

TABLE OF CONTENTS

Preface	vii
List of Participants	xiii
MAGNETIC RECONNECTION	
E.N. PARKER / Magnetic Discontinuities from Field Topology	1
H.E. PETSCHEK / Thoughts on Reconnection	9
A. OTTO / Three-Dimensional Magnetic Reconnection in Astrophysical Plasmas – MHD Approach	17
J. BÜCHNER / Three-Dimensional Magnetic Reconnection in Astrophysical Plasmas – Kinetic Approach	25
CORONAL HEATING AND SOLAR WIND ACCELERATION	
K. WILHELM / The Darkest Regions of Solar Polar Coronal Holes Observed by Sumer on Soho	43
K. STUCKI, S.K. SOLANKI, I. RÜEDI, J.O. STENFLO, A. BRKOVIĆ, U. SCHÜHLE, K. WILHELM and M.C.E. HUBER / Coronal Holes versus Normal Quiet Sun Observed with Sumer	53
E. MARSCH / Cyclotron Heating of the Solar Corona	63
E. PRIEST / Heating the Solar Corona by Magnetic Reconnection	77
A.A. GALEEV and A.M. SADOVSKI / Solar Wind Acceleration by the Dissipation of Alfvén Waves	101
R. JAIN and G.E. VEKSTEIN / Plasma Heating by Forced Magnetic Reconnection	113
K. SHIBATA / Evidence of Magnetic Reconnection in Solar Flares and a Unified Model of Flares	129
Y. UCHIDA, S. HIROSE, S. MORITA, M. TORII, T. TANAKA, T. YABIKU, T. MIYAGOSHI, S. UEMURA and T. YAMAGUCHI / Observations of Flares and Active Regions from YOHKOH, and magnetodynamic models explaining them	145
L.A. PUSTIL'NIK / Solar Flare Phenomena as Phase Transition Caused by Frustration of Current Percolation	171
JETS AND WINDS	
E. TRUSSONI, C. SAUTY, K. TSINGANOS and N. VLAHAKIS / Steady MHD Solutions for Collimated Winds	183

Y. UCHIDA, M. NAKAMURA, S. HIROSE and S. UEMURA / Magnetodynamic Formation of Jets in Accretion Process of Magnetized Mass onto the Central Gravitator – Cases of Forming Stars and Active Galactic Nuclei	195
MULTI-ION AND DUSTY PLASMAS	
H. KIMURA, I. MANN and A. WEHRY / Interstellar dust in the Solar System	213
S.I. POPEL and V.N. TSYTOVICH / Shocks in Space Dusty plasmas	219
K. JOCKERS, T. BONEV and T. CREDNER / Observations of Ions in Comets: A Contribution towards Understanding the Comet-Solar Wind Interaction	227
P.K. SHUKLA / Waves and Instabilities in Magnetized Dusty Plasmas	235
H. KRÜGER, E. GRÜN, A. GRAPS, S. LAMMERS / Observations of Electromagnetically Coupled Dust in the Jovian Magnetosphere	247
M. HORÁNYI / Dust Plasma Interactions at Jupiter	257
E. DUBININ and K. SAUER / The Martian Magnetosphere – a Laboratory for Bi-Ion Plasma Investigations	273
NONLINEAR DYNAMICS, DYNAMO, PLASMA TURBULENCE	
K. SCHINDLER / Formation of Thin Current Sheets and Other Recent Developments in Magnetospheric Activity	289
T. CHANG / Self-Organized Criticality, Multi-Fractal Spectra, and Intermittent Merging of Coherent Structures in the Magnetotail	303
A.V. MILOVANOV and L.M. ZELENYI / Fracton Excitations as a Driving Mechanisms for The Self-Organized Dynamical Structuring in The Solar Wind	317
H. WIECHEN, G.T. BIRK and H. LESCH / Self-Generation of Magnetic Fields in Weakly Ionized Astrophysical Plasmas	347
S.A. COLGATE and H. LI / Dynamo Dominated Accretion and Energy Flow: The Mechanism of Active Galactic Nuclei	357
J.I. SAKAI, Y. KAZIMURA and S.V. BULANOV / Generation of Magnetic Field and Fast Particles during Collision of Electron-Positron Plasma Clouds	381
NONTHERMAL RADIATION	
D.B. MELROSE / Coherent Emission in Astrophysics: A Critique	391
D.B. MELROSE / Radiation from Instabilities in Space Plasmas	401
M. LYUTIKOV / Coherent Emission Mechanisms in Radio Pulsars	411
COSMIC RAY AND PARTICLE ACCELERATION	
P.L. BIERMANN / The Origin of Highest Energy Cosmic Rays and Cosmic Magnetic Fields	423

