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Nota di contenuto	Intro -- Preface -- Acknowledgements -- Contents -- About the Author -- 1 The Standard Model and Its Hierarchy Problem(s) -- 1.1 Standard Model-The Basic Structure -- 1.2 Standard Model-Parameter Count -- 1.3 Effective Field Theories-Cutoff Perspective -- 1.4 Effective Field Theories-QFTUV vs. QFTIR -- 1.5 The Standard Model as an Effective Field Theory -- 1.6 The Electroweak Hierarchy Problem -- 1.7 Fine-tuning -- 1.8 Gravity and the Cosmological Constant Problem -- 1.9 Problems -- 1.9.1 Electroweak Symmetry Breaking -- 1.9.2 The Standard Model Is Anomaly Free -- 1.9.3 The Standard Model and SU(5) -- 1.9.4 Weyl Spinors -- 1.9.5 Covariant Expression for the 1-Loop Vacuum Energy -- 2 Supersymmetry and Supergravity -- 2.1 SUSY Algebra and Superspace -- 2.2 Superfields -- 2.3 Chiral Superfields -- 2.4 SUSY-Invariant Lagrangians -- 2.5 Wess-Zumino-Type Models -- 2.6 Real Superfields -- 2.7 SUSY Breaking -- 2.8 Supersymmetrising the Standard Model -- 2.9 Supersymmetric and SUSY Breaking Masses and Non-renormalisation -- 2.10 The Minimal Supersymmetric Standard Model (MSSM) -- 2.11 Supergravity: Superspace Approach -- 2.12 Supergravity: Component Approach -- 2.13 Problems -- 2.13.1 Simple Manipulations Within the Superspace Approach -- 2.13.2 Deriving Component Actions -- 2.13.3 Fierz Identities for Weyl Spinors -- 2.13.4 SUSY in Components -- 2.13.5 Gauge Coupling Unification -- 2.13.6 Graviton Spin (Helicity) -- 3 String Theory: Bosonic String --

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Chapter 2: Computational Mechanics and Engineering Applications; Chongqing Bridge and its Combination Bridge; The Sustainable Indoor Environment Research and Design of Earth Buildings for Rural People; Concrete Bridge Durability Design and Maintenance
Structural Analysis of the First Iron Bridge in the World Using the Finite Element MethodDeflection Analysis of Sleeve Jointed Purlin Systems with Non-Linear Rotational Stiffness; Application of Genetic Programming for Estimation of Soil Compaction Parameters; Experimental Study on the Effect of Froude Number on Temporal Variation of Scour around a T Shaped Spur Dike in a 90 Degree Bend; Comparing Steel Plate Shear Wall Behavior with Simple and Corrugated Plates; Safety Evaluation of Pier under Impact of Bridge Girder Erection Machine
Three Dimensional, Linear and Nonlinear Finite Element Modeling of FRP to Concrete Pull-Off TestComparative Analysis of Axially Loaded Composite Columns; Study on the Effect of Sewage Concentration on Treatment Efficiency of Artificial Wetland of Plateau Lake; Singular Perturbation Method for Solving Non-Linear Vibration of Stay Cable (I) - Theory Research; Singular Perturbation Method for Solving Non-Linear Vibration of Stay Cable (II) - Engineering Application; Double Non-Linear Mechanical Characteristics of Transmission Tower Structure Based on Model Amendment
An Experimental Study on Material and Structural Properties of Structural Insulated Panels (SIPs)Study and Practice on the Performance of Soundproofing for Office Building Wall; Symplectic Solutions in Singularity Problems of Anisotropic Beams; The Finite Element Analysis on Mechanical Properties of the Meridians Stair Skeleton of Medical Exhibition Center in Taizhou City; Structural Defects of Existing RC Buildings in Eskisehir Province; Reliability Assessment of Fatigue Life of Hangers in Large-Span Suspension Bridges
Maintenance Strategies of Main Cable for Large Span Suspension Bridges Considering Different Scales

Sommario/riassunto

Following the great progress made in Computational Mechanics and Materials, the 2011 International Workshop on Computational Mechanics, Materials and Engineering Applications (CMMEA 2011) aimed at providing a forum for the presentation and discussion of state-of-the-art developments in Computational Mechanics and Engineering Applications, Building Materials, Geotechnical & Soil Engineering and Materials Science and Engineering Applications. The emphasis was placed on basic methodologies, scientific developments and engineering applications. Review from Book News Inc.: This publication consists