

1. Record Nr.	UNINA9910782122103321
Titolo	The r-process [[electronic resource]] : the astrophysical origin of the heavy elements and related rare isotope accelerator physics : proceedings of the First Argonne/MSU/JINA/INT RIA Workshop : National Institute for Nuclear Theory, University of Washington, USA, 8-10 January 2004
Pubbl/distr/stampa	Toh Tuk Link, Singapore ; ; Hackensack, NJ, : World Scientific, c2004
ISBN	1-281-89852-X 9786611898526 981-270-247-4
Descrizione fisica	1 online resource (260 p.)
Collana	Proceedings from the Institute for Nuclear Theory ; ; v. 13
Altri autori (Persone)	QianYong-Zhong
Disciplina	523.01
Soggetti	Fast neutrons - Capture Neutrons - Capture
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	CONTENTS ; Series Preface ; Preface ; The r-Process in Supernovae ; 1. Introduction ; 2. The Nature of the R-Process and Nuclear Properties ; 3. Abundance Observations in Stars ; 4. The Astrophysical Site(s) of the r-Process ; 5. Clues from Chemical Evolution Precise Mass Measurements of Nuclides Approaching the r-Process Fission and the r-Process Path: Recent Experimental Achievements and Future Possibilities ; 1. Introduction ; 2. Fission fragment distributions ; 3. Fission probability ; 4. Future perspectives 5. Conclusion and future perspectives B- Decay Studies of Neutron Rich Nickel Isotopes ; 1. Introduction ; 2. Experimental Setup ; 3. Data Analysis ; Weak Strength for Astrophysics ; 1. Introduction ; 2. Measurements of EC strength ; Nuclear Masses and Fission Barriers 1. Introduction 2. The Skyrme-HFB mass models

; 3. Quality of data fits ; 5. Fission barriers
 ; 6. Symmetry coefficient for Skyrme-HF mass models
 ; 7. Conclusions ; Understanding Beta Decay for the r
 Process ; 1. Preliminaries ;
 2. Review of Approaches
 3. Development and Future of Self-Consistent Approach
 4. Effects on the R Process ; Neutron Captures and
 the r-Process ; 1. Introduction ;
 2. Predicting Neutron Capture ; 3.
 Implementation of Neutron Capture in the r-Process
 ; 4. Conclusion
 Supernova Neutrino-Nucleus Physics and the r-Process

Sommario/riassunto

The r-process is a major mechanism for producing elements heavier than Fe. In this book, a summary of recent developments in theoretical, experimental and observational studies of the r-process are presented in 25 contributions. The collected papers are up to date, comprehensive and yet concise. The topics covered include experiments on nuclei far from stability, nuclear theory input for the r-process, observational and theoretical studies on abundances of heavy nuclei, and astrophysical models of the r-process. The proceedings have been selected for coverage in: Index to Scientific & Techn