W.-H. IP and W.I. AXFORD / Cosmic Rays and Clusters of Galaxies	437
L.I. DORMAN / Cosmic Ray Nonlinear Processes in Space Plasma: Applications to the Dynamic Heliosphere	443
R. SCHLICKEISER and R. VAINIO / Recent Developments in Quasi-linear Cosmic Ray Particle Acceleration Theories	457
K. MANNHEIM / Constraints on Particle Acceleration from the Extragalactic X-Ray Background	471
N. SHIMADA, T. TERASAWA, M. HOSHINO, T. NAITO, H. MATSUI, T. KOI, K. MAEZAWA and THE GEOTAIL/LEP/MGF/HEP TEAMS / Diffusive Shock Acceleration of Electrons at an Interplanetary Shock Observed on 21 Feb. 1994	481
G. MANN, H.-T. CLASSEN, U. MOTSCHMANN, H. KUNOW and W.DRÖGE / High Energetic Electrons Accelerated by a Coronal Shock Wave	489
M.A. LEE / The Injection, Acceleration, and Dynamical Influence of Interstellar Pickup Ions at the Solar Wind Termination Shock	497
S.V. CHALOV and H.J. FAHR / Interplanetary Pick-Up Ion Acceleration	509
M. SCHOLER and H. KUCHAREK / Dissipation, Ion Injection, and Acceleration in Collisionless Quasi-Parallel Shocks	527
S.M.P. McKENNA-LAWLOR, E. KIRSCH and P. DALY / Particle Acceleration at Comet Related Shock Surfaces	545

POSTER CONTRIBUTIONS

G.T. BIRK and H. WIECHEN / Radio Activity in Young Stellar Objects	567
D.I. BOJSKOV, A.M. KRYMSKII, T.K. BREUS and W.I. AXFORD / Two Dimensional Models of the Coronal Magnetic Field	573
T. BURINSKAYA and E. INDENBOM / Low Frequency Electrostatic Waves Generated by Nongyrotropic Ion Distributions	581
A. CZECHOWSKI, R. RATKIEWICZ, J.F. MCKENZIE and W.I. AXFORD / Minor Ions and Acceleration of the Fast Solar Wind	593
A.D. DAS and W.-H. IP / Field Aligned Current and Particle Acceleration near IO-Plasma Torus	599
L.I. DORMAN / Angle Distribution and Time Variations of Gamma Ray Fluxes Generated by Galactic Cosmic Rays in Solar and Stellar Winds	603
L.I. DORMAN / Interaction of Flare Energetic Particles with Solar and Stellar Wind Plasma: Expected Spacetime Distribution of Gamma Ray Emissivity	613
L.I. Dorman and V. SHOGENOV / Charged Particle Acceleration in Space Plasma with Two Types of Scatterers	625

T.A. ENNSLIN, P.L. BIERMANN, U. KLEIN and S. KOHLE / Shock Waves of the Large-Scale Structure Formation in the Universe	633
E.KIRSCH, U. MALL, B. WILKEN, K. CIERPKA, A.B. GALVIN, G. GLOECKLER and K. CHOTOO / Lower Cut-Off Energy of The-Rich Solar Particle Events?	639
J.-P. KUSKA and J. BÜCHNER / The Three-Dimensional Fully Kinetic Electro-Magnetic PIC Simulation Code GISMO	645
H. LESCH, G.T. BIRK and H. WIECHEN / Inertia-Driven Reconnection in Extragalactic Jets	653
M. LYUTIKOV / Induced Raman Scattering in Pulsars	659
I. MANN, J.R. KUHN, R.M. MACQUEEN, H. LIN, D. EDMUNDS, H. KIMURA, J. STREETE, P.L. JUDGE, P. HILLEBRAND and G. TANSEY / Observations of the Solar Eclipse on February 26, 1998: Study of the Solar F-Corona	667
E. MISHIN and M. BANASZKIEWICZ / Non-Adibatic Acceleration of Conic 0^+ Ions in Auroral ‘Electrostatic Shocks’	673
B. NIKUTOWSKI, J. BÜCHNER, S. KLIMOV, A. PETRUKOVICH, S. ROMANOV, S. SAVIN / INTERBALL Observations of Field Aligned Current Signatures due to Collisionless reconnection	687
S.I. POPEL / Modulational Interaction and Formation of Coherent Structures in the Magnetosphere	693
F.M. RIEGER, J.G. KIRK and A. MASTICHIADIS / On the Nonthermal X-Ray Emission in Blazar Jets	699
F.M. RIEGER and K. MANNHEIM / Centrifugal Acceleration in Jets from AGN	705
K. SCHERER, H. FICHTNER and H.-J. FAHR / The Acceleration Time of Anomalous Cosmic Rays	711
R. SCHOPPER, H. LESCH and G.T. BIRK / Particle Acceleration in Magnetic Reconnection Zones	719
A. SCHRÖER, G.T. BIRK and Y. SHCHEKINOV / The Galactic Disk-Halo System: Hydrostatistic Equilibrium and Structuring	725
P.K. SHUKLA, L. STENFLO, H.A. BETHE, R. BINGHAM, J.M. DAWSON, L.O. SILVA and J.T. MENDONCA / Neutrinos as Building Blocks of the Universe	731
T. WIEGELMANN, K. SCHINDLER and T. NEUKIRCH / Helmet Streamers with Triple Structures: Stationary States and Dynamics	739
Q.-G. ZONG, B. WILKEN and S.-Y. FU / Particle Dynamics in the Magnetotail with Time Dependent Electric Field	747

