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论文

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自由漂浮的空间机器人系统的动力学奇异特性分析及其运动规划

丁希仑, 战强, 解玉文

北京航空航天大学机器人研究所 北京 100083

DYNAMIC SINGULARITY ANALYSIS AND MOTION PLANNING OF FREE-FLOATING SPACE ROBOT SYSTEMS

DING Xi-lun,ZHAN Qiang,XIE Yu-wen

Robotics Research Institute, Beijing University of Aeronautics and Astronautics, Beijing 100083, China

摘要

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摘要 首先建立了受非完整约束的自由漂浮空间机器人系统的运动学模型,继而深入分析了系统的动力学奇异性,然后,重点探讨了基于 Lyapunov 函数的空间机器人避奇异运动规划方法,最后给出了方法的实例仿真并分析了仿真结果

关键词: 空间机器人 非完整约束 动力学奇异性 运动规划 Lyapunov函数

Abstract: Kinematic model of a kind of space robot system with nonholonomic constraints was built at first, dynamic singularity of the space robot system was further analyzed, and then, the motion planning method avoiding dynamic singularity based on Lyapunov function was discussed emphatically; valuable results were obtained by a comparative simulation study.

Keywords: space robot nonholonomic constraints dynamic singularity motion planning Lyapunov function

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