



1st ed. 2018, IX, 277 p. 157 illus., 117 illus. in color.

#### Printed book

Softcover

74,99 € | £64.99 | \$89.99  
[1]80,24 € (D) | 82,49 € (A) | CHF  
88,50

#### eBook

64,19 € | £51.99 | \$69.99  
[2]64,19 € (D) | 64,19 € (A) | CHF  
70,50

Available from your library or  
[springer.com/shop](https://www.springer.com/shop)

#### MyCopy [3]

Printed eBook for just

€ | \$ 24.99

[springer.com/mycopy](https://www.springer.com/mycopy)

[Error\[en\\_EN | Export.Bookseller. MediumType | SE\]](#)

Claude Amsler

# The Quark Structure of Hadrons

An Introduction to the Phenomenology and Spectroscopy

Series: Lecture Notes in Physics

- Modern primer on the subject matter for a new generation of experiments and high-energy physicists
- Offers course-tested material
- Includes problems and solutions

Novel forms of matter, such as states made of gluons (glueballs), multiquark mesons or baryons and hybrid mesons are predicted by low energy QCD, for which several candidates have recently been identified. Searching for such exotic states of matter and studying their production and decay properties in detail has become a flourishing field at the experimental facilities now available or being built - e.g. BESIII in Beijing, BELLE II at SuperKEKB, GlueX at Jefferson Lab, PANDA at FAIR, J-PARC and in the upgraded LHC experiments, in particular LHCb. A modern primer in the field is required so as to both revive and update the teaching of a new generation of researchers in the field of QCD. These lectures on hadron spectroscopy are intended for Master and PhD students and have been originally developed for a course delivered at the Stefan Meyer Institute of the Austrian Academy of Sciences. They are phenomenologically oriented and intended as complementary material for basic courses in particle and nuclear physics. The book describes the spectra of light and heavy mesons and baryons, and introduces the fundamental properties based on symmetries. Further, it derives multiplet structures, mixing angle, decay coupling constants, magnetic moments of baryons, and predictions for multiquark states and compares these with suitable experimental data. Basic methods of calculating decay angular distributions and determining masses and widths of resonances are also presented. The appendices provide students and newcomers to the field with the necessary background information, and include a set of problems and solutions.

Order online at [springer.com](https://www.springer.com) / or for the Americas call (toll free) 1-800-SPRINGER / or email us at: [customerservice@springernature.com](mailto:customerservice@springernature.com). / For outside the Americas call +49 (0) 6221-345-4301 / or email us at: [customerservice@springernature.com](mailto:customerservice@springernature.com).

The first € price and the £ and \$ price are net prices, subject to local VAT. Prices indicated with [1] include VAT for books; the €(D) includes 7% for Germany, the €(A) includes 10% for Austria. Prices indicated with [2] include VAT for electronic products; 19% for Germany, 20% for Austria. All prices exclusive of carriage charges. Prices and other details are subject to change without notice. All errors and omissions excepted. [3] No discount for MyCopy.

