

CONTENTS

VOL. 3 (MOD-92 to 120 — EAS-1 to 60 — HE-1 to 50)

	Page
MOD-92 Calculation of the Daily Variation of Cosmic-Ray Cutoff Rigidities at Fort Churchill, Canada. D. F. SMART	843
MOD-93 Calculation of Cosmic-Ray Trajectories for Palestine, Texas, USA—Cutoff Rigidities and the Origin of the Re-Entrant Albedo. M. A. SHEA and D. F. SMART	848
MOD-94 Calculation of the Magnitude of the Daily Variation of Vertical Cutoff Rigidities and Associated Changes in the Neutron Monitor Response for Selected North American Neutron Monitors. M. A. SHEA and D. F. SMART	854
MOD-95 Changes in Neutron Monitor Response and Vertical Cutoff Rigidities Resulting from Secular Variations in the Geomagnetic Field. M. A. SHEA	859
MOD-96 Registration of Additional Flux of Energetic Electrons in the Upper Layers of the Atmosphere. A. M. GALPER, V. V. DMITRENKO, V. G. KIRILLOV-UGRYUMOV, B. I. LUCHKOV, Yu. A. NIKOLAYEV and E. M. SHERMANZON. Abstract	865
MOD-97 Measurement of Albedo Electron Flux in the 100-1500 MeV Energy Range. A. M. GALPER, V. V. DMITRENKO, V. G. KIRILLOV-UGRYUMOV, B. I. LUCHKOV, Yu. A. NIKOLAYEV and A. M. SHERMANZON. Abstract	866
MOD-98 An Investigation of Recurrence Phenomena in Geomagnetic K_p -data and Solar Magnetic Fields and Their Interrelationship. H. HAUSKA. Abstract	867
MOD-99 Periodic Variations in Geomagnetic K_p -Data from 1932 through 1969. H. HAUSKA and E. DYRING. Abstract	868
MOD-100 The Latitudinal-Longitudinal Cosmic Ray Intensity Measurements in the Stratosphere. A. N. CHARAKCHYAN, A. K. SVIRZHEVSKAYA and Yu. I. STOZHKOVA. Abstract	869
MOD-101 Anomalous Longterm Modulation of Cosmic Rays during the present Solar Cycle. P. H. STOKER, B. C. RAUBENHEIMER and A. J. van der WALT	870
MOD-102 Neutron Flux Variations Near the Cosmic Ray Knee. D. V. SLADE	876
MOD-103 Fast Neutron Attenuation Coefficient in the Atmosphere. N. G. SIMPSON and D. V. SLADE	881
MOD-104 Dependence of the Neutron Monitor Attenuation Coefficient on Atmospheric Depth and on Geomagnetic Cutoff in 1966 and in 1970. H. CARMICHAEL and R. W. PETERSON	887
MOD-105 Attenuation Coefficients of Various Cosmic Ray Components in the Lower Atmosphere. B. C. RAUBENHEIMER and P. H. STOKER	893
MOD-106 Spectra and Zenith Angle Dependence of Slow Muons in Hong Kong. L. S. CHUANG, W. H. NG and M. WADA	897
MOD-107 Solar Modulation of Atmospheric Neutron Flux, Experiment and Calculation. E. S. LIGHT, M. MERKER, S. A. KORFF and R. B. MENDELL	903
MOD-108 Solar Cycle Change of the Attenuation Coefficient of the Nucleonic Component at High Latitude. F. BACHELET, N. IUCCI and G. VILLORESI. Abstract	909
MOD-109 Latitude, Altitude and Primary Modulation Effects on the Multiplicity Distribution in the NM-64 Neutron Monitors. N. IUCCI, M. PARISI, M. STORINI, G. VILLORESI and W. K. GRIFFITHS. Abstract	910
MOD-110 Calculation of the Multiplicity Yield Function of the NM-64 Neutron Monitor. H. DEBRUNNER and E. FLUCKIGER	911

		Page
MOD-111	Star Producing Nucleons in the Stratosphere. N. G. SIMPSON and V. D. HOPPER	917
