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References; The Extremal Limit of D-Dimensional Black Holes; References; On the Dimensional Reduced Theories; Fractal Statistics, Fractal Index and Fractons; Quantum Field Theory from First Principles T-Duality of Axial and Vector Dyonic Integrable Models1 Introduction; 2 Gauged WZNW Construction of NA Toda Models; 3 The $B_n(1)$ Torsionless NA Toda model; 4 The twisted NA Toda Models; 5 Zero Curvature; 6 Conclusions; References; Duffin-Kemmer-Petiau Equation in Riemannian Space-Times; 1 Introduction; 2 DKP equation in Minkowski space-time; 3 Passage to Riemannian space-times; 4 The equivalence with KG and Proca equations; 5 Conclusions and comments; References; Weak Scale Compactification and Constraints on Non-Newtonian Gravity in Submillimeter Range; 1 Introduction 2 Corrections to Newtonian Gravity in the Theories with a Weak Unification Scale3 What Constraints are Known up to Date?; 4 Constraints from the Recent Measurement of the Casimir Force Between Gold Coated Lens and Disk; 5 Conclusions and Discussion; References; Finite Action, Holographic Conformal Anomaly and Quantum Brane-Worlds in D5 Gauged Supergravity; 1 Introduction; 2 Holographic Weyl anomaly for gauged supergravity with general dilaton potential; 3 Surface Counterterms and Finite Action; 4 Comparison with other counterterm schemes and holographic RG 5 Dilatonic brane-world inflation induced by quantum effects: Constant bulk potential6 Discussion; Appendix A Remarks on boundary values; References; Quantum Group $SU_q(2)$ and Pairing in Nuclei; 1 Quasi-Spin operators and Seniority Scheme; 2 Nucleon Pairs with q-deformation; 3 RPA with q-deformed nucleon pairs and q-deformed Quasi-particle pairs; 4 Gap equation in qBCS and the Ground State Energy; 5 Acknowledgments; References; Some Topological Considerations about Defects on Nematic Liquid Crystals; 1 INTRODUCTION; 2 AXIAL DISCLINATIONS AND THE MICROSCOPIC NATURE OF THE LIQUID CRYSTALS 3 THE BRANCH-CUT

Sommario/riassunto

This volume presents the following topics: non-Abelian Toda models, brief remarks for physicists on equivariant cohomology and the Duistermaat-Heckman formula, Casimir effect, quantum groups and their application to nuclear physics, quantum field theory, quantum gravity and the theory of extended objects, and black hole physics and cosmology. Contents: Dynamics, Viscous, Self-Screening Hawking Atmosphere (I Brevik); Gravitational Interaction of Higher Spin Massive Fields and String Theory (I L Buchbinder & V D Pershin); Invariants of Chern-Simons Theory Associated with Hyperbolic Manifolds (A
