

1. Record Nr.	UNINA9910554810203321
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Titolo	Solar neutrino physics : the interplay between particle physics and astronomy // Lothar Oberauer, Aldo Ianni, Aldo Serenelli
Pubbl/distr/stampa	Weinheim, Germany : , : Wiley-VCH, , [2020] ©2020
ISBN	3-527-41273-5 3-527-41276-X 3-527-41272-7
Descrizione fisica	1 online resource (238 pages)
Disciplina	523.7
Soggetti	Solar neutrinos Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
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Sommario/riassunto

A guide to the fascinating interplay between particle physics and astrophysics that highlights the discovery of neutrino oscillations. Written by three international experts on the topic, *Solar Neutrino Physics* offers a review of the status of solar physics with its strong link to neutrino physics. The book explores constitutive physics and the governing equations of standard solar models. The authors also review the theory of neutrinos in the Standard Model and the related detector experiments. The book contains a summary of the results from various experiments and develops a coherent view of the current state-of-the-art of solar neutrino physics. *Solar Neutrino Physics* shows how solar models can be calibrated with the observational constraints of the age, mass, radius, and luminosity of the sun. The authors present general evolutionary properties of the sun as a star, past and future. They also discuss the solar neutrino production via the pp-chains and CNO-cycle, including the important role of the chemical composition of the sun. A very important source of information about the solar interior is offered by helioseismology, the study of solar oscillations. This important book:

- Presents a high-level overview of the field of solar neutrino physics
- Brings together data and their interpretation of results obtained at various solar neutrino observatories
- Combines the theory of nuclear reactions with solar neutrino experiments
- Contains a review of SNO+, JUNO, LENA, Hyper-Kamiokande, and DUNE.

Written for astronomers, physicists, and high energy physicists, *Solar Neutrino Physics* contains a review of the field of neutrino physics, the relevant equations, and the impact of matter on the behavior of neutrino oscillations.
