

## A.1 ASTRONOMY AND PHYSICS

### A.1.1 OVERVIEW

The objectives of research solicited in program elements A.1.2 through A.1.8 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 program elements are grouped in the clusters described below.

#### A. Astrophysics Data Analysis

The Astrophysics Data Analysis cluster consists of two program elements, Astrophysics Data (A.1.2) and Long Term Space Astrophysics (A.1.3). This cluster supports the broad range of data analysis efforts relating to past, current, or future NASA missions associated with the Astronomy and Physics Division, regardless of the physical phenomena studied.

#### B. Astrophysics Theory

The Astrophysics Theory cluster supports theoretical investigations or modeling of the entire range of astrophysical phenomena examined by past, current, or future NASA space missions associated with the Astronomy and Physics Division. It is currently covered by the single Astrophysics Theory program element A.1.4 in this NRA.

#### C. Astronomy and Physics Research and Analysis

This cluster is newly established and makes its first appearance with this *ROSS-2003* NRA. It combines two program elements that had been separate in previous ROSS Announcements, viz., the Space Astrophysics Research and Analysis program and the High Energy Astrophysics cluster, into the single Astronomy and Physics Research and Analysis, program element A.1.5. The applicable wavelength region for proposals solicited for this cluster 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.

#### D. Astronomy and Physics Guest Investigator Programs

This cluster is newly established and makes its first appearance with the *ROSS-2003* NRA. This cluster supports science investigations that require and/or support new data obtained with NASA astronomy and physics space missions. It combines guest investigator programs that previously would have been released as stand-alone solicitations. Guest investigator programs are included for the RXTE, Swift, and FUSE missions in program elements A.1.6, A.1.7, and A.1.8, respectively.

E. 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 A.2.4 in this NRA.

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