SPACE EXPLORATION SYMPOSIUM (A3)
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Author: Mr. Zhuoyi Xing
Institute of Spacecraft System Engineering,China Academy of Space Technology (CAST), China

Mrs. Ruiqing Sheng
Institute of Spacecraft System Engineering,China Academy of Space Technology (CAST), China
Mr. Fan Cui
Institute of Spacecraft System Engineering,China Academy of Space Technology (CAST), China
Mr. Chongyan Bai
Institute of Spacecraft System Engineering,China Academy of Space Technology (CAST), China

THE RESEARCH OF DEEP SPACE EXPLORATION SAMPLE RETURN CAPSULE'S REENTRY TECHNOLOGY

Abstract

It is introduced the typical deep space exploration mission Sample Return Capsule's key technology and characters based on comprehensive research and analysis in this paper, summarized the typical deep space exploration Sample Return Capsule's technology choices. On this basis, it is established the process of reentry into the atmosphere of six degrees of freedom dynamic model and mathematical model of reentry key constraints and carried out simulation. The simulation result shows that this mathematical simulation results consistent with the results of Stardust/Apollo flight process, verify the correctness of the mathematical model can be used for subsequent space exploration Sample Return Capsule's reentry trajectory designed, aerodynamic shape selection and thermal protection materials.