
CONTENTS

PREFACE	xiii
<i>E. Pellizzetti</i>	

INTRODUCTORY PAPERS

THE RUNNING OF GAUGINO MASSES, THE GAP AND THE SINGLE-PHOTON FINAL STATES IN THE SEARCH FOR THE SUPERWORLD	3
<i>R.M. Mössbauer</i>	
SUPERSYMMETRY, SUPERSPACE AND THE SUPERWORLD	9
<i>M.J. Duff and S. Ferrara</i>	

SELECTED PAPERS ON SEARCHING FOR THE SUPERWORLD BY A. ZICHICHI AND COLLABORATORS

PART A

THE EFFECTIVE EXPERIMENTAL CONSTRAINTS ON M_{SUSY} AND M_{GUT}	27
<i>F. Anselmo, L. Cifarelli, A. Peterman and A. Zichichi</i>	
Il Nuovo Cimento 104 A (1991) 1817.	
THE EVOLUTION OF GAUGINO MASSES AND THE SUSY THRESHOLD	47
<i>F. Anselmo, L. Cifarelli, A. Peterman and A. Zichichi</i>	
Il Nuovo Cimento 105 A (1992) 581.	
THE CONVERGENCE OF THE GAUGE COUPLINGS AT E_{GUT} AND ABOVE: CONSEQUENCES FOR $\alpha_3(M_Z)$ AND SUSY BREAKING	63
<i>F. Anselmo, L. Cifarelli, A. Peterman and A. Zichichi</i>	
Il Nuovo Cimento 105 A (1992) 1025.	
THE SIMULTANEOUS EVOLUTION OF MASSES AND COUPLINGS: CONSEQUENCES ON SUPERSYMMETRY SPECTRA AND THRESHOLDS	85
<i>F. Anselmo, L. Cifarelli, A. Peterman and A. Zichichi</i>	
Il Nuovo Cimento 105 A (1992) 1179.	
ANALYTIC STUDY OF THE SUPERSYMMETRY-BREAKING SCALE AT TWO LOOPS	109
<i>F. Anselmo, L. Cifarelli, A. Peterman and A. Zichichi</i>	
Il Nuovo Cimento 105 A (1992) 1201.	

A STUDY OF THE VARIOUS APPROACHES TO M_{GUT} AND α_{GUT} <i>F. Anselmo, L. Cifarelli and A. Zichichi</i> Il Nuovo Cimento 105 A (1992) 1335.	117
A χ^2 -TEST TO STUDY THE $\alpha_1, \alpha_2, \alpha_3$ CONVERGENCE FOR HIGH-PRECISION LEP DATA, HAVING IN MIND THE SUSY THRESHOLD <i>F. Anselmo, L. Cifarelli and A. Zichichi</i> Il Nuovo Cimento 105 A (1992) 1357.	141
UNDERSTANDING WHERE THE SUPERSYMMETRY THRESHOLD SHOULD BE <i>A. Zichichi</i> Proceedings of the Workshop on “Ten Years of SUSY Confronting Experiments”, CERN, Geneva, 7-9 September 1992, CERN-PPE/92-149, CERN/LAA/MSL/92-017 (7 September 1992), and CERN-TH.6707/92 – PPE/92-180 (November 1992) 94.	157
WHERE WE STAND WITH THE REAL SUPERWORLD <i>A. Zichichi</i> Proceedings of the XXX Course of the International School of Subnuclear Physics: “From Superstrings to the Real Superworld”, Erice, 14-22 July 1992, World Scientific – The Subnuclear Series 30 (1993) 1.	181
ON A CLASS OF FINITE SIGMA-MODELS AND STRING VACUA: A SUPERSYMMETRIC EXTENSION <i>A. Peterman and A. Zichichi</i> Il Nuovo Cimento 106 A (1993) 719.	195
A SEARCH FOR EXACT SUPERSTRING VACUA <i>A. Peterman and A. Zichichi</i> Il Nuovo Cimento – Note Brevi 107 A (1994) 333.	201
PROOF OF THE EQUIVALENCE BETWEEN DOUBLE SCALING LIMIT AND FINITE-SIZE SCALING HYPOTHESIS <i>A. Peterman and A. Zichichi</i> Il Nuovo Cimento – Note Brevi 107 A (1994) 507.	211
EXPLICIT SUPERSTRING VACUA IN A BACKGROUND OF GRAVITATIONAL WAVES AND DILATON <i>A. Peterman and A. Zichichi</i> Il Nuovo Cimento 108 A (1995) 97.	217

