

50th IAA SYMPOSIUM ON SAFETY, QUALITY AND KNOWLEDGE MANAGEMENT IN SPACE
ACTIVITIES (D5)

Knowledge management and collaboration in space activities (2)

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PROGNOSTIC AND HEALTH MANAGEMENT TECHNOLOGY STUDY FOR SPACECRAFT
BASED ON INTELLIGENT FAULT REASONING

Abstract

This paper first introduces the characteristics and developing trend of the new generation spacecraft briefly, and then analyzes the key technology of Prognostic and Health Management (PHM). Focusing on the problem of spacecraft's in-orbit intelligent diagnosis, repair and independent security, it is analyzed in detail which includes fault mechanism, fault intelligent diagnosis, redundant fault-tolerant design, failure and life prediction, and independent security and so on, and a design model for Prognostic and Health Management system is presented and the implement methods are also described in detail, which provides technical support and theoretical basis for realizing in-orbit autonomous maintenance and guarantee of the new generation spacecraft.