

MICROGRAVITY SCIENCES AND PROCESSES SYMPOSIUM (A2)
Microgravity Experiments from Sub-Orbital to Orbital Platforms (3)

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CHINA'S RECOVERABLE AND REUSABLE SATELLITE FOR SPACE EXPERIMENT

Abstract

China's recoverable satellites with payload recovery ability, were applied to space scientific experiments, and substantial results have been achieved after 23 times of successful launch and recovery. The 24th satellite was launched in April, 2016, with mission for microgravity science and space life science experiments, carrying 19 scientific experimental payloads. China's demand for space scientific experiments remains high and higher on operating costs, microgravity levels, data handling, operation mode and other aspects, making it necessary to develop a new generation of reusable and recoverable space experiment platform(REUSESAT) which has better performance, lower cost and higher flexibility. The development and progress of such technologies, as reusable thermal protection structures, micro-vibration isolation and etc., have make it possible for the development of REUSESAT with more superior performance and lower costs. This paper offers an overview of research on the REUSESAT being developed in China and explains several critical issues for reusability. The reference parameters of REUSESAT are mentioned as follow, weight: approx. 3000kg; payload capacity: 500kg; in-orbit flight time: 15days 6months; reuse times: 20 times. This paper introduces the design ideas of the REUSESAT. The main functions and performance and services are also presented, covering four major areas of space life science, space materials science, space microgravity science and new space technologies demonstration. The REUSESAT is not just for domestic application, but also open for international customers. The first orbit technology demonstration flight is scheduled for 2017.