

IAF ASTRODYNAMICS SYMPOSIUM (C1)
Interactive Presentations - IAF ASTRODYNAMICS SYMPOSIUM (IP)

Author: Mrs. Xiao LIU

Shanghai Aerospace Control Technology Institute(SACTI), China, liuxiao20090000@126.com

Mr. Yu Wang

Shanghai Aerospace Control Technology Institute(SACTI), China, 384364220@qq.com

Mr. Jupin Liang

Shanghai Aerospace Control Technology Institute(SACTI), China, 384364220@qq.com

Mr. Kun Xiang

Shanghai Aerospace Control Technology Institute(SACTI), China, 384364220@qq.com

Mr. Jingji Wang

Shanghai Aerospace Control Technology Institute(SACTI), China, 384364220@qq.com

AN ON-ORBIT CALIBRATION METHOD OF LOAD AND TRACKING EQUIPMENT FOR
SPACE-BASED SATELLITE PLATFORM**Abstract**

With the requirements for satellite high precision, long life, and high reliability, the accuracy of satellite attitude estimation and control systems is to be improved. The accuracy of attitude estimation is determined by the choice of measurement device, the method of data processing, and the combined use of dynamics and measurement models. In this paper, on-orbit data fusion of strike load and tracking equipment, as well as data processing of measurement, is studied for space-based satellite platform. Through the dynamic modeling of strike load and tracking equipment, the noise of the system can be reduced and the accuracy of attitude measurement can be improved. Tracking and aiming device use laser or photoelectric equipment to measure or image the space target, and use microwave reflection or image processing to obtain the position and angle of the target relative to the satellite. In this paper a calibration model of strike load and tracking and aiming on-orbit is established, using the measurement information of tracking equipment comparing with load observations, and using the optimal estimation method to calibrate the relative installation error between the load and tracking equipment.