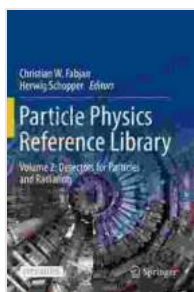


# Particle Physics Reference Library: Vol. 1 - Theory and Experiments

The Particle Physics Reference Library is a comprehensive and authoritative resource for students, researchers, and practitioners in the field of particle physics. This first volume focuses on the theoretical foundations and experimental techniques that underpin our understanding of the fundamental nature of matter and energy.



## Particle Physics Reference Library: Volume 1: Theory and Experiments by Laird Hamilton

★★★★☆ 4.6 out of 5

Language	: English
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Enhanced typesetting	: Enabled
Print length	: 632 pages
Screen Reader	: Supported



The volume is divided into two parts. The first part provides a theoretical overview of particle physics, covering topics such as the Standard Model, quantum field theory, and collider physics. The second part describes the experimental techniques used to study particle physics, including detector technology, data analysis, and Monte Carlo simulations.

### Part 1: Theory

- The Standard Model of Particle Physics

- Quantum Field Theory
- Collider Physics
- Supersymmetry
- Dark Matter and Dark Energy

## **Part 2: Experiments**

- Detector Technology
- Data Analysis
- Monte Carlo Simulations
- LHC Experiments
- Neutrino Experiments

The Particle Physics Reference Library is an essential resource for anyone interested in the fundamental nature of matter and energy. This first volume provides a comprehensive overview of the theoretical foundations and experimental techniques that underpin our understanding of particle physics.

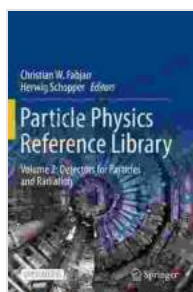
## **References**

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- M. Peskin and D. Schroeder, *An Introduction to Quantum Field Theory*, 2nd ed. (Perseus Books, 1995).
- R. Kleiss and W. Stirling, *Quarks and Partons* (Cambridge University Press, 1996).

- The Large Hadron Collider website: <https://home.cern>

## Image Credits

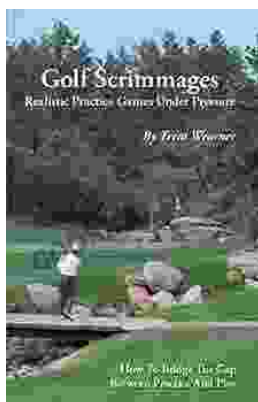
- Figure 1: The Standard Model of Particle Physics (CERN)
- Figure 2: The Large Hadron Collider (CERN)
- Figure 3: The ATLAS detector (CERN)



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