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Soggetti	Astrophysics Gravitation Nuclear physics Heavy ions Phase transformations (Statistical physics) Condensed matter Astrophysics and Astroparticles Classical and Quantum Gravitation, Relativity Theory Nuclear Physics, Heavy Ions, Hadrons Quantum Gases and Condensates
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Nota di contenuto	Neutron Stars Formation and Core Collapse Supernovae -- Strongly Magnetized Pulsars: Explosive Events and Evolution -- Radio Pulsars: Testing Gravity and Detecting Gravitational Waves -- Accreting Pulsars: Mixing-up Accretion Phases in Transitional Systems -- Testing the EOS with Electromagnetic Observations -- Nuclear EOS for Compact Stars & Supernovae -- Low-energy QCD & Super-dense matter -- Superfluidity and Superconductivity in Neutron Stars -- Reaction Rates and Transport in Neutron Stars -- GW emission from merging BNSs -- Electromagnetic Emission and Nucleosynthesis from Neutron Star Binary Mergers -- Gravitational Waves from Single Neutron Stars: An Advanced Detector Era Survey -- Universal Relations and Alternative Gravity Theories.

This book summarizes the recent progress in the physics and astrophysics of neutron stars and, most importantly, it identifies and develops effective strategies to explore, both theoretically and observationally, the many remaining open questions in the field. Because of its significance in the solution of many fundamental questions in nuclear physics, astrophysics and gravitational physics, the study of neutron stars has seen enormous progress over the last years and has been very successful in improving our understanding in these fascinating compact objects. The book addresses a wide spectrum of readers, from students to senior researchers. Thirteen chapters written by internationally renowned experts offer a thorough overview of the various facets of this interdisciplinary science, from neutron star formation in supernovae, pulsars, equations of state super dense matter, gravitational wave emission, to alternative theories of gravity. The book was initiated by the European Cooperation in Science and Technology (COST) Action MP1304 “Exploring fundamental physics with compact stars” (NewCompStar).

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