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Titolo	Fundamentals of Spacecraft Attitude Determination and Control // by F. Landis Markley, John L. Crassidis
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ISBN	1-4939-0802-2
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Descrizione fisica	1 online resource (XVI, 470 p. 96 illus., 4 illus. in color.)
Collana	Space Technology Library ; ; 33
Disciplina	629.4742
Soggetti	Aerospace engineering Astronautics Dynamics Ergodic theory Automatic control Aerospace Technology and Astronautics Dynamical Systems and Ergodic Theory Control and Systems Theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references at the end of each chapter and index.
Nota di contenuto	Attitude Determination and Estimation -- Matrices, Vectors, Frames, Transforms -- Rotational Kinematics and Dynamics -- Sensors and Actuators -- Static Attitude Determination Methods -- Filtering for Attitude Determination -- Attitude Control.
Sommario/riassunto	This book explores topics that are central to the field of spacecraft attitude determination and control. The authors provide rigorous theoretical derivations of significant algorithms accompanied by a generous amount of qualitative discussions of the subject matter. The book documents the development of the important concepts and methods in a manner accessible to practicing engineers, graduate-level engineering students and applied mathematicians. It includes detailed examples from actual mission designs to help ease the transition from theory to practice, and also provides prototype algorithms that are readily available on the author's website. Subject matter includes both theoretical derivations and practical implementation of spacecraft

attitude determination and control systems. It provides detailed derivations for attitude kinematics and dynamics, and provides detailed description of the most widely used attitude parameterization, the quaternion. This title also provides a thorough treatise of attitude dynamics including Jacobian elliptical functions. It is the first known book to provide detailed derivations and explanations of state attitude determination, and gives readers real-world examples from actual working spacecraft missions. The subject matter is chosen to fill the void of existing textbooks and treatises, especially in state and dynamics attitude determination. MATLAB code of all examples will be provided through an external website.
