

CONTENTS

TABLE DES MATIÈRES

VOLUME II

PION PHYSICS

Bubble chambers

The University of Michigan bubble chamber program

Liquid hydrogen bubble chambers

Hydrogen bubble chamber used for low-energy meson scattering

Liquid helium bubble chambers

Measurement of the ionizing capacity of particles in a bubble chamber

On n-pentane bubble chambers

An attempt to control a bubble chamber by counters

Programme de construction des chambres à bulles à Saclay

Discussions

Over-compression chambers and other track chambers

Fast cycling cloud chambers

Observations on the behaviour of a small over-compression chamber

Operation of a multiplate cloud chamber at the Cosmotron.

Notes on cloud chambers for use with high energy accelerators

An electronic scanner for nuclear emulsions

On the hodoscope chamber

Discussions

LA PHYSIQUE DES MÉSONS II

Chambres à bulles

Brown, J.L., Dodd, C., Glaser, D.A.,
Perl, M. L. and Rahm, D. C. 3

Alvarez, L. W. 13

Nagle, D. E., Hildebrand, R. H.
and Plano, R. J. 16

Harth, E. M., Block, M. M.,
Fairbank, W.M., Buckingham M.J.,
Slaughter, G. G. and Blevins, M. E. 22

Blinov, G. A., Krestnikov, Iu. S.
and Lomanov, M. F. 25

Bassi, P., Loria, A., Meyer, J. A.,
Mittner, P., and Scotoni, I. 28

Bertanza, L., Franzini, P.,
Martelli, G., and Tallini, B. 29

Rogozinski, A. et Vilain, J. 31

12, 21,
24, 27, 30

Chambres à surcompression et autres chambres à trajectoires

Barford, N. C. 35

Walker, J., Bower, J. C. and
Hadley, D. W. 40

Bridge, H. S. 43

Butler, C. C., and Redding, J. L. 45

Amaldi, E., Castagnoli, C. and
Franzinetti, C. 51

Barsanti, G., Conversi, M., Fo-
cardi, S., Murtas, G. P., Rubbia, C.
and Torelli, G. 56

41, 49, 55

Čerenkov and other fast counter techniques		Techniques du compteur de Čerenkov et d'autres compteurs rapides
Čerenkov counters		Marshall, J. 63
Recent advances in millimicrosecond counting techniques		Chamberlain, O. 69
A study of the Panofsky ratio using a total absorption Čerenkov counter		Cassels, J. M. 74
Čerenkov counters		Hofstadter, R. 75
Some remarks on the resolution of the focusing type of Čerenkov counter, and the design of a simple energy-measuring instrument for use with the Birmingham Proton Synchrotron.		Jelley, J. V. 76
The velocity-selecting Čerenkov counter		Chamberlain, O. and Wiegand, C. 82
A large Čerenkov counter for the detection of high energy photons and electrons		Filosofo, I. and Yamagata, T. 85
High precision measurement of the ionizing power of fast charged particles with the help of multi-layer proportional counters		Alikhanov, A. I., Lubimov, V. A. and Eliseiev, G. P. 87
Neutron time of flight techniques in the 100 Mev region		Stafford, G. H. 99
Discussions		68, 80, 83
 Antiproton physics		 Physique des antiprotons
A review of the antiproton work at Berkeley		Segrè, E. 107
A note on the frequency of observation of antiprotons in emulsions exposed to cosmic rays		Amaldi, E. 111
Discussions		110, 112
 Nucleon-nucleon scattering		 Diffusion des nucléons par les nucléons
Elastic scattering of 580 Mev neutrons by protons and neutrons		Dzhelepov, V. P., Golovin, B. M., Kazarinov, Iu. M. and Semenov, N. N. 115
Scattering of protons with energies of 460 and 660 Mev by protons and deuterons		Meshcheriakov, M. G., Bogachev, N. P., Leksin, G. A., Neganov, B. S. and Piskarev, E. V. 125
Elastic scattering of protons with an energy of 660 Mev by protons at small angles		Bogomolov, E. G., Zombkovski, S. M., Nikitin, S. Ia. and Selektor, Ia. M. 129
The polarization of 660 Mev protons		Meshcheriakov, M. G., Nurushev, S. B. and Stoletov, G. D. 134
Minami ambiguity and nucleon-nucleon scattering		Ryndin, R. M., and Smorodinski, Ia. A. 141
Proton-proton scattering at 383 Mev		Holt, J. R., Harting, D. and Moore, A. R. 147
Discussions		123, 133 140, 148

Theoretical aspects of pion physics	Aspects théoriques de la physique des mésons π
Pion Physics	Wick, G. C. 151
On the generation of mesons in collisions of high energy nucleons	Blokhintsev, D. I. 155
Radiation of gamma quanta during the collision of fast pions and nuclei	Landau, L. D. and Pomeranchuk, Iu. Ia. 159
A semi-phenomenological theory of the production of pion pairs by high energy gamma quanta	Pomeranchuk, Iu. Ia. 167
General properties of the fixed source meson theory	Cini, M. and Fubini, S. 171
A simple treatment of meson nucleon scattering	Edwards, S. F. and Matthews, P. T. 173
Dispersion theory	Salam, A. 176
Discussions	153, 157 170, 181
Questions of consistency in quantized field theories	Questions de cohérence interne dans les théories quantiques des champs
On the mathematical consistency of quantum electrodynamics	Källén, G. 187
Discussion	192
Pion nucleon scattering	Diffusions des mésons π par les nucléons
Pion nucleon scattering	Yuan, L. C. L. 195
Positive pion-proton scattering at energies 176, 200, 240, 270, 307 and 310 Mev	Mukhin, A. I., Ozerov, E. B., Pontekorvo, B. M., Grigoriev, E. L. and Mitin, N. A. 204
Pion-proton scattering at 150, 170 and 220 Mev	Ashkin, J., Blaser, J. P., Feiner, F. and Stern M. O. 225
Experimental results on $\pi^+ + P$ scattering in the energy range between 70 and 130 Mev	Ferrari, G., Ferretti, L., Gessaroli, E., Manaresi, E., Puppi, G., Quarenii, G., Ranzi A. and Stanghellini, A. 230
Determination of the π^-p phase shifts	Orear, J. 233
π^-p scattering about a mean energy of 20 Mev	Alston, M. H., Fidecaro, M., von Gierke, G., Evans, W. H., Newport, R. and Williams, P. R. 236
Scattering of 18.7 Mev negative pions by liquid hydrogen	Nagle, D. E., Hildebrand, R. H. and Plano, R. J. 238
A measurement of the Panofsky ratio with a high-energy pair spectrometer	Kuehner, J. A., Merrison, A. W. and Tornabene, S. 231
Polarization effects in pion reactions	Mandl, F. 243
Discussions	203, 224, 234 240, 247

Photoproduction of pions	Photo production des mésons π
Survey on photopion production by nucleons	Bernardini, G. 251
Announcement	Pauli, W. 258
Some new data concerning the photoproduction of charged pions in hydrogen and deuterium at low energies	Beneventano, M., