

PROCEEDINGS OF THE JOHNS HOPKINS WORKSHOP  
ON  
CURRENT PROBLEMS IN PARTICLE THEORY 15

BALTIMORE, 1991  
(August 26 – 28)

# **PARTICLE PHYSICS FROM UNDERGROUND TO HEAVEN**

Edited by

**G. Domokos**  
**S. Kovesi-Domokos**



**World Scientific**

*Singapore • New Jersey • London • Hong Kong*

## CONTENTS

Forword		v
G. L. KANE	If We're Lucky, at LEP and FNAL We'll Find .....	1
T. G. RIZZO	The Hunt for New Gauge Bosons: Present Status and Future Prospects .....	19
P. RAMOND	Neutrinoology .....	41
S. J. PARKE	Long-Baseline Neutrino Oscillations .....	83
D. C. KENNEDY	À la Recherche des Neutrinos Perdus .....	93
A. MASIERO	Baryon Parity and Neutrino Physics .....	115
C. GIUNTI, C. W. KIM & U. W. LEE	When do Neutrinos Really Oscillate? Coherence of Neutrino Oscillations in the Wave Packet Treatment .....	131
F. HALZEN & T. STELZER	Signatures of Dark Matter in Underground Detectors .....	151
G. B. YODH	Air Showers, Cosmic Rays, Gamma Rays and Particle Physics .....	161
D. A. MORRIS & R. ROSENFELD	Multi-W Phenomena in Cosmic Rays .....	193
S. DAWSON	Chiral Lagrangians and the SSC .....	201
A. KAGAN	Recent Developments in Bosonic Technicolor .....	217
M. B. EINHORN	The Resurrection of Technicolor Models .....	243

D. B. KAPLAN	A New Mechanism for Generating Fermion Masses with Implications for Flavor .....	261
J. L. LOPEZ & D. V. NANOPOULOS	Flipped SU(5): Origins and Recent Developments .....	277
S. SAMUEL	A Possible Solution to the Strong CP Problem .....	299
D. SPECTOR	Bogomol'nyi Explained: An Application of $N=0$ Supersymmetry .....	325
J. POLONYI	Large Field Effects and Quark Confinement .....	343
D. BOYANOVSKY, R. WILLEY & R. HOLMAN	A Note on False Vacuum Decay .....	361
S. DODELSON, B. R. GREENE & L. M. WIDROW	Inverse Phase Transitions: Does Baryogenesis Lead to Dark Matter? .....	391
A. E. NELSON	Off the Wall Baryogenesis from Anomalous Weak Interactions .....	403
R. HOLMAN	Late Time Phase Transitions and the Mystery of Large Scale Structure .....	413
A. DE RÚJULA, PH. JETZER & E. MASSÓ	Microlensing of Galactic Dark Matter .....	425
R. C. WEBB	Aspects of Experimental Particle Physics from Below: Recent Results and Future Prospects for the MACRO Experiment .....	451