

TABLE OF CONTENTS

PREFACE	ix
THE ORGANIZING COMMITTEES	xi
LIST OF PARTICIPANTS	xiii
V.L. GINZBURG / THE ORIGIN OF COSMIC RAYS (INTRODUCTORY REMARKS)	1
P. MEYER / REVIEW OF COSMIC RAYS	7
H. REEVES / ISOTOPES IN GALACTIC COSMIC RAYS	23
W.R. Webber / The Charge and Isotopic Composition of $Z \geq 10$ Nuclei in the Cosmic Ray Source	31
C.J. Waddington, P.S. Freier, R.K. Fickle and N.R. Brewster / Isotopes of Cosmic Ray Elements from Neon to Nickel	33
M. Cassé, J.A. Paul and J.P. Meyer / Wolf Rayet Stars and the Origin of the ^{22}Ne Excess in Cosmic Rays	35
Y.V. Rao, A. Davis, M.P. Hagan and R.C. Filz / CR-39 Plastic Track Detector Experiment for Measurement of Charge Composition of Primary Cosmic Rays	37
J.P. WEFEL / SUPERNOVA AND COSMIC RAYS	39
G.G.C. Palumbo and G. Cavallo / What can we learn about Cosmic Rays from the UV, Optical, Radio and X-Ray Observations of Supernova 1979c in M 100?	51
J. LINSLEY / VERY HIGH ENERGY COSMIC RAYS	53
M. Giler, J. Wdowczyk and A.W. Wolfendale / Diffusion of High Energy Cosmic Rays from the Virgo Cluster	69
T.K. Gaisser, T. Stanev, P. Freier and C.J. Waddington / On the Detection of Heavy Primaries above 10^{14} eV	71
A. Ferrari and A. Masani / Interstellar and Intracluster Tunnels and Acceleration of High-Energy Cosmic Rays	73
J. Nishimura / Features of the High Energy Electron Spectrum	75
P.H. FOWLER, M.R.W. MASHEDER, R.T. MOSES, R.N.F. WALKER and A. WORLEY / ULTRA HEAVY COSMIC RAYS	77
W.R. Binns, R. Fickle, T.L. Garrard, M.H. Israel, J. Klarmann, E.C. Stone and C.J. Waddington / The Heavy Nuclei Experiment on HEAO-3	91

R. COWSIK / PROPAGATION STUDIES RELATED TO THE ORIGIN OF COSMIC RAYS	93
R.J. Protheroe, J.F. Ormes and G.M. Comstock / Interpretation of Cosmic Ray Composition: the Pathlength Distribution	107
R.I. Epstein / Are Stellar Flares and the Galactic Cosmic Rays Related?	109
E.B. FOMALONT / EXTENDED RADIO SOURCES	111
I.I.K. PAULINY-TOTH / COMPACT RADIO SOURCES	127
M.J. REES / NUCLEI OF GALAXIES: THE ORIGIN OF PLASMA BEAMS	139
N. Panagia and K.W. Weiler / The Common Properties of Plerions and Active Galactic Nuclei	165
E. Hummel / Central Radio Sources in Galaxies	167
L. Maraschi, R. Roasio and A. Treves / A Self-Consistent Multiple Compton Scattering Model for the X and γ -Ray Emission from Active Galactic Nuclei	169
K.O. Thielheim / Symmetry Breaking and Invariant Mass Approach to the Spiral Structure of Galaxies	171
R. Silberberg and M.M. Shapiro / Neutrino Emission from Galaxies and Mechanisms for Producing Radio Lobes	173
J. ARONS / PARTICLE ACCELERATION BY PULSARS	175
M. Morini and A. Treves / γ -Ray Emission from Slow Pulsars	205
M.M. Shapiro and R. Silberberg / Distribution of Neutrino Fluxes from Pulsar Shells	207
R. SANCISI and P.C. VAN DER KRUIT / DISTRIBUTION OF NON-THERMAL EMISSION IN GALAXIES	209
G. Sironi and G. De Amici / Cosmic Rays and Galactic Radio Noise	215
C.G.T. Haslam, C.J. Salter and H. Stoffel / The All-Sky 408 MHz Survey	217
S. Kearsey, J.L. Osborne, S. Phillipps, C.G.T. Haslam, C.J. Salter and H. Stoffel / The Large-Scale Distribution of Synchrotron Emissivity in the Galaxy	223
R. Beck and U. Klein / Radio Emission from Nearby Galaxies at High Frequencies	225
W.B. BURTON and H.S. LISZT / HIGH-DENSITY, COOL REGIONS OF INTERSTELLAR MATTER IN THE GALAXY	227
C.J. Cesarsky and R.M. Kulsrud / Cosmic-Ray Self-Confinement in the Hot Phase of the Interstellar Medium	251

