

CONTENTS

Main Lectures

A. JAFFE - Lattice Instantons: What They Are and Why They Are Important.....	3
G.F. DE ANGELIS, D. DE FALCO, F. GUERRA - Gauge Fields on the Lattice.....	14
K. OSTERWALDER, E. SEILER - Lattice Gauge Theories.....	26
J. FRÖHLICH - Some Frontiers in Constructive Quantum Field Theory and Equilibrium Statistical Mechanics.....	37
E.H. LIEB - New Proofs of Long Range Order.....	59
J.L. LEBOWITZ - Number of Phases in One Component Ferromagnets.....	68
J.E. ROBERTS - A Survey of Local Cohomology.....	81
H. ARAKI - Operator Algebras and Statistical Mechanics.....	94
D. KASTLER - Foundations of Equilibrium Quantum Statistical Mechanics.....	106
O. BRATTELI, R.H. HERMAN - Unbounded Derivations of C^* -Algebras and Corresponding Dynamics.....	124
M. TAKESAKI - Introduction to the Flow of Weights on Factors of Type III.....	134
A. CONNES - The von Neumann Algebra of a Foliation.....	145
E.G. EFFROS - Nuclearity and the C^* -Algebraic Flip.....	152
D. OLESEN - On the Connes Spectrum of Simple C^* -Dynamical Systems.....	161
D. BUCHHOLZ - Quantum Field Theory of Massless Particles and Scattering Theory.....	171
J.M. COMBES - Scattering Theory in Quantum Mechanics and Asymptotic Completeness.....	183
L. O'RAIFEARTAIGH - Static Solitons in More than One Dimension.....	205
M.F. ATIYAH - Geometry of Yang-Mills Fields.....	216
S.P. NOVIKOV - Periodic Solitons and Algebraic Geometry.....	222
A.A. BELAVIN, V.E. ZAKHAROV - Yang-Mills Equations as Inverse Scattering Problem.....	229
F. CALOGERO - Nonlinear Evolution Equations Solvable by the Inverse Spectral Transform.....	235
L.D. FADDEEV, P.P. KULISH - Quantization of Particle-Like Solutions in Field Theory.....	270
S. ALBEVERIO, R. HØEGH-KROHN - Topics in Infinite Dimensional Analysis.....	279
Ya.G. SINAI - Mathematical Foundations of the Renormalization Group Method in Statistical Physics.....	303
P. COLLET, J.P. ECKMANN - On the Renormalization Group for the Hierarchical Model.....	312

R.S. ELLIS, C.M. NEWMAN - Fluctuations in Curie-Weiss Exemplis.....	313
R.L. DOBRUSHIN, Y.M. SUHOV - On the Problem of the Mathematical Foundation of the Gibbs Postulate in Classical Statistical Mechanics.....	325
D. RUELE - Dynamical Systems with Turbulent Behavior.....	341
R. TEMAM - Generic Properties of Navier-Stokes Equations.....	361
H. KESTEN, G.C. PAPANICOLAOU - A Limit Theorem for Turbulent Diffusion.....	371
M.C. POLIVANOV - Many Particle Scattering Amplitudes.....	375
I.V. TUTIN, O.I. ZAVIALOV - A Remark on Equations of Motion in Asymptotically Free Theories.....	386
S.A. ANIKIN, O.I. ZAVIALOV - Short-Distance Expansion for Products of Current-Like Operators.....	390
W. THIRRING - The Use of Exterior Forms in Field Theory.....	395

Short Communications

M. AIZENMAN - On Extensions of Flows in the Presence of Sets of Singularities.....	405
J. BRICMONT, J.R. FONTAINE, L. LANDAU - On the Uniqueness of the Equilibrium State for Plane Rotators.....	415
E.A. TAGIROV, I.T. TODOROV - A Geometric Approach to the Solution of Conformal Invariant Field Equations.....	417
A. FRIGERIO, V. GORINI, M. VERRI - Stability, Detailed Balance and KMS Condition for Quantum Systems.....	420
G.G. EMCH - Stochasticity and Irreversibility in Infinite Mechanical Systems.....	426
W. PUSZ - Why the KMS States?.....	433
G. GALLAVOTTI, F. GUERRA, S. MIRACLE-SOLÉ - A Comment to the Talk by E. Seiler.....	436