

研究简报

反作用飞轮内干扰抑制方法研究

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摘要

该文主要从反作用飞轮运动特点出发, 详细分析了轮子内摩擦干扰和动静不平衡干扰, 建立了相应数学模型。并根据各干扰的作用特点采用相应的抑制方法, 即内摩擦的观测补偿方法和动静不平衡的迟后、超前校正抑制方法。通过仿真计算, 这两类方法都能较大地提高卫星姿态精度和稳定度。

关键词 [姿态控制](#) [内摩擦干扰](#) [动静不平衡干扰](#) [补偿方法](#)

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A Method of Control Inner Disturb to the Reaction Wheel

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Abstract

In this paper reaction wheels inner friction and static and dynamic imbalance are particularly analysed by reaction wheels dynamics. A mathematical model is set up. A method of control disturb is used. for example, the method to estimate the inner friction torque is introduced by using compensation observer, and the method to estimate the wheel static imbalance and dynamic imbalance is introduced by using late and forward revise compensation. And the numerical simulation model is constituted. Finally, the simulation results prove that this method can improve satellite attitude pointing accuracy and stability efficiently.

Key words [Attitude control](#) [Reaction wheel inner friction](#) [Wheel static and dynamic imbalance](#) [Compensation technique](#)

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