

**NASA'S NEW MILLENNIUM ST-9 PROJECT.** C. M. Stevens, J. F. Stocky, R. M. Nelson, Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena CA 91109, USA, robert.m.nelson@jpl.nasa.gov

**Introduction:** NASA's New Millennium Program (NMP), has inaugurated the Space Technology 9 (ST9) mission, an integrated system validation project. This is the latest of a series of in-space technology validation activities that began in 1996 with Deep Space 1. The New Millennium Program identifies the technological capabilities needed for future space science missions and the technology advances that will help provide those capabilities.

**Mission Description:** The ST-9 mission will validate one of five technology capabilities that NASA Associate Administrator has selected as candidates for flight validation. The five technology capabilities under consideration are of great relevance to the full breadth of the NASA's Space Science endeavor and are based on input from the space science community for guidance and concurrence. After careful review NASA prepared a NASA Research Announcement (NRA) soliciting proposals for technology advances to provide needed capability for the following technology capability areas:

- 1) Solar sail capability-design metrics, scaling, deployment, propulsion and attitude control.
- 2) Large Space Telescope-structure and control dynamics, materials, structures, actuators, controls for fabrication, packaging and deployment, optical correction and active figure control, thermal control at cryogenic temperatures.
- 3) Formation Flying- autonomous operations, intersatellite communications, spacecraft formation control, and relative position estimation.
- 4) Aerocapture- system and performance modeling, aerodynamics and aerothermodynamics, thermal protection systems and structures, and guidance, navigation, and control.
- 5) Pinpoint Landing and Hazard Avoidance-sensors/algorithms for guidance and navigation, aerodynamic/propulsive maneuvering system options, terrain sensing and hazard recognition systems, and terrain sensors.

NASA issued the NRA for technology providers for each capability area in 2004 and it is expected that at least one of the five technology capability areas will subsequently be selected for the New Millennium ST9 in-space technology validation experiment.

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