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Nota di contenuto	CONTENTS; Preface; Organizing Committees; Part A Theory of Nuclear Matter EOS and Symmetry Energy; Constraining the Nuclear Equation of State from Astrophysics and Heavy Ion Reactions; 1. Introduction; 2. The EoS from Ab Initio Calculations; 3. Constraints from Heavy Ion Reactions; 4. Constraints from Neutron Stars; 5. Summary; References; In-Medium Hadronic Interactions and the Nuclear Equation of State; 1. Introduction; 2. Isospin-Asymmetric Nuclear Matter; 2.1. Seeking laboratory constraints to the symmetry potential; 2.2. Summary of EOS results and comparison with recent constraints 3. Spin-Polarized Neutron Matter4. Work in Progress: Non-Nucleonic Degrees of Freedom; 5. Summary and Conclusions; Acknowledgments; References; EOS and Single-Particle Properties of Isospin-Asymmetric Nuclear Matter within the Brueckner Theory ; 1. Introduction; 2.

Theoretical Approaches; 3. Results and Discussions; 3.1. TBF effect and relativistic effect on the EOS of SNM; 3.2. Isospin dependence of the EOS of ANM; 3.3. TBF effect and thermal effect on symmetry energy; 3.4. TBF rearrangement effect on nucleon s.p. potential in SNM; 3.5. Isospin dependence of neutron and proton s.p. potentials; 3.6. Neutron-proton effective mass splitting in neutron-rich matter; 3.7. TBF effect on nucleon superfluidity in neutron star matter; 4. Summary; Acknowledgments; References; Thermodynamics of Correlated Nuclear Matter; 1. Introduction; 2. Single-Particle Properties; 3. Thermodynamical Properties of Nuclear Matter; 4. Liquid-Gas Phase Transition; Acknowledgements; References; The Validity of the LOCV Formalism and Neutron Star Properties; 1. Introduction; 2. The LOCV Formalism; 3. Three-body Cluster Energy; 4. Neutron Star Properties; References; Ferromagnetic Instabilities of Neutron Matter: Microscopic versus Phenomenological Approaches; 1. Introduction; 2. Spin-Polarized Neutron Matter; 3. Results; 4. Conclusions; References; Sigma Meson and Nuclear Matter Saturation; 1. Introduction; 2. Modification of In-Medium NN Potential; 3. Equation of State of Symmetric Nuclear Matter; 4. Summary; Acknowledgments; References; Ramifications of the Nuclear Symmetry Energy for Neutron Stars, Nuclei and Heavy-Ion Collisions; 1. Introduction; 2. The Skin Thicknesses of Heavy Nuclei; 3. Intermediate-Energy Heavy-Ion Collisions; 4. Neutron Star Radii; 5. The Direct Urca Process; 6. Outlook; Acknowledgments; References; The Symmetry Energy in Nuclei and Nuclear Matter; 1. Introduction; 2. Extended Liquid Drop Model; 2.1. Surface symmetry energy; 2.2. Shell corrections; 2.3. Wigner energy; 2.4. Coulomb energy; 3. Fitting to Masses; 3.1. Fit to isobaric analogue states; 3.2. Fit to separation energies; 4. Correlations; 5. Neutron Skin; 6. Results; 7. Asymmetric Nuclear Matter; References; Probing the Symmetry Energy at Supra-Saturation Densities; 1. Introduction; 2. Relativistic Transport

Sommario/riassunto

The International Symposium on "Exotic States of Nuclear Matter" was a unique opportunity to review and discuss the many aspects of nuclear matter under extreme conditions and the corresponding possible exotic states like hyperonic matter, kaon condensates, and quark matter, which can appear both in astrophysical compact objects like neutron stars and in heavy ion collision experiments. In this proceedings volume, leading experts from astrophysics, nuclear physics, and elementary particle physics have delivered reviews and specialized seminars, which highlight the links among the different fields and the role of the underlying fundamental processes. Prospects in future astrophysical observations, with present and planned apparatus, and heavy ion experiments are strongly emphasized. Thus, this book will definitely be a valuable reference for all researchers working in this wide research area.