MOD-112	The Directional Dependence of Sea Level Muon Coupling Coefficients. D. J. COOKE and A. G. FENTON	923
MOD-113	A Probability Calculation Method of Integral Multiplicity and Specific Yield Functions of the Neutron Cosmic Ray Component. A. A. LUZOV, Y. G. MATJUKHIN, V. E. SDOBNOV. Abstract	929
MOD-114	Discovery and the Analysis of Variations of Magnetospheric and Interplanetary Origin on Data of a Cosmic Ray Spectrograph. A. A. LUZOV, A. V. SERGEEV and A. L. YANCHUKOVSKY. Abstract	930
MOD-115	A Spectrographic Complex of Instruments for Investigation of Cosmic Ray Intensity Variations. A. A. LUZOV, A. V. SERGEEV and A. L. YANCHUKOVSKY. Abstract	931
MOD-116	Determination of Barometric Corrections to the Cosmic Ray Neutron Component Intensity Variations during Solar Flares and Forbush-Decreases using Partial Barometric Coefficient. L. I. DORMAN and O. I. YAKHNO. Abstract	932
MOD-117	Calculations of Meteorological Effects for Hard and Soft Muons. L. I. DORMAN and V. G. YANKE. Abstract	934
MOD-118	The Partial Barometric Coefficients of the Intensity of the Cosmic Ray Neutron Component by the Data of the World Network of Stations. L. Kh. SHATASHVILI and O. G. ROGAVA. Abstract	936
MOD-119	Study of an Atmospheric Anomaly Near the Andes Mountains in the Calculation of the Barometric Coefficient of the Secondary Cosmic Ray Flux. G. ALVIAL, H. LARA and G. MEZZETTI. Abstract	937
MOD-120	Forty Years After. V. J. KISSELBACH	938

		Page
EAS-1	T.I.F.R. Air Shower Experiments. B. V. SREEKANTAN. Abstract	944
EAS-2	Chacaltaya Large Air Shower Experiment. T. KANEKO, C. YOKOYAMA, K. NISHI, G. MEJIA, A. TREPP, C. AGUIRRE, L. MURAKAMI, K. KAMATA, K. SUGA and Y. TOYODA. Abstract	945
EAS-3	The Yakutsk Complex EAS Array. T. A. YEGOROV, N. N. EFIMOV, V. A. KOLOSOV, D. D. KRASILNIKOV, A. I. KUZMIN, V. P. KULAKOVSKAYA, S. V. MAKSIMOV, V. A. ORLOV, V. V. SIZOV, G. V. SKRIPIN, I. E. SLEPTSOV, F. K. SHAMSUTDINOVA, S. N. VERNOV, G. B. KHRISTIANSEN and S. I. NIKOLSKY. Abstract	946
EAS-4	A Cosmic Ray/Supernova Detection Array. S. A. COLGATE and B. D. O'DONNELL. Abstract	947
EAS-5	AS Cores Observed by Spark Chambers and Scintillators at Mt Norikura. S. DAKE, K. ASAYAMA, K. JITSUNO, K. NISHIKAWA, M. SAKATA, Y. YAMAMOTO and Y. HATANO	948
EAS-6	The Relation Between High Energy γ -Rays and AS Cores. S. DAKE, M. HAZAMA, K. JITSUNO, K. NISHIKAWA, M. SAKATA, Y. YAMAMOTO and Y. HATANO	954
EAS-7	High Energy Hadrons of Extensive Air Showers. T. MATANO, M. MACHIDA, K. OHTA, T. ISHIZUKA and G. TANAHASHI. Abstract	957
EAS-8	New Studies of EAS and Cosmic Ray Composition at Energies $\sim 3 \times 10^{12}$ eV. J. E. GRINDLAY. Abstract	958
EAS-9	The Chemical Composition of Cosmic Radiation at Energies of 3×10^{15} to 10^{16} eV. M. SAMORSKI, R. STAUBERT, J. TRUMPER and E. BOHM	959
EAS-10	The Possibility of a Significant Flux of Primary γ -Rays above 10^{18} eV. J. WDOCZYK, W. TKACZYK, C. ADCOCK and A. W. WOLFENDALE	965
