

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Upper Stages, Space Transfer, Entry and Landing Systems (3)

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CONCEPT DESIGN OF CRYOGENIC PROPELLANT STORAGE AND TRANSFER FOR SPACE
EXPLORATION

Abstract

NASA is in the process of developing plans for and investigations of innovative paths for human space exploration that strengthens the capability to extend human and robotic presence beyond low Earth orbit and throughout the solar system. NASA is laying the groundwork to enable humans to safely reach multiple potential destinations, including the Moon, asteroids, Lagrange points, and Mars and its environs through technology and capability advancement. To reach these destinations, NASA is examining mission concepts for a Cryogenic Propellant Storage and Transfer (CPST) Demonstration. The flight demonstration mission will test and validate key capabilities and technologies required for future exploration elements such as large cryogenic propulsion stages and propellant depots. The CPST project will perform key ground testing in fiscal year 2012 and execute project formulation and implementation leading to a flight demonstration in 2017.