SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Mobile Communications and Satellite Navigation Technology (2)

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PERFORMANCE ANALYSIS AND RESEARCH OF TACTICS DATALINK RELATIVE NAVIGATION

Abstract

Based on pseudomeasurements about distance, we present a new Kalman filter algorithm for the relative navigation of Multiple SpaceCraft Formation Flying. In the process of our method, state equation, observation equation and filter process are studied, the major error sources are also discussed in detail. Under a time synchronization of formation airplane Network assumption, the software module of relative navigation is written. the software module mainly include Kalman filter algorithm based on pseudomeasurements about distance and performance analysis of relative navigation. Simulation results show how these error sources (TOA measure error, position quality of oriented airplane member, wireless transmit, position connection between unkown oriented airplane member and oriented airplane member, emission velocity) affect the orientation precision of relative navigation, and provide a reference for developing tactics datalink communication and relative navigation system.