EAS-11	The Dependence of Air Shower Particle Spectra on High Energy Interaction Models as Derived from Simulations. I. Models and General Properties of Particle Spectra. P. K. F. GRIEDER	970
EAS-12	The Dependence of Air Shower Particle Spectra on High Energy Interaction Models as Derived from Simulations. II. Comparison with Experimental Data and Other Simulations. P. K. F. GRIEDER	976
EAS-13	Simulation of the EAS Arrays Behaviour towards Showers Parameters. J. HIBNER, J. KEMPA, Ph. CATZ, J. P. HOCHART and R. MAZE. Abstract	982
EAS-14	Simulation of Extensive Air Showers with Energy 10^{17} - 10^{20} eV. L. GOOREVICH	983
EAS-15	The Energy Spectrum from 5×10^{16} to 10^{21} eV. C. J. BELL, A. D. BRAY, R. G. BROWNLEE, G. CHAPMAN, S. DAVID, B. DENEHY, L. GOOREVICH, L. HORTON, J. LOY, C. B. A. McCUSKER, A. OUTHRED, L. S. PEAK, J. ULRICH, L. WILSON and M. M. WINN	989
EAS-16	Study of Air Showers of Energies above 10^{18} eV. S. KAWAGUCHI, H. SAKUYAMA, K. SUGA, M. TAKANO, K. UCHINO, T. HARA, M. NAGANO and G. TANAHASHI. Abstract	994
EAS-17	The Energy Spectrum of Large Air Showers. D. ANDREWS, D. EDGE, A. C. EVANS, R. J. O. REID, R. M. TENNENT, A. A. WATSON, J. G. WILSON and A. M. WRAY	995
EAS-18	Measurement of Primary Energy of Air Showers in the Presence of Fluctuations. A. M. HILLAS, D. J. MARSDEN, J. D. HOLLOWES and H. W. HUNTER	1001

		Page
EAS-19	Calculated Density Distributions of Particles in Air Showers, and Their Sensitivity to Primary Mass and Assumed Interaction Characteristics. A. M. HILLAS, J. D. HOLLOWES, H. W. HUNTER and D. J. MARSDEN	1007
EAS-20	The Connection between Longitudinal Fluctuations in Shower Development and Particle Arrival Times and Densities at Large Axial Distances. D. J. MARSDEN, A. M. HILLAS, J. D. HOLLOWES and H. W. HUNTER	1013
EAS-21	Some Arguments in Favour of the Conventional EAS Model Revision. N. N. KALMYKOV, G. B. KHRISTIANSEN and Yu. A. FOMIN. Abstract	1019
EAS-22	Angular-Radial Distribution of Particles in the Electromagnetic Cascade. N. M. GERASIMOVA and M. Z. IOFA. Abstract	1020
EAS-23	The Spatial Distribution of the Particles in the Electron-Proton Showers Developed in the Isothermal Atmosphere. V. V. GUZHAVIN, I. P. IVANENKO and Yu. I. PASHALOV. Abstract ...	1021
EAS-24	Investigations of the High Energy Interactions on the Basis of Air Shower Data. M. GILER, J. KEPMA, J. OLEJNICZAK, J. WDOWCZYK and E. ZUJEWSKA. Abstract	1022
EAS-25	Fluctuations and Correlations of Particle Numbers in Electromagnetic Showers. R. G. BETMAN and E. V. GEDALIN. Abstract	1023
EAS-26	Lateral Structure of Large EAS. S. MIYAKE, N. ITO, S. KAWAKAMI, N. HAYASHIDA and N. SUZUKI. Abstract	1024
EAS-27	Soft Component of Large EAS Observed by S.U.G.A.R. L. S. WILSON J. ULRICH, C. B. A. McCUSKER, J. G. LOY and A. D. BRAY	1025
EAS-28	Angular Distribution of Extensive Air Showers at Large Zenith Angles. Ph. CATZ, J. GAWIN, J. P. HOCHART, R. MAZE and J. WDOWCZYK	1030
