

Attitude pointing enhancement for combined energy and attitude control system

ABSTRACT

This paper extends the previous works that appeared in Acta Astronautica. An approach that incorporates the Active Force Control (AFC) technique into a conventional Proportional-Derivative (PD) controller is proposed for a 50 kg small satellite. Numerical treatments are performed to validate the effectiveness of AFC. The attitude control capability of the combined energy and attitude control system (CEACS) is expected to improve. The result shows an important attitude pointing enhancement for the CEACS attitude control task.

Keyword: CEACS; Flywheel energy storage; Satellite attitude control