MATERIALS AND STRUCTURES SYMPOSIUM (C2)
Interactive Presentations (IP)

Author: Ms. Yanhui Li
DFH Satellite Co., Ltd., China Academy of Space Technology (CAST), China, Lyhnovem@163.com

Dr. Xinfeng Yang
China Academy of Space Technology (CAST), China, stephenyang66@hotmail.com
Mr. Dong Yang
China Academy of Space Technology (CAST), China, yangdong@cast.cn
Mr. Weihua Deng
DFH Satellite Co. Ltd., China, Dengweihua@cast.cn
Mr. QiPeng Cao
China Academy of Space Technology (CAST), China, caoqipeng@cast.cn
Dr. Zhi Yang
DFH Satellite Co. Ltd., China, young_zhi@163.com

DEVELOPMENT AND STUDY OF MICRO-VIBRATION SIMULATION ANALYSIS SYSTEM FOR SMALL SATELLITES

Abstract

Micro-vibration response of satellite on orbit is different from that on ground test, and it is necessary to acquire micro-vibration response on orbit by simulation analysis using ground test data. In this paper, development and study of micro-vibration simulation analysis for small satellite is introduced, which uses the characteristic data of micro-vibration disturbance sources as analysis input, acquires displacements and angular displacements at key position by structural analysis, followed by image quality influence analysis. The small satellite's micro-vibration simulation analysis system includes the module of micro-vibration test data analysis, the module of micro-vibration FE modelling and analysis, the module of micro-vibration calculation data analysis, and the module of imaging quality influence analysis induced by micro-vibration. The system can directly take micro-vibration acceleration test data, force and moment test data or angular displacement test data at key position into account, so it uses varieties of micro-vibration test data effectively, and improve reliability of micro-vibration analysis.