EAS-29	Change in the EAS Age Parameter S as a Function of the Content of the Penetrating Component. Ph. CATZ, J. P. HOCHART, R. MAZE and A. ZAWADZKI	1035
EAS-30	The Longitudinal Distributions of Electrons and Muons in the EAS Disk. C. P. WOIDNECK, E. BOHM, J. TRUMPER and E. J. de VILLIERS	1038
EAS-31	The Electron Component of EAS. P. R. BLAKE, H. FERGUSON and W. F. NASH. Abstract	1043
EAS-32	The Muon Content of Large EAS. P. R. BLAKE, H. FERGUSON, W. F. NASH and D. W. E. THOMAS	1044
EAS-33	The Variation of the Muon Content of EAS with Zenith Angle. P. R. BLAKE, H. FERGUSON and W. F. NASH	1050
EAS-34	The Lateral Density Distribution of Muons in EAS. P. R. BLAKE, H. FERGUSON and W. F. NASH	1056
EAS-35	Muon Bundles in EAS. P. R. BLAKE, H. FERGUSON and W. F. NASH	1062
EAS-36	The Arrival Time Spread of Muons in EAS. M. ARMITAGE, P. R. BLAKE, H. FERGUSON, W. F. NASH and D. W. E. THOMAS	1068
EAS-37	The Investigation of the Electron and Muon Components. G. B. KHRISTIANSEN, O. V. VEDENEEV, G. V. KULUKOV, V. I. NAZAROV and V. I. SOLOVJEVA. Abstract	1074
EAS-38	Investigation of Muons Near Shower Axis. N. P. ILYINA, N. N. KALMYKOV, B. A. KHRENOV, G. B. KHRISTIANSEN and Z. V. JAROCKINA. Abstract	1075
EAS-39	On Results of Study of the Vertical Muon Energy Spectrum with Energies $5 \cdot 10^{11} \leq E_{\mu} \leq 5 \cdot 10^{12}$ eV. G. B. KHRISTIANSEN, O. V. VEDENEEV, Yu. A. NECHIN. Abstract	1076

	Page
EAS-40	EAS Accompaniment of High Energy Muons. V. S. ASEIKIN, A. D. ERLYKIN, A. K. KULICHENKO, S. K. MACHAVARIANI, S. I. NIKOLSKY, V. A. ROMAKHIN and V. D. YANMINCHEV. Abstract 1077
EAS-41	The Energy Spectrum of Vertical Cosmic Muons. A. D. ERLYKIN, A. K. KULICHENKO, S. K. MACHAVARIANI, S. S. MAZNICHENKO and E. A. MESHKOV. Abstract 1078
EAS-42	The Muon Lateral Distribution for Very Large Air Showers. L. G. DEDENKO and I. A. DIMOVA. Abstract 1079
EAS-43	Electron and Muon Number Spectra of Extensive Air Showers at 3340 m A.S.L. V. S. ASEIKIN, D. BENKO, N. V. KABANOVA, N. M. NESTEROVA, N. M. NIKOLSKAJA, V. A. ROMAKHIN, Y. N. STAMENOV and V. D. JANMINCHEV. Abstract 1080
EAS-44	The Heights of Origin of Muons in Large Air Showers. J. C. EARNSHAW, A. C. MACHIN, K. J. ORFORD, D. R. PICKERSGILL and K. E. TURVER 1081
EAS-45	The Momentum Spectra of Muons at High Momenta in Large Air Showers. J. C. EARNSHAW, A. C. MACHIN, K. J. ORFORD, D. R. PICKERSGILL and K. E. TURVER 1086
EAS-46	The Muon Component of Inclined Air Showers. L. BRIATORE, M. DARDO, and K. SITTE. Abstract 1092
EAS-47	Coherent Production in E.A.S. J. WDOWCZYK and A. W. WOLFENDALE 1093
EAS-48	The Lateral Distributions of the Particle Densities and of Cerenkov Lights of EAS at Sea Level. T. A. EGOROV, V. A. KOLOSOV, D. D. KRASILNIKOV, V. A. ORLOV and I. E. SLEPTSOV. Abstract 1096
EAS-49	The Mechanism of EAS Radio Emission. H. R. ALLAN, J. K. JONES, N. MANDOLESI, J. H. PRAH and P. SHUTIE 1097
EAS-50	The Dependence of Radio Pulse Amplitude on Frequency and on Air Shower Particle Parameters. H. R. ALLAN, J. K. JONES, N. MANDOLESI, J. H. PRAH and P. SHUTIE 1102
