1. Record Nr. UNINA9910552719703321

Titolo	Millisecond Pulsars / / edited by Sudip Bhattacharyya, Alessandro Papitto, Dipankar Bhattacharya
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2022
ISBN	3-030-85198-2
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (334 pages)
Collana	Astrophysics and Space Science Library, , 2214-7985 ; ; 465
Disciplina	523.8874
Soggetti	Astrophysics Astronomy Astronomy, Observations and Techniques Astronomy, Cosmology and Space Sciences
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Chapter 1: Radio Millisecond Pulsars -- Chapter 2: The High-Energy Emission of Millisecond Pulsars -- Chapter 3: The Emission Physics of Millisecond Pulsars -- Chapter 4: Accretion Powered X-ray Millisecond Pulsars -- Chapter 5: Nuclear-powered X-ray millisecond pulsars -- Chapter 6: Transitional millisecond pulsars -- Chapter 7: Origin and Binary Evolution of Millisecond Pulsars -- Chapter 8: Millisecond Magnetars -- Chapter 9: The Equation of State of Neutron Star Matter. Index.
Sommario/riassunto	This book includes nine chapters written by internationally recognized experts, covering all aspects of millisecond pulsars in one concise and cohesive volume. These aspects include pulsations powered by stellar spin, accretion and thermonuclear burning of accreted matter, their physics and utility, stellar evolution and the extreme physics of super-dense stellar cores. The book includes substantial background material as well as recent theoretical and multi-wavelength observational results. The volume will thus be useful for professional astronomers and graduate students alike. What is the behavior of the strong nuclear interaction, and what are the matter constituents at ultrahigh densities in neutron star cores? How do old neutron stars in binaries evolve? How does their magnetosphere interact with the surrounding plasma to

accelerate particles and emit radiation observed at all wavelengths? These are just a few of the questions that millisecond pulsarsare helping us answer and will settle in the near future with the next generation of instruments. Such quickly rotating, highly magnetized neutron stars are remarkable natural laboratories that allow us to investigate the fundamental constituents of matter and their interactions under extreme conditions that cannot be reproduced in terrestrial laboratories.