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THE STUDY OF MOMENTUM WHEEL DYNAMICS MODELING AND UPDATING METHOD FOR
AEROSPACE STRUCTURE JITTER RESPONSE ANALYSIS

Abstract

In order to reflect the coupling between the momentum wheel and the spacecraft structure, the dynamic characteristics of the momentum wheel are described by using spring and mass blocks which is calculated and updating easily using the test data and the method of determining the parameters in the model is introduced. In order to verify the validity of the methodology, a modal test and jitter test methods were proposed for the momentum wheel. The comparative analysis is carried out for different test conditions, and the results show that the model can accurately reflects the structural characteristics of momentum wheel and its amplification of disturbance and it is suitable for the satellite jitter analysis and has important engineering application value.