Abstract

In this paper, an attitude control algorithm for a satellite is developed based on adaptive control using thruster actuators. For this purpose a twelve-thruster arrangement has been considered and the control torque for each thruster has been calculated. Then a Pulse Width-Pulse Frequency (PWPF) modulator is used for converting continuous controller signals into equivalent discrete one. Then, uncertainties in the moment of inertia matrix and disturbances torque has been considered and adaptive attitude control using feedback linearization controller with self-tuning regulator (Least Square Estimator With Bounded Gain Factor) is used. Finally, the performance of the designed attitude controller is investigated by simulations.

References

- Wie, B., and Plescia, C. 1984. Attitude Stabilization of Flexible Spacecraft During

Index Terms

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Keywords

Attitude Control; Adaptive control; Satellite; Reaction Thruster; PWPF modulator.