1. Record Nr. UNINA9910786032503321

Titolo	Neutrino physics and astrophysics [[electronic resource] =] : Fisica e astrofisica del neutrino / / edited by G. Bellini ; Societa Itaniana Di Fisica
Pubbl/distr/stampa	Amsterdam ; ; Washington, D.C., : IOS Press, c2012
ISBN	1-283-92045-X 1-61499-173-1
Descrizione fisica	1 online resource (406 p.)
Collana	Proceedings of the International School of Physics "Enrico Fermi" ; ; Course 182
Altri autori (Persone)	BelliniGianpaolo
Disciplina	537.5
Soggetti	Neutrinos Astrophysics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	International conference proceedings.
Nota di contenuto	Title Page; Indice; Preface; Gruppo fotografico dei partecipanti al Corso; Neutrino oscillation physics; Introduction; Physics of neutrino oscillation; Preliminaries; Probability of neutrino oscillation in vacuum; Neutrino flavor change in matter; A brief guide to references; Double-beta decay; Introduction; The principle of cryogenic detectors; Measurement of the neutrino mass in single-beta decay; Conclusions; Light neutrinos in cosmology; Introduction; The cosmic neutrino background; Relic neutrino production and decoupling; Background evolution; Neutrinos and Primordial Nucleosynthesis Extra radiation and the effective number of neutrinosNeutrino oscillations in the Early Universe; Active-active neutrino oscillations: relic neutrino asymmetries; Active-sterile neutrino oscillations; Massive neutrinos as Dark Matter; Effects of neutrino masses on cosmology; Brief description of cosmological observables; Neutrino free-streaming; Impact of massive neutrinos on the matter power spectrum; Impact of massive neutrinos on the CMB anisotropy spectrum; Current bounds on neutrino masses; CMB anisotropies; Galaxy redshift surveys; Lyman-alpha forest Summary and discussion of current boundsFuture sensitivities on neutrino masses from cosmology; Conclusions; Neutrinos and the

stars; Introduction; Neutrinos from ordinary stars; Some basics of stellar evolution; Neutrino emission processes; Neutrino electromagnetic properties; Globular clusters testing stellar evolution and particle physics; White dwarf cooling; Neutrinos from the Sun; Solar neutrino measurements and flavor oscillations; Helioseismology and the solar opacity problem; Sun as a particle source; Supernova neutrinos; Classification of supernovae; Explosion mechanism Characteristics of neutrino signalSupernova 1987A and its neutrino signal; Neutrinos from the next nearby supernova; Diffuse supernova neutrino background (DSNB); Particle physics constraints and future possibilities; Flavor oscillations of SN neutrinos; Conclusion; High energy neutrinos and cosmic rays; Galactic and extragalactic primary cosmic radiation: a short overview; Cosmic ray acceleration; Shock acceleration; Maximal acceleration energy; Application to particle acceleration in gamma-ray bursts; Anisotropies and nature of the sources; Propagation and deflection; Galactic cosmic rays Extragalactic cosmic raysChemical composition; High energy neutrino detection; High energy neutrino fluxes; Methods and problems in low-energy neutrino experiments (solar, reactors, geo-); Introduction; Solar neutrinos; Radiochemical method; Cherenkov detector; SNO; Super-Kamiokande; Scintillation technique; Borexino; Other experiments; Global physics results; Geoneutrinos; Conclusions; Methods and problems in neutrino observatories; Introduction; Cosmic Accelerators and neutrino astronomy; UHE CR cosmic ray connection; AGN blazar accelerator; Atmospheric neutrinos; CR muon background
Strong ET neutrino discrimination