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Nota di contenuto	Unperturbed Orbital Motion. Two-Body Problem -- Qualitative Analysis of the Properties of Orbits -- Perturbed Motion -- Gravispheres -- Equations of Motion in Terms of Osculating Elements -- Braking of a SC in the Earth’s Atmosphere -- Terrestrial Nonsphericity and SC Motion -- SC Motion in the Field of Two Attracting Centers -- Elements of SC Manoeuvring Theory -- Interplanetary Trajectory Corrections -- Rendezvous Manoeuvring -- Gravity-Assist Manoeuvre -- About Orbit Determination Using Measured Data -- to Attitude Control -- SC Affected by a Gravity-Gradient Torque -- SC Motion in a Circular Orbit -- SC Motion in an Elliptical Orbit -- A Spinning Axisymmetric SC in Circular Orbit -- Equilibrium of a Gyrostat -- SC Motion Affected by an Aerodynamic Torque -- SC Motion in the Geomagnetic Field -- Motion of a SC under Damping.
Sommario/riassunto	Essential Spaceflight Dynamics and Magnetospherics describes, in the first instance, some of the key aspects of celestial mechanics and spaceflight dynamics. It begins with classical two and three body problems illustrative of the aesthetic aspects of applying analytical methods of investigation to celestial mechanics. Then, osculating orbital elements are introduced as well as analysis techniques sufficient

to evaluate the influence of various disturbing forces on spacecraft. Next a theory of manoeuvres is outlined and the methodology of making interplanetary trajectory corrections. Ideas involving various approaches to orbital element determinations using measured data are also considered. The forces applied to a spacecraft can result in the development of torques that influence attitude motion and the effects of the most important of these are described in terms of equilibrium positions, periodic motions, steady-state and transient motions. Also considered is the problem of attitude control of a spacecraft using active and/or passive methods of orientation and stabilization. In addition, a more advanced treatment of the development of attitude control systems is provided.