

AN INTRODUCTION TO THE STANDARD MODEL OF PARTICLE PHYSICS

Second Edition

The Standard Model of particle physics is the mathematical theory that describes the weak, electromagnetic and strong interactions between leptons and quarks, the basic particles of the Standard Model.

The new edition of this introductory graduate textbook provides a concise but accessible introduction to the Standard Model. It has been updated to account for the successes of the theory of strong interactions, and the observations on matter–antimatter asymmetry. It has become clear that neutrinos are not mass-less, and this book gives a coherent presentation of the phenomena and the theory that describes them. It includes an account of progress in the theory of strong interactions and of advances in neutrino physics. The book clearly develops the theoretical concepts from the electromagnetic and weak interactions of leptons and quarks to the strong interactions of quarks.

This textbook provides an up-to-date introduction to the Standard Model for graduate students in particle physics. Each chapter ends with problems, and hints to selected problems are provided at the end of the book. The mathematical treatments are suitable for graduates in physics, and more sophisticated mathematical ideas are developed in the text and appendices. This title, first published in 2007, has been reissued as an Open Access publication on Cambridge Core.

NOEL COTTINGHAM and DEREK GREENWOOD are theoreticians working in the H. H. Wills Physics Laboratory at the University of Bristol. They have published two undergraduate texts with Cambridge University Press, *Electricity and Magnetism* (1991) and *An Introduction to Nuclear Physics*, now in its second edition (2001).

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W. N. COTTINGHAM and D. A. GREENWOOD
University of Bristol, UK





Shaftesbury Road, Cambridge CB2 8EA, United Kingdom

One Liberty Plaza, 20th Floor, New York, NY 10006, USA

477 Williamstown Road, Port Melbourne, VIC 3207, Australia

314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi – 110025, India

103 Penang Road, #05-06/07, Visioncrest Commercial, Singapore 238467

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