

1. Record Nr.	UNINA9910437983403321
Titolo	Exciting interdisciplinary physics : quarks and gluons, atomic nuclei, relativity and cosmology, biological systems // Walter Greiner, editor
Pubbl/distr/stampa	Heidelberg, : Springer International Publishing, 2013
ISBN	3-319-00047-0
Edizione	[1st ed. 2013.]
Descrizione fisica	1 online resource (503 p.)
Collana	FIAS interdisciplinary science series
Altri autori (Persone)	GreinerWalter
Disciplina	539.7092
Soggetti	Physics Nuclear physics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Superheavy Elements -- Nuclear Structure and Reactions -- High-Energy Nuclear Physics -- Astrophysics, Particle Physics -- Atomic Physics -- Theoretical Biology -- Photographs.
Sommario/riassunto	Nuclear physics is an exciting, broadly faceted field. It spans a wide range of topics, reaching from nuclear structure physics to high-energy physics, astrophysics and medical physics (heavy ion tumor therapy). New developments are presented in this volume and the status of research is reviewed. A major focus is put on nuclear structure physics, dealing with superheavy elements and with various forms of exotic nuclei: strange nuclei, very neutron rich nuclei, nuclei of antimatter. Also quantum electrodynamics of strong fields is addressed, which is linked to the occurrence of giant nuclear systems in, e.g., U+U collisions. At high energies nuclear physics joins with elementary particle physics. Various chapters address the theory of elementary matter at high densities and temperature, in particular the quark gluon plasma which is predicted by quantum chromodynamics (QCD) to occur in high-energy heavy ion collisions. In the field of nuclear astrophysics, the properties of neutron stars and quark stars are discussed. A topic which transcends nuclear physics is discussed in two chapters: The proposed pseudocomplex extension of Einstein's General Relativity leads to the prediction that there are no black holes and that big bang cosmology has to be revised. Finally, the interdisciplinary nature of this volume is further accentuated by

chapters on protein folding and on magnetoreception in birds and many other animals.
