Preface: The Training of an Elementary Particle Phenomenologist p. vii
List of Figures p. xxi
A Pictorial Journey through the Landscape of \([\alpha]\)-Quantized Elementary Particle Lifetimes and Masses p. 1
The Experimental Journey p. 1
Global Lifetime \([\alpha]\)-Quantization p. 2
Unpaired-Quark Lifetime Hyperfine (HF) Structure p. 6
The \([\alpha]^4\) "Lifetime Desert" between Unpaired and Paired Quark Decays p. 12

Two \([\alpha]^{-1}\) Mass Leaps: The \(m[b] = 70\) MeV and \(m[f] = 105\) MeV Basis States p. 15
The Spin-1/2 Standard Model \(q = (u, d), s, c, b\) "Muon" Constituent Quarks p. 22
The Spin-0 Generic "Pion" Constituent Quarks p. 34
The Relativistically Spinning Sphere and the \(m[f]/m[b] = 3/2\) Mass Ratio p. 39
The M\([\alpha]^X\) Threshold-State Particle Excitation Mechanism p. 41

An \([\alpha]^{-2}\) Mass Leap: The \(q^{[\alpha]} = 43,182\) MeV Basis Set for the W, Z Gauge Bosons and Top Quark \(t\) p. 48

Mathological Studies of Elementary Particle Spectroscopy p. 59

Lifetime and Mass \([\alpha]\)-Quantization: Physics Beyond the Paradigm p. 63
The Missing Elementary Particle Ground State and Its Mass Generator p. 63
The Particle Mass Mystery: Physics from the Higgs Down or the Bottom Up? p. 65
The Double Mystery of the Fine Structure Constant \([\alpha] = e[2]/hc\) p. 69
The Dichotomy of Leptons and Hadrons: Interactive Charges and Passive Masses p. 72

Experiment, Phenomenology, Theory: The Three Steps to Success p. 76

The Review of Particle Physics (RPP) Elementary Particle Data Base p. 78

The Linkage Between Particle Lifetimes/Widths (Stability) and Particle Masses (Structure) p. 81

The Numerical Challenge of the Proton-to-Electron Mass Ratio p. 83

The Phenomenology of \([\alpha]\)-Quantized Particle Lifetimes and Mass-Widths p. 87
The Zeptosecond Boundary between Threshold-State and Excited-State Lifetimes p. 87

The Nonstrange \(\pi^+, \pi^-, \pi^0, \eta, \eta'\) PS Meson Quintet: The "Crown Jewels" of Lifetime \([\alpha]\)-Quantization p. 93

The Strange \(K^+, K^0, [\text{Characters not reproducible}]\) Meson Quartet: \([\alpha]\)-Scaling and Factor-of-2 Hyperfine (HE) Structure p. 100

The PS Meson Lifetime Nonet: Physics Outside of the Standard Model p. 103

Hyperfine (HE) Factor-of-2 and Factor-of-3 Lifetime Structure p. 105

The \([\alpha]\)-Quantization of the 36 Long-Lived Threshold-State Particle Lifetimes p. 113

The \(s, c, b\) Quark Group Structure in \([\alpha]\)-Quantized Particle Lifetimes p. 124

Factor of \([\alpha]^4\) Lifetime Ratios between Unpaired and Paired Quark Decays p. 126

The \(b\)-Quark and \(c\)-Quark Factor-of-3 Lifetime Flavor Structure p. 135

Flavor Substitutions and \(c \& b\) \&; \(s\) Flavor Dominance in Unpaired-Quark Decays p. 138