

Nuclear Forces: Introduction to Theoretical Nuclear Physics;

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Introduction to Nuclear Physics

All phenomena in the universe are believed to arise from the actions of just three fundamental forces: *gravitation* and the less familiar *strong force* and *electroweak force*. The complex interplay between these last two forces defines the structure of matter, and nowhere are the myriad manifestations of this interplay more evident than in the nucleus of the atom. Much of the substance of the universe exists in the form of atomic nuclei arranged in different ways. Within ordinary nuclei, the weak gravitational attraction between the constituent particles is overwhelmed by the incomparably more powerful strong nuclear force, but gravitation's effect is large indeed in neutron stars—bizarre astrophysical objects whose properties are very much like those of gigantic nuclei.

Studies of the nucleus can thus be viewed as a link between the worlds of the infinitesimal and the astronomical. Collectively, the various nuclei can be regarded as a laboratory for investigating the fundamental forces that have governed our universe since its origin in the big bang. Indeed, as this report illustrates, the study of nuclear physics is becoming ever more deeply connected with that of cosmology as well as elementary-particle physics.

Before venturing into these exciting realms, we will quickly survey the field of nuclear physics at an elementary level in order to learn the language. Although nuclear physics has the reputation of being a difficult subject, the basic concepts are relatively few and simple.

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matter together. electromagnetism, the strong and the weak nuclear force. A fully symmetric theory would also introduce magnetic charges. Nuclear Forces: Introduction to Theoretical Nuclear Physics Hardcover Jun by Gernot Eder (Author), I. Kaplan (Translator). Be the first to review this item.

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