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4. Neutron Star PropertiesReferences; 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 Collisions4. 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 apparata, 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.