SPACE DEBRIS SYMPOSIUM (A6)
Measurements (1)

Author: Mr. Wei Niu
State Key Laboratory of Astronautic Dynamics, China, newway168@163.com

Mrs. Shaomin Li
Xi'an Satellite Control Centre(XSCC), China, goodzkj7612@126.com
Mr. Rongzhi Zhang
State Key Laboratory of Astronautic Dynamics, China, rongzhizhang@126.com

METHOD FOR DETERMINING SPACECRAFT ATTITUDE STABILITY BASED ON RCS

Abstract

The attitude angle of the roll attitude spacecraft to radar line-of-sight alters faster than that of the three-axis stabilization spacecraft. So the fluctuation of RCS sequence of the roll attitude spacecraft is faster than that of the three-axis stabilization spacecraft and the two types of RCS sequence can be differentiated, then the spacecraft attitude stability can be determined. According to the change law of spacecraft RCS sequence, this paper establishes the RCS reflection diagram of the object at first, secondly extracts two statistic characteristic like the effective rank and scale focus of the wavelet translation of the object RCS reflection diagram sequence, finally applies neural network to determine the attitude stability of the spacecraft. The measured data processing result shows that this method is available with more than 90% accurate rate for the spacecraft attitude stability.