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Author: Mr. Shijie Sun
Science and Technology on Space Physics Laboratory, China, 416955465@qq.com

RESEARCH ON THE DESIGN METHOD OF EARTH MOON CIRCULAR ORBIT

Abstract

Circular orbit is a type of orbit scheme suitable for long-term exploration missions, which arranges the aircraft as a transportation system between two or more celestial bodies. The aircraft only needs to consume a small amount of fuel to cycle back and forth between the celestial bodies. This article introduces aerodynamic assistance on the basis of traditional circular orbit design methods to improve turning efficiency and enrich turning strategies when passing through atmospheric stars. Through the simulation analysis results of the Earth Moon cycle orbit, compared to the scheme without aerodynamic assistance, the introduction of aerodynamic assistance can effectively utilize atmospheric resources near the Earth, and make larger turns with the help of aerodynamic force, which is beneficial for reducing the fuel consumption for orbit changes. This can provide new ideas and theoretical technical support for future lunar exploration mission orbit design.