PART B

- TROUBLES WITH THE MINIMAL SU(5) SUPERGRAVITY MODEL 226
Jorge L. Lopez, D.V. Nanopoulos and A. Zichichi
Physics Letters **B 291** (1992) 255.
- PROPOSED TESTS FOR MINIMAL SU(5) SUPERGRAVITY AT FERMILAB, GRAN SASSO,
SUPERKAMIOKANDE AND LEP 239
Jorge L. Lopez, D.V. Nanopoulos, H. Pois and A. Zichichi
Physics Letters **B 299** (1993) 262.
- IMPROVED LEP LOWER BOUND ON THE LIGHTEST SUSY HIGGS MASS FROM
RADIATIVE ELECTROWEAK BREAKING AND ITS EXPERIMENTAL CONSEQUENCES 247
Jorge L. Lopez, D.V. Nanopoulos, H. Pois, Xu Wang and A. Zichichi
Physics Letters **B 306** (1993) 73.
- SUPERSYMMETRY TESTS AT FERMILAB: A PROPOSAL 255
Jorge L. Lopez, D.V. Nanopoulos, Xu Wang and A. Zichichi
Physical Review **D 48** (1993) 2062.
- SUSY SIGNALS AT DESY HERA IN THE NO-SCALE FLIPPED SU(5) SUPERGRAVITY
MODEL 269
Jorge L. Lopez, D.V. Nanopoulos, Xu Wang and A. Zichichi
Physical Review **D 48** (1993) 4029.
- SPARTICLE AND HIGGS-BOSON PRODUCTION AND DETECTION AT CERN LEP II
IN TWO SUPERGRAVITY MODELS 279
Jorge L. Lopez, D.V. Nanopoulos, H. Pois, Xu Wang and A. Zichichi
Physical Review **D 48** (1993) 4062.
- TOWARDS A UNIFIED STRING SUPERGRAVITY MODEL 295
Jorge L. Lopez, D.V. Nanopoulos and A. Zichichi
Physics Letters **B 319** (1993) 451.
- SIMPLEST, STRING-DERIVABLE, SUPERGRAVITY MODEL AND ITS EXPERIMENTAL
PREDICTIONS 303
Jorge L. Lopez, D.V. Nanopoulos and A. Zichichi
Physical Review **D 49** (1994) 343.

STRONGEST EXPERIMENTAL CONSTRAINTS ON $SU(5) \times U(1)$ SUPERGRAVITY MODELS <i>Jorge L. Lopez, D.V. Nanopoulos, Gye T. Park and A. Zichichi</i> Physical Review D 49 (1994) 355.	317
SCRUTINIZING SUPERGRAVITY MODELS THROUGH NEUTRINO TELESCOPES <i>Raj Gandhi, Jorge L. Lopez, D.V. Nanopoulos, Kajia Yuan and A. Zichichi</i> Physical Review D 49 (1994) 3691.	331
NEW PRECISION ELECTROWEAK TESTS OF $SU(5) \times U(1)$ SUPERGRAVITY <i>Jorge L. Lopez, D.V. Nanopoulos, Gye T. Park and A. Zichichi</i> Physical Review D 49 (1994) 4835.	347
THE TOP-QUARK MASS IN $SU(5) \times U(1)$ SUPERGRAVITY <i>Jorge L. Lopez, D.V. Nanopoulos and A. Zichichi</i> Physics Letters B 327 (1994) 279.	357
EXPERIMENTAL ASPECTS OF $SU(5) \times U(1)$ SUPERGRAVITY <i>Jorge L. Lopez, D.V. Nanopoulos, Gye T. Park, Xu Wang and A. Zichichi</i> Physical Review D 50 (1994) 2164.	367
NEW CONSTRAINTS ON SUPERGRAVITY MODELS FROM $b \rightarrow s\gamma$ <i>Jorge L. Lopez, D.V. Nanopoulos, Xu Wang and A. Zichichi</i> Physical Review D 51 (1995) 147.	397
EXPERIMENTAL CONSEQUENCES ON ONE-PARAMETER NO-SCALE SUPERGRAVITY MODELS <i>Jorge L. Lopez, D.V. Nanopoulos and A. Zichichi</i> International Journal of Modern Physics A 10 (1995) 4241.	411
CONSTRAINTS ON NO-SCALE SUPERGRAVITY MODELS <i>S. Kelley, Jorge L. Lopez, D.V. Nanopoulos and A. Zichichi</i> Modern Physics Letters A 10 (1995) 1787.	437
A LIGHT TOP-SQUARK AND ITS CONSEQUENCES AT HIGH ENERGY COLLIDERS <i>Jorge L. Lopez, D.V. Nanopoulos and A. Zichichi</i> Modern Physics Letters A 10 (1995) 2289.	447
SUPERSYMMETRY DILEPTONS AND TRILEPTONS AT THE FERMILAB TEVATRON <i>Jorge L. Lopez, D.V. Nanopoulos, Xu Wang and A. Zichichi</i> Physical Review D 52 (1995) 142.	457

STRING NO-SCALE SUPERGRAVITY MODEL AND ITS EXPERIMENTAL CONSEQUENCES <i>Jorge L. Lopez, D.V. Nanopoulos and A. Zichichi</i> Physical Review D 52 (1995) 4178.	467
EXPERIMENTAL CONSTRAINTS ON A STRINGY $SU(5) \times U(1)$ MODEL <i>Jorge L. Lopez, D.V. Nanopoulos and A. Zichichi</i> Physical Review D 53 (1996) 5253.	475
SUPERSYMMETRIC PHOTONIC SIGNALS AT THE CERN e^+e^- COLLIDER LEP IN LIGHT GRAVITINO MODELS <i>Jorge L. Lopez, D.V. Nanopoulos and A. Zichichi</i> Physical Review Letters 77 (1996) 5168.	483
SINGLE-PHOTON SIGNALS AT CERN LEP IN SUPERSYMMETRIC MODELS WITH A LIGHT GRAVITINO <i>Jorge L. Lopez, D.V. Nanopoulos and A. Zichichi</i> Physical Review D 55 (1997) 5813.	489
LIGHT GRAVITINO PRODUCTION AT HADRON COLLIDERS <i>Jaewan Kim, Jorge L. Lopez, D.V. Nanopoulos, Raghavan Rangarajan and A. Zichichi</i> Physical Review D 57 (1998) 373.	505
LIST OF PUBLICATIONS ON SEARCHING FOR THE SUPERWORLD BY A. ZICHICHI AND COLLABORATORS	517