EAS-51	The Lateral Distribution of the Radio Emission, and its Dependence on the Longitudinal Structure of the Air Shower. H. R. ALLAN 1108
EAS-52	Radio Emission and the Structure of the Shower Disc. H. R. ALLAN 1113
EAS-53	The Design of Extensive Radio Arrays for the Detection of Large Air Showers. R. E. SPENCER 1119
EAS-54	On Possibility of Measuring the Nuclear Composition of Primary Cosmic Rays in the UH Energy Range. V. D. VOLOVIK, I. I. ZALYUBOVSKY, V. T. LAZURIK-ELTSUFIN, G. A. CHEKHUTSKY and E. S. SHMATKO. Abstract 1123
EAS-55	The Study of Radio Emission with a Frequency of 30 MHz from Extensive Air Showers at the Moscow State University Array. G. B. KHRISTIANSEN, V. B. ATRASHKEVITCH, O. V. VEDENEEV and V. V. PROSIN. Abstract 1124
EAS-56	Observation of Radio Pulses at Three Frequencies with the Same Antenna. W. W. HAZEN, A. Z. HENDEL, H. SMITH and R. J. CASTLE 1125
EAS-57	Radio Pulses as a Result of Atmospheric Electric Fields. W. A. HAZEN and A. Z. HENDEL 1127
EAS-58	Radio Wave Emission from Extensive Air Showers. M. FUJII and J. NISHIMURA. Abstract 1131
EAS-59	Lateral Distribution of Radio Signals from Cosmic Ray Air Showers. R. W. CLAY, J. H. HOUGH and J. R. PRESCOTT 1132
EAS-60	Altitude Variations in EAS in the Upper Atmosphere. R. A. ANTONOV, I. P. IVANENKO, B. E. SAMOSUDOV and Z. I. TULINOVA. Abstract 1136

	Page
HE-1 The Torino Search for Quarks. I. Delayed Interactions Observed Under-ground. M. DARDO, G. NAVARRA, P. PENENGO and K. SITTE	1137
HE-2 The Torino Search for Quarks. II. Preliminary Results of a Spark Chamber Experiment. P. PICCHI, R. VISENTIN, L. BRIATORE, R. D'ETTORRE PIAZZOLI, A. PIANO and K. SITTE	1144
HE-3 The Torino Search for Quarks. III. Preliminary Results of a Combined Ionization — Interaction Experiment. L. BRIATORE, M. DARDO and K. SITTE. Abstract	1149
HE-4 The Torino Search for Quarks. IV. Re-Assessed Upper Limits of Quark Fluxes. G. BOSIA, L. BRIATORE and K. SITTE.	1150
HE-5 Search for New Species of Particles in the Cores of Extensive Air Showers. P. C. M. YOCK and A. CHISHOLM	1156
HE-6 Cosmic Ray Quark Search at Michigan. W. E. HAZEN	1160
HE-7 A Cosmic-Ray Quark Search with a Large Cloud Chamber. W. E. HAZEN, A. L. HODSON and D. F. WINTERSTEIN	1161
HE-8 Search for $e/3$ Quarks in E.A.S. F. ASHTON, K. TSUJI and A. W. WOLFENDALE	1162
HE-9 Search for $e/3$ and $2e/3$ Charged Quarks in the Cosmic Radiation at 2750 Meters. A. J. COX, W. T. BEAUCHAMP, T. BOWEN and R. M. KALBACH. Abstract	1167
HE-10 A Search for $4e/3$ Charged Quarks in the Cosmic Radiation at 2750 Meters. W. T. BEAUCHAMP, T. BOWEN, A. J. COX and R. M. KALBACH. Abstract	1168
HE-11 The Parton Model and the Limiting Fragmentation Hypothesis in View of Cosmic Ray Jet Interactions at the Tev Range. J. IWAI. Abstract	1169
HE-12 Submuons and HAS. L. G. DEDENKO and I. M. ZHELEZNYKH. Abstract	1170
HE-13 Large Delay-High Energy Hadrons in Extensive Air Showers — Possible Evidence for Heavy Mass Particles. S. C. TONWAR, S. NARANAN and B. V. SREEKANTAN	1171
