

CONTENTS

Preface	vii
List of Contributors	ix
The n-loop String Amplitude	1
<i>S Mandelstam</i> (notes prepared by R Wilkinson)	
1 Introduction	1
2 General form of amplitude	2
3 Tree amplitudes	7
4 Single-loop diagram	11
5 Variables for the n -loop problem	19
6 Functions on a Riemann surface	22
7 Calculation of the measure factor M	24
8 Concluding remarks	32
References	34
Two-dimensional Non-linear σ-models	35
<i>P Howe</i>	
1 Introduction	35
2 Bosonic σ -model	36
3 Supersymmetric σ -models	41
4 Renormalization of the σ -model	54
5 Ultraviolet divergences of supersymmetric σ -models	68
6 Anomalies in σ -models	73
References	86
Complete Intersection Calabi–Yau Manifolds	88
<i>P Candelas, A M Dale, C A Lütken and R C Schimmrigk</i>	
Abstract	88
1 Introduction	89
2 Chern classes	101
3 Splitting: new manifolds from old	107
4 Identities and reduction rules	115
5 Compilation of the list	121
6 Discussion	123
7 Three-generation spaces	127
Acknowledgements	131
Appendix	132
References	134

Gauge-covariant and Dual-model Vertices	135
<i>P West</i>	
Abstract	135
1 A brief review of gauge-covariant string theory	135
2 Three-string vertices and their operator identities	143
3 Relation between dual-model and gauge-covariant vertices	149
4 Discussion	153
References	155
Kac–Moody and Virasoro Algebras in Local Quantum Physics	157
<i>D I Olive</i> (notes prepared by R Arcuri and J Gomes)	
Abstract	157
1 Background and motivation	157
2 Sugawara's construction of the Virasoro algebra	168
References	184
Five Lite, Late-summer Lectures on Lattices	187
<i>J B Kogut</i>	
Abstract	187
1 The lattice axial anomaly and the fermion spectrum	187
2 Stochastic differential equations for lattice gauge theory	194
3 Diffusion in phase space. The fluctuation-dissipation theorem and hybrid algorithms	202
4 Discrete Langevin, Fokker–Plank equations and systematic errors	204
5 Simulations with fermions: current events	208
References	229
Index	231