

1. Record Nr.	UNISA996466733203316
Autore	Mohapatra Rabindra N.
Titolo	The neutrino story : one tiny particle's grand role in the cosmos // Rabindra N. Mohapatra
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2021] Â©2021
ISBN	3-030-51846-9
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (XVI, 222 p. 64 illus., 48 illus. in color.)
Disciplina	539.7215
Soggetti	Neutrinos Neutrinos - History Particles (Nuclear physics)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1 Introduction -- 2 Particles as building blocks of matter -- 3 From protons and neutrons to a zoo of particles -- 4 Order in the zoo and quarks -- 5 Forces that keep the universe together -- 6 Forces are also caused by particles -- 7 Neutrino is born as an idea -- 8 From idea to reality: neutrino story unfolds in slow motion -- 9 Neutrino discovered -- 10 Standard model of the particles and forces -- 11 Forces in the standard model and symmetries -- 12 More physics beyond the standard model or end of physics now? -- 13 Neutrinos Oscillate and hence they weigh -- 14 What have we learnt about neutrinos from neutrino oscillation experiments? -- 15 Mendeleev's periodic table -- 16 A brief overview of the Big Bang Theory of the Universe -- 17 Inflationary universe -- 18 From quarks to protons and neutrons and then to helium and beryllium and the dance of atoms -- 19 Stars as the cooking pots for heavy nuclei -- 20 Neutrino mass hints at mirror symmetry in Nature -- 21 Mirror symmetric weak force and neutrino mass -- 22 Hints of other new physics from neutrino mass -- 23 Origin of matter and neutrinos -- 24 Dark universe -- 25 Neutrinos from Heavenly sources -- 26 Anthropic principle -- 27 What lies ahead in the future? -- Epilogue -- Glossary.
Sommario/riassunto	Every second of every day, we are exposed to billions of neutrinos

emitted by the Sun, and yet they seem to pass straight through us with no apparent effect at all. Tiny and weakly interacting this subatomic particle may be, but this book will show you just how crucial a role it has played in the evolution of the elements in the universe, and eventually, ourselves. We first start with an introduction to the basics of subatomic physics, including brief backgrounds on the discoveries that set the stage for major 20th century advances. The author, a distinguished theoretical physicist who has researched neutrinos for over thirty years, next explains in nontechnical language how and why the neutrino fits into the wider story of elementary particles. Finally, the reader will learn about the latest discoveries in the past half century of neutrino studies. This semi-popular science book will appeal to any physics students or non-specialist physicists who wish to know more about the neutrino and its role in the evolution of our universe.
