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representation / T. T. S. Kuo ... [et al.]. Contributions from high-momentum intermediate states to effective nucleon-nucleon interactions / H. M. Sommermann ... [et al.]. Folded diagrams and  $1s-0d$  shell effective interactions derived from Reid and Paris nucleon-nucleon potentials / J. Shurpin, T. T. S. Kuo and D. Strottman. Three-body forces in  $sd$ -shell nuclei / A. Polls ... [et al.]. Model-space nuclear matter calculations with the Paris nucleon-nucleon potential / T. T. S. Kuo, Z. Y. Ma and R. Vinh Mau. Infinite order summation of particle-particle ring diagrams in a model-space approach for nuclear matter / H. Q. Song, S. D. Yang and T. T. S. Kuo -- ch. III. Low-momentum NN interactions in a renormalization group approach. Commentary. Low momentum nucleon-nucleon potentials with half-on-shell T-matrix equivalence / S. Bogner, T. T. S. Kuo and L. Coraggio. Low-momentum nucleon-nucleon potential and shell model effective interactions / S. Bogner ... [et al.]. Low-momentum nucleon-nucleon interaction and Fermi liquid theory / A. Schwenk, G. E. Brown and B. Friman. Model-independent low momentum nucleon interaction from phase shift equivalence / S. K. Bogner, T. T. S. Kuo and A. Schwenk. Towards a model-independent low-momentum nucleon-nucleon interaction / S. K. Bogner ... [et al.]. Family of hermitian low-momentum nucleon interactions with phase shift equivalence / J. D. Holt, T. T. S. Kuo and G. E. Brown. Counter terms for low-momentum nucleon-nucleon interactions / J. D. Holt ... [et al.]. Low momentum shell model effective interactions with all-order core polarizations / J. D. Holt ... [et al.]. Low-momentum hyperon-nucleon interaction / B.-J. Schaefer ... [et al.]. Hans Bethe and the nuclear many-body problem / J. W. Holt and G. E. Brown. Shell model calculations and realistic effective interaction / L. Coraggio ... [et al.] -- ch. IV. Brown-rho scaling in nuclei, nuclear matter and neutron stars. Commentary. Scaling effective Lagrangians in a dense medium / G. E. Brown and M. Rho. Nuclear matter with Brown-Rho-scaled Fermi liquid interactions / J. W. Holt ... [et al.]. Shell model description of the  $^{12}\text{C}$  beta decay with Brown-Rho-scaled NN interactions / J. W. Holt ... [et al.]. Low-momentum NN interactions and all-order summation of ring diagrams of symmetric nuclear matter / L. -W. Siu ... [et al.]. Neutron stars,  $^{12}\text{C}$ -stable ring-diagram equation of state and Brown-Rho scaling / H. Dong, T. T. S. Kuo and R. Machleidt.

## Sommario/riassunto

This book provides a comprehensive overview of some key developments in the understanding of the nucleon-nucleon interaction and nuclear many-body theory. The main problems at the level of meson exchange physics have been solved, and we have an effective field theory using a phenomenological interaction pioneered by Achim Schwenk and Scott Bogner, which is nearly universally accepted as a unique low-momentum interaction that includes all experimental data to date. This understanding is based on a multi-step development in which different scientific insights and a wide range of physical and mat