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Autore	Romao Jorge
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Nota di contenuto	Neutrinos in High Energy and Astroparticle Physics; Contents; Foreword; Preface; Chapter 1 Historical Introduction; Chapter 2 The Standard Model; 2.1 Introduction; 2.2 Standard Electroweak Model; 2.2.1 Electroweak Gauge Bosons; 2.2.2 Standard Model Matter Fields; 2.3 Spontaneous Symmetry-Breaking: Mass Generation; 2.4 Quantization in the Standard Model; 2.5 Renormalization in the Standard Model; 2.6 Anomalies; 2.6.1 The Axial Anomaly; 2.6.2 Gauge Anomalies; 2.7 Quantum Chromodynamics; 2.8 Higgs Boson and Unitarity in the Standard Model; 2.9 Theory Considerations on the Higgs Boson Mass 2.10 Experimental Tests of the Standard Model2.11 Open Issues in the Standard Model; 2.11.1 The Hierarchy Problem; 2.11.2 Coupling Constant Unification; 2.12 Summary; 2.13 Problems for Chapter 2; Chapter 3 Neutrino Masses and Mixing; 3.1 Two-Component Formalism; 3.2 Quantization of Majorana and Dirac Fermions; 3.3 The Lepton Mixing Matrix; 3.3.1 Lepton Mixing Matrix for Dirac Neutrinos; 3.3.2 Lepton Mixing Matrix for Majorana Neutrinos: Unitary Approximation; 3.3.3 General Seesaw-Type Lepton Mixing Matrix;

3.3.3.1 Symmetrical Parametrization of the General Lepton Mixing Matrix	
3.4 The Neutrino Neutral Current in Seesaw-Type Schemes	3.5 CP Properties of Majorana Fermions; 3.5.1 CP Properties and Neutrinoless Double-Beta Decay; 3.5.2 Electromagnetic Properties of Majorana Neutrinos; 3.5.3 Majorana-Dirac 'Confusion Theorem'; 3.6 Summary; 3.7 Problems for Chapter 3; Chapter 4 Neutrino Oscillations; 4.1 Preliminaries; 4.2 Neutrino Oscillations Formalism In Vacuo; 4.3 Matter Effects in Neutrino Oscillations; 4.4 Neutrino Oscillation Data; 4.4.1 Solar Neutrino Data; 4.4.2 Reactor Neutrino Data; 4.4.3 Atmospheric Neutrino Data; 4.4.4 Accelerator Neutrino Data
4.4.5 The Measurement of 134.5 Global Neutrino Oscillation Analysis;	
4.6 Global Fit Results for Neutrino Oscillation Parameters; 4.7 Summary and Outlook; 4.8 Problems for Chapter 4; Chapter 5 Robustness of Oscillations: The Case of Solar Neutrinos; 5.1 Theoretical Preliminaries: Beyond the Standard Model; 5.2 Beyond the Standard Solar Model; 5.3 Oscillations with Spin-Flavour Precession; 5.4 Constraining Neutrino Magnetic Moments; 5.5 Summary; 5.6 Problems for Chapter 5; Chapter 6 Absolute Neutrino Masses; 6.1 Preliminaries; 6.2 Beta-Decay and Direct Searches for Neutrino Mass	
6.2.1 Relativistic Beta-Decay Kinematics	6.2.2 Beta Decay in the Three-Neutrino Case; 6.3 Neutrinoless Double-Beta Decay; 6.4 Light-Neutrino Exchange 0 Mechanism; 6.5 Experimental Prospects in the Search for 0; 6.6 Neutrinoless Double-Beta Decay in Flavour Models; 6.7 Short-Range Contributions to 0 Decay and the Weak Interaction Scale; 6.8 Black Box and the Significance of 0; 6.9 Summary; 6.10 Problems for Chapter 6; Chapter 7 Neutrino Masses in SU(3)c x SU(2)L x U(1)Y Theories; 7.1 Preliminaries: The Origin of Neutrino Mass
7.2 Effective Seesaw Mechanism: Explicit Lepton Number Violation	

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### Sommario/riassunto

This self-contained modern textbook provides a modern description of the Standard Model and its main extensions from the perspective of neutrino physics. In particular it includes a thorough discussion of the varieties of seesaw mechanism, with or without supersymmetry. It also discusses schemes where neutrino mass arises from lighter messengers, which might lie within reach of the world's largest particle accelerator, the Large Hadron Collider. Throughout the text, the book stresses the role of neutrinos due to the fact that neutrino properties may serve as a guide to the correct model of uni

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