

THE BUILDING BLOCKS OF CREATION

From Microfermis to Megaparsecs

**Proceedings of the 1993 Theoretical Advanced Study Institute
in Elementary Particle Physics**

University of Colorado at Boulder

6 June – 2 July 1993

Editors

Stuart Raby and Terrence Walker

*Department of Physics
The Ohio State University*



World Scientific

Singapore • New Jersey • London • Hong Kong

Contents

Foreword	v
The Standard Model <i>William J. Marciano</i>	1
Selected Topics in Effective Field Theories for Particle Physics <i>Andrew G. Cohen</i>	53
Light Quark Masses and Mixing Angles <i>John F. Donoghue</i>	101
Heavy Quark Masses, Mixing Angles, and Spin-Flavour Symmetry <i>Matthias Neubert</i>	125
Lattice QCD for Small Computers <i>G. Peter Lepage</i>	207
B-Physics in Hadron Colliders <i>Christopher T. Hill</i>	237
Introduction to Supersymmetry <i>D. R. T. Jones</i>	259
Minimal Supersymmetric Standard Model and Grand Unification <i>Hans Peter Nilles</i>	291
Probing the Effective Flavor Lagrangian of GUTs <i>Lawrence J. Hall</i>	347
An Introduction to Technicolor <i>Kenneth Lane</i>	381

The Conflict between Quantum Mechanics and General Relativity <i>Leonard Susskind</i>	409
The Standard Cosmology <i>Joshua A. Frieman</i>	421
Models for Inflation <i>Keith A. Olive</i>	469
Dark Matter Candidates <i>Keith A. Olive</i>	497
Dark Matter Experiments <i>David O. Caldwell</i>	519
An Introduction to Large-Scale Structure <i>Robert J. Scherrer</i>	533
Topological Defects and the Formation of Structure <i>David N. Spergel</i>	549
Neutrino Physics and Astrophysics: Theory of Neutrino Oscillations <i>S. P. Rosen</i>	567
Stellar Neutrinos: Supernovae and Solar <i>David N. Schramm</i>	597