to gamma rays, and the gravitational wave spectrum below approximately 1 Hz. In addition, this program supports investigations in particle astrophysics (cosmic rays, astrophysical neutrinos, high-energy gamma rays, etc.), in gravitational physics, and in tests of the fundamental laws of physics.

1.4 Beyond Einstein Foundations Science

The Beyond Einstein Foundation Science (BEFS) program, A.1.6, has been created to provide ancillary theoretical and experimental support for the future Beyond Einstein missions. These missions include two Einstein Observatories, *Laser Interferometer Space Antenna (LISA) Observatory*; *Constellation-X (Con-X) Observatory*; and the three Einstein Probes, *Dark Energy Probe*, *Inflation Probe*, and *Black Hole Finder Probe*.

This program will be the primary solicitation for gravitational and fundamental physics investigations, which have been previously solicited under the ATP and the APRA programs.

1.5 Astronomy and Physics Guest Investigator Programs

This cluster made its first appearance with the ROSS-2003 NRA. It supports science investigations that require and/or support new data obtained with currently operating NASA Astronomy and Physics space missions. Such guest investigator programs were previously released as stand-alone solicitations. Guest investigator programs are included for the Swift, RXTE, GALEX, Astro-E2, and FUSE missions in program elements A.7, A.8, A.9, A.10, and A.11 respectively.

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1.6 Origins of Solar Systems

The portion of this program that relates to the detection and characterization of planetary systems that is directly tied to the Astronomical Search for Origins theme within the Astronomy and Physics Division is solicited as it has been in previous years through the program element B.4 in this NRA.