M. Lachièze-Rey / Rayleigh Taylor Instabilities in the Interstellar Medium	253
R.J. Stoneham / Nonlinear Landau Damping of Alfvén Waves and the Production and Propagation of Cosmic Rays	255
T.K. Gaisser, A.J. Owens and G. Steigman / Cosmic Ray Antiprotons 5-12 GeV	257
J. Szabelski, J. Wdowczyk and A.W. Wolfendale / Anti-Protons in the Primary Cosmic Radiation	259
 J. TRÜMPER / THE X-RAY SKY	 261
A. Kembhavi and A.C. Fabian / Quasar Contribution to the X-Ray Background	273
S. Ikeuchi and A. Habe / Dynamical Behaviour of Gaseous Halo in a Disk Galaxy	275
P. Giommi and G.F. Bignami / The Fluctuations of the Cosmic X-Ray Background as a Sensitive Tool to the Universal Source Distribution	277
 L. SCARSI, R. BUCCHERI, G. GERARDI and B. SACCO / THE GAMMA-RAY SKY	 279
A.W. WOLFENDALE / GAMMA RAYS FROM COSMIC RAYS	309
T. Montmerle, J.A. Paul and M. Cassé / Cosmic Rays from Regions of Star Formation - I. The Carina Complex	321
M. Cassé, T. Montmerle and J.A. Paul / Cosmic Rays from Regions of Star Formation - II. The OB Associations	323
J.A. Paul, M. Cassé and T. Montmerle / Cosmic Rays from Regions of Star Formation - III. The Role of T-Tauri Stars in the Rho Oph Cloud	325
T. Dzikowski, B. Grochalska, J. Gawin and J. Wdowczyk / High Energy γ -Rays from the Direction of the Crab Pulsar	327
G. Pizzichini / A New Kind of Gamma Ray Burst ?	329
M. Salvati, E. Massaro and N. Panagia / The Components of the Galactic γ -Ray Emission	331
M. Giler, J. Wdowczyk and A.W. Wolfendale / Gamma Rays from Galaxy Clusters	333
F. Giovannelli, S. Karakula and W. Tkaczyk / High Energy Gamma Rays from Accretion Disc	335
G.F. Bignami / Search for X-Ray Sources in the COS-B Gamma-Ray Error Boxes	337
 W.I. AXFORD / THE ACCELERATION OF GALACTIC COSMIC RAYS	 339
H.J. Völk, G.E. Morfill and M. Forman / Cosmic Ray Acceleration in the Presence of Losses	359
C.J. Cesarsky and J.P. Bibring / Cosmic-Ray Injection into Shock-Waves	361

L. O'C. Drury and H.J. Völk / Shock Structure including Cosmic Ray Acceleration	363
J. Pérez-Peraza and S.S. Trivedi / Selective Effects in Cosmic Rays Induced by Coulombian Interactions with Finite Temperature Plasmas	365
C. CHIUDERI / HIGH ENERGY PHENOMENA IN THE SUN	
G. HAERENDEL / MAGNETOSPHERIC PROCESSES POSSIBLY RELATED TO THE ORIGIN OF COSMIC RAYS	367
E. Möbius and D. Hovestadt / On ${}^3\text{-He}$ Rich Solar Particle Events	373
H.S. Ahluwalia / Cosmic Ray Evidence for the Magnetic Configuration of the Heliosphere	393
G. SETTI / CONCLUDING REMARKS	395
GENERAL DISCUSSION	405

