Two functions of control system are attitude maneuver and attitude stability. The capability to attitude-maneuver a satellite is based on using control torques. In this paper, the torques generated by Euler angle errors and quaternion error vector for small attitude commands are compared and then the same is done for large attitude commands. It's founded that Euler angle errors characterized by a fixed control do not produce the desirable response. The SQP optimization method also used to optimize calculated control gains. This SQP optimization method with the following provisions such as maximum settling time, maximum rise time, maximum overshoot and maximum steady state error causes that the Euler angles error method provides an appropriate responses.
Optimizing the Satellite Control Gains with Nonlinear Motion Equations using SQP Method

References


Index Terms

Computer Science
Control Systems

Keywords

Optimizing control gains  SQP  Nonlinear Equations of Motion  Euler Angles Error Quaternion Error Vector