

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Solutions for Human Flights in China (9-D6.2)

Author: Mr. Shengbao Wu
China, wushengbao2003@163.com

DOCKING MECHANISM AND DYNAMIC ANALYSIS OF EARTH-LUNAR ORBITAL TRANSFER
STAGE

Abstract

Earth-lunar orbital transfer stage is used for transporting the manned spaceship and lunar module to lunar orbit. Docking mechanism is a key subsystem of earth-lunar orbital transfer stage, the scheme of docking mechanism is important to the manned lunar mission. Three styles of docking mechanism, conical rod typed docking mechanism, androgynous peripheral docking mechanism and low impact docking mechanism are compared. Considering the mission requirements, androgynous peripheral docking mechanism is selected for earth-lunar orbital transfer stage. Based on beam model, dynamic characteristics of earth-lunar orbital transfer stage is analyzed. In the last of paper, the influence of the stiffness of docking mechanism to the frequency of earth-lunar orbital transfer stage is studied.