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Spacecraft Attitude Control Using Magnetic Actuators

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Message from the Guest Editor

Magnetic actuators are widely used for the generation of attitude control torques on satellites flying in low Earth orbits: (i) they are simple, reliable, and low-cost; (ii) they need only renewable electrical power to be operated; (iii) using magnetorquers, it is possible to smoothly modulate the control torque so that unwanted couplings with flexible modes, which could harm pointing precision, are not induced; (iv) magnetorquers save system weight with respect to any other class of actuators. On the other hand, magnetorquers have the important limitation that control torque is constrained to belong to the plane orthogonal to the Earth's magnetic field. As a result, different types of actuators usually accompany magnetorquers to provide full three-axis control. This SI is focused on recent advances in spacecraft attitude control using magnetorquers with a special interest in control algorithm design. Contributions with experimental or practical results are also very welcomed.

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Message from the Editor-in-Chief

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