HE-14 Time Structure of Hadrons in Extensive Air Showers and Models of High Energy Interactions. S. C. TONWAR and B. V. SREEKANTAN	1177
HE-15 Kaon and Baryon-Antibaryon Production in the range of a Few TeV Primary Energy. P. K. MALHOTRA and R. RAGHAVAN	1182
HE-16 Search for Tachyons in Cosmic Radiation. P. V. RAMANA MURTHY. Abstract	1188
HE-17 Heavy Leptons and Cosmic Rays. S. PAKVASA, W. SIMMONS and K. TENNAKONE	1189
HE-18 Properties of Proton-Proton Interactions above 100 GeV. A. E. BUSSIAN, B. CORK, G. D. DeMEESTER, K. N. ERICKSON, L. W. JONES, J. G. LEARNED, B. W. LOO, D. E. LYON, F. E. MILLS, P. V. RAMANA MURTHY, D. D. REEDER, R. ROTH, P. R. VISHWANATH and J. WILKES	1194
HE-19 Energy Dependence of the Neutral-to-Charged Ratio at Chacaltaya. W. E. HAZEN, A. Z. HENDEL and S. R. WEINER	1200
HE-20 Evidence for Rising Inelastic Cross-Section in Proton-Air Collisions from Cosmic Ray Spectra. G. B. YODH and Y. PAL. Abstract	1205
HE-21 Mechanisms of Inelastic Interactions of Particles and Nuclei at Super-high Energies. V. S. BARASHENKOV and S. M. ELISEEV. Abstract	1206

	Page
HE-22 Energy Dependence of Cross Sections of Cosmic Ray Nuclei in Tungsten. V. K. BALASUBRAHMANYAN, C. J. CRANNELL, F. A. HAGEN, J. F. ORMES and M. J. RYAN	1207
HE-23 Hadron-carbon Pionization Cross-Section in the Energy Range 30 to 300 GeV. A. V. ALAKOZ, L. F. VASSILIEVA, P. S. VASSILIEV, V. S. LAKAEV and A. P. SHMELEVA. Abstract	1211
HE-24 Research into Properties of Hadrons with the Help of Multi-Layer Proportional Counter at Mountain-top level. G. L. BASHINDJAGYAN, V. S. MURZIN, L. I. SARYCHEVA and N. B. SINYOV. Abstract	1212
HE-25 Measurement of Inelastic Cross Sections of Space Hadrons' Interactions with Various Nuclei. G. L. BASHINDJAGYAN, V. M. BELOKOPYTOV, A. I. DEMIANOV, V. S. MURZIN, L. I. SARYCHEVA and N. B. SYNOV. Abstract	1213
HE-26 Measurements of Effective Cross-Sections of Inelastic Proton Interaction with Carbon Nuclei in the 10^{11} - 10^{12} eV Energy Range on Proton-4 Satellite. N. L. GRIGOROV, N. A. MAMONTOVA, I. D. RAPOPORT, I. A. SAVENKO, V. V. AKIMOV and V. E. NESTEROV. Abstract	1214
HE-27 On the Interpretation of Multiple Processes. S. A. GUWITZ, E. I. DAIBOG and I. L. ROZENTAL. Abstract	1215
HE-28 About the Superheavy Fireballs. M. I. TRETYAKOVA and G. B. ZHDANOV. Abstract	1216
HE-29 An Extension of F-Plot. H. FUKUSHIMA and K. KOBAYAKAWA	1217
HE-30 Method for Determining Fire Ball Spin. S. IIDA and Y. MURAKI	1224
HE-31 A Speculation for Deeply Inelastic-Elastic Collision. Y. MURAKI and M. NAKAGAWA	1229
HE-32 Investigation of Some Characteristics of Hadrons with the Energy Above 1 TeV Interacting with the Lead Nuclei. R. A. NAM, S. I. NOKOLSKY, V. P. PAVLUTCHENKO and V. I. YAKOVLEV. Abstract	1234
HE-33 Nuclear Interactions of Protons of Energies 10^{12} - 10^{14} eV (Chacaltaya Burst Experiment). T. KANEKO, C. YOKOYAMA, C. AGUIRRE, A. TREPP, G. R. MEJIA, K. MURAKAMI, K. KAMATA, Y. TOYODA, T. MAEDA, K. SUGA, K. UCHINO, M. LaPOINTE and P. K. MacKEOWN. Abstract	1235
