

Contents

Editor's Foreword	v
Preface	vii
1 Review of the Principles of Quantum Mechanics	1
2 Spin and Statistics	7
3 Rotations and Angular Momentum	11
4 Rules of Composition of Angular Momentum	19
5 Relativity	23
6 Electromagnetic and Fermi Couplings	29
7 Fermi Couplings and the Failure of Parity	33
8 Pion-Nucleon Coupling	38
9 Strange Particles	43
10 Some Consequences of Strangeness	48
11 Strong Coupling Schemes	51
12 Decay of Strange Particles	55
13 The Question of a Universal Coupling Coefficient	60
14 Rules for Strangeness Changing Decays: Experiments	64
15 Fundamental Laws of Electromagnetics and β -Decay Coupling	67
16 Density of Final States	73
17 The Propagator for Scalar Particles	78
18 The Propagator in Configuration Space	83
19 Particles of Spin 1	88
20 Virtual and Real Photons	95
21 Problems	101
22 Spin-1/2 Particles	106
23 Extension of Finite Mass	112
24 Properties of the Four-Component Spinor	118
25 The Compton Effect	125

26	Direct Pair Production by Muons	131
27	Higher-Order Processes	134
28	Self-Energy of the Electron	139
29	Quantum Electrodynamics	145
30	Meson Theory	152
31	Theory of β Decay	156
32	Properties of the β -Decay Coupling	164
33	Summary of the Course	168
	References	170
	Table of the Fundamental Particles	171