1. Record Nr. UNISA996511863303316

Titolo	New frontiers of celestial mechanics, theory and applications : I-CELMECH Training School, Milan, Italy, February 3-7, 2020 / / edited by Giulio Bau
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2023] ©2023
ISBN	3-031-13115-0
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (306 pages)
Collana	Springer Proceedings in Mathematics & Statistics, , 2194-1017
Disciplina	521
Soggetti	Celestial mechanics Mecànica celeste Relativitat general (Física) Astrometria Física matemàtica Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1 U. Locatelli, C. Caracciolo, M. Sansottera, M. Volpi - Invariant KAM tori: from theory to applications to exoplanetary systems -- 2 J. Daquin, S. Di Ruzza, G. Pinzari, A new analysis of the three-body problem -- 3 R. Calleja, A. Celletti, R. de la Llave, KAM theory for some dissipative systems -- 4. G. Boué, Tidal Effects and Rotation of Extended Bodies -- 5 C. Efthymiopoulos, R.I. Paez, Arnold diffusion and Nekhoroshev theory -- 6 G. F. Gronchi, Orbit determination with the Keplerian Integrals -- 7 A. Celletti, C. Gales, Resonant dynamics of space debris -- 8 M. Guzzo, E. Lega, Theory and applications of Fast Lyapunov Indicators for the computation of transit orbits in the three-body problem -- 9 A. Giorgilli, The unaccomplished perfection of Kepler’s world.
Sommario/riassunto	This volume contains the detailed text of the major lectures delivered during the I-CELMECH Training School 2020 held in Milan (Italy). The school aimed to present a contemporary review of recent results in the field of celestial mechanics, with special emphasis on theoretical

aspects. The stability of the Solar System, the rotations of celestial bodies and orbit determination, as well as the novel scientific needs raised by the discovery of exoplanetary systems, the management of the space debris problem and the modern space mission design are some of the fundamental problems in the modern developments of celestial mechanics. This book covers different topics, such as Hamiltonian normal forms, the three-body problem, the Euler (or two-centre) problem, conservative and dissipative standard maps and spin-orbit problems, rotational dynamics of extended bodies, Arnold diffusion, orbit determination, space debris, Fast Lyapunov Indicators (FLI), transit orbits and answer to a crucial question, how did Kepler discover his celebrated laws? Thus, the book is a valuable resource for graduate students and researchers in the field of celestial mechanics and aerospace engineering.