HE-34 Proton and Pion Momentum Spectra at Sea Level in the Range 1-30 GeV/c. I. S. DIGGORY, H. E. DIXON, J. C. EARNSHAW, J. R. HOOK, I. A. JENKINS, G. C. MASLIN, B. D. O'DONNELL, K. J. ORFORD and K. E. TURVER	1236
HE-35 The Study of High Energy Interactions Pions and Nucleons with Nucleus at the "Kum-Bel" Mountain Stations. S. A. AZIMOV, A. M. ABDULLAEV, R. U. BEISEMBAEV, V. M. MIALKOVSHI, E. D. MULLADZHONOV and T. S. YULDASHBAEV. Abstract	1241
HE-36 Comparison of the Energy Response of an Ionization Spectrometer for Pions and Protons. W. V. JONES and S. D. VERMA	1242
HE-37 Parameters of Nuclear Interactions of Cosmic Ray Particles with Energy Above 100 GeV. O. L. BERDZENISHVILI, D. I. GARIBASHVILI, Yu. A. GROMOV, D. M. KOTLIAREVSKI, E. S. MAILIAN, Z. Sh. MANJAVIDZE, I. D. MANJAVIDZE, V. A. MIKHAILOV, N. N. ROINISHVILI, L. D. CHIKOVANI and E. N. SHERRER. Abstract	1247
HE-38 Inelastic Process at the Energy Above 200 GeV and the Phase Space of Extended Objects. L. L. GABUNIA, D. I. GARIBASHVILI, A. B. IVANOVA, D. M. KOTLIAREVSKI, Z.Sh. MANJAVIDZE, I. D. MANJAVIDZE, S. N. POLIAKOVA, L. A. RAZOL'SKAIA, N. N. TOINISHVILI, N. G. TATLASHVILI, E. H. CHADRANIAN, E. N. SHERRER and A. N. KHIZANISHVILI. Abstract	1248

	Page
HE-39 The Flux of Pions at the Energy of 200 GeV and Their Interactions with Atomic Nuclei. V. G. DENISOVA, V. V. GUSEVA, V. M. KIM, K. A. KOTELNIKOV, V. M. MAKSIMENKO, V. S. PUCHKOV, S. A. SLAVATINSKY, I. N. FETISOV and N. G. ZELEVINSKAYA. Abstract	1249
HE-40 About Energetically Selected Charged and Neutral Particles in π^- —N Interactions at 60GeV/c. G. I. ORLOVA and M. I. TRETJAKOVA. Abstract	1250
HE-41 Classification of Inelastic Interactions at High Energies. A. M. LEBEDEV, S. A. SLAVATINSKY and N. G. ZELEVINSKAYA. Abstract	1251
HE-42 The Large Air Shower Event "Andromeda" Observed in Emulsion Chamber. Y. FUJIMOTO. Abstract	1252
HE-43 Atmospheric Interactions Observed by Chacaltaya Emulsion Chamber. Y. FUJIMOTO. Abstract	1253
HE-44 Nuclear Interactions in Chacaltaya Emulsion Chamber. Y. FUJIMOTO. Abstract	1254
HE-45 Power-Law Energy Spectrum Deduced from the Angular Distribution of Nuclear Interactions of 20 to $\sim 10^3$ GeV. C. O. KIM and K. S. SIM	1255
HE-46 Observations of ~ 200 GeV Nuclear Events by Spark-Emulsion-Chamber. K. HOSHINO, Y. OHASHI, A. OKADA, K. TAIRA and K. YOKOI. Abstract	1261
HE-47 Observation of High Energy Interactions at Aeroplane Altitude. K. NIU, I. OHTA and E. MIKUMO. Abstract	1262
HE-48 Survey of Heavy Particles at Sea Level and Mountain Height. A. M. GALPER, V. A. GOMOZOV, V. G. KIRILLOV-UGRYUMOV, Yu. D. KOTOV, B. I. LUCHKOV and V. N. YUROV. Abstract	1263
HE-49 A Nuclear Interactions in the Atmosphere at Energy of $\sim 5 \cdot 10^{14}$ eV. G. B. ZHDANOV, S. I. BRIKKER, A. V. PODGURSKAYA and L. M. POPERYEKOVA. Abstract	1264
HE-50 On Observed and Predicted Multiplicities in Very High Energy Interactions. P. K. F. GRIEDER	1265

