
Preface to the Fourth Edition

We are pleased by the positive resonance of our book which now necessitates a fourth edition. We have used this opportunity to implement corrections of misprints and amendments at several places, and to extend and improve the discussion of many of the exercises and examples. We hope that our presentation of the method of equivalent photons (Example 3.17), the form factor of the electron (Example 5.7), the infrared catastrophe (Example 5.8) and the energy shift of atomic levels (Example 5.9) are now even better to understand. The new Exercise 5.10 shows in detail how to arrive at the non-relativistic limit for the calculation of form factors. Moreover, we have brought up-to-date the Biographical Notes about physicists who have contributed to the development of quantum electrodynamics, and references to experimental tests of the theory. For example, there has been recent progress in the determination of the electric and magnetic form factors of the proton (discussed in Exercise 3.5 on the Rosenbluth formula) and the Lamb shift of high- Z atoms (discussed in Example 5.9 on the energy shift of atomic levels), while the experimental verification of the birefringence of the QED vacuum in a strong magnetic field (Example 7.8) remains unsettled and is a topic of active ongoing research.

Again, we thank all colleagues and readers for their comments and information about misprints in the book, and are grateful to the team at Springer-Verlag and especially to Dr. Stefan Scherer for smoothly handling the preparation of this fourth edition.

Frankfurt am Main,
October 2008

*Walter Greiner
Joachim Reinhardt*



<http://www.springer.com/978-3-540-87560-4>

Quantum Electrodynamics

Greiner, W.; Reinhardt, J.

2009, XVI, 448 p. 169 illus., Softcover

ISBN: 978-3-540-87560-4