1. Record Nr. UNINA9910132336603321 Autore Parker Jeffrey S. **Titolo** Low-energy lunar trajectory design / / Jeffrey S. Parker and Rodney L. Anderson Pubbl/distr/stampa Hoboken, New Jersey:,: Wiley,, 2014 ©2014 **ISBN** 1-118-85531-0 1-118-85506-X 1-118-85497-7 Descrizione fisica 1 online resource (437 p.) Collana JPL Deep-Space Communications and Navigation Series 629.4/11 Disciplina Soggetti Lunar probes - Trajectories Space flight to the moon - Cost control Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Includes index. Includes bibliographical references and index. Nota di bibliografia Nota di contenuto Cover: Title Page: Copyright Page: CONTENTS: Foreword: Preface: Acknowledgments; Authors; 1 Introduction and Executive Summary; 1.1 Purpose; 1.2 Organization; 1.3 Executive Summary; 1.3.1 Direct, Conventional Transfers: 1.3.2 Low-Energy Transfers: 1.3.3 Summary: Low-Energy Transfers to Lunar Libration Orbits; 1.3.4 Summary: Low-Energy Transfers to Low Lunar Orbits; 1.3.5 Summary: Low-Energy Transfers to the Lunar Surface; 1.4 Background; 1.5 The Lunar Transfer Problem; 1.6 Historical Missions; 1.6.1 Missions Implementing Direct **Lunar Transfers** 1.6.2 Low-Energy Missions to the Sun-Earth Lagrange Points1.6.3 Missions Implementing Low-Energy Lunar Transfers; 1.7 Low-Energy Lunar Transfers; 2 Methodology; 2.1 Methodology Introduction; 2.2 Physical Data; 2.3 Time Systems; 2.3.1 Dynamical Time, ET; 2.3.2 International Atomic Time, TAI; 2.3.3 Universal Time, UT; 2.3.4 Coordinated Universal Time, UTC; 2.3.5 Lunar Time; 2.3.6 Local True Solar Time, LTST; 2.3.7 Orbit Local Solar Time, OLST; 2.4 Coordinate Frames; 2.4.1 EME2000; 2.4.2 EMO2000; 2.4.3 Principal Axis Frame;

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Sommario/riassunto

Surveys thousands of possible trajectories that may be used to transfer spacecraft between Earth and the moon, including transfers to lunar libration orbits, low lunar orbits, and the lunar surface
Provides information about the methods, models, and tools used to design low-energy lunar transfers
li>Includes discussion about the variations of these transfers from one month to the next, and the important operational aspects of implementing a low-energy lunar transfer
Additional discussions address navigation, station-keeping, and spacecraft systems issues