

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)  
Technologies for Future Space Transportation Systems (5)

Author: Mr. Wang Xiaowei

China Academy of Launch Vehicle Technology (CALT), China, wangxwbuaa@163.com

Mr. Shengbao Wu

China, wushengbao2003@163.com

Mr. Gao zhaohui

China Academy of Launch Vehicle Technology (CALT), China, mail.gaozhaohui@gmail.com

Mr. Lin Shen

China Academy of Launch Vehicle Technology (CALT), China, tolinsh@sina.com

Mr. Xiaobo Peng

China Academy of Launch Vehicle Technology (CALT), China, Pengxb@sohu.com

RECOVERY TECHNOLOGY OF LAUNCH VEHICLE STAGE

**Abstract**

The launch vehicle stage recovery technology has become a research hotspot of aerospace transportation system in the world. In this paper, three types of launch vehicle stage recovery and the state-of-art in the world are summarized at first based on status of the reusable launch vehicles development, including parachute landing, propulsive capture landing and aerocapture landing. The key technologies of each recovery types are presented and analyzed. The three types are compared with each other in technology difficulty, impact on the launch vehicle design, loss of payload capability and recovery searching difficulty. And the research progress in CALT is presented. The configurations of a parachute landing reusable LOX/Methane launch vehicle and a propulsive capture landing reusable LOX/Methane launch vehicle are described, which both have the payload capability above several hundreds kilograms for 700km SSO. And the parachute and airbag landing recovery system tests have been carried out.