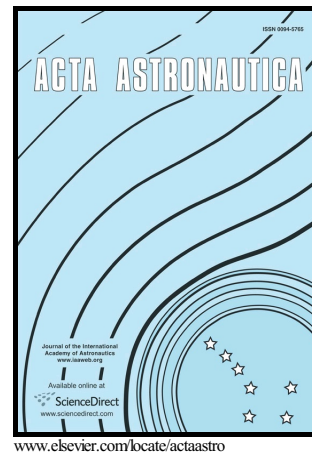


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Singularity and Steering Logic for Control Moment Gyros on Flexible Space Structures

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Control moment gyro (CMG) is a widely used device for generating control torques for spacecraft attitude control without expending propellant. Because of its effectiveness and cleanness, it has been considered to be mounted on a space structure for active vibration suppression. The resultant system is the so-called *gyroelastic body*. Since CMG could exert both torque and modal force to the structure, it can also be used to simultaneously achieve attitude maneuver and vibration reduction of a flexible spacecraft. In this paper, we consider the singularity problem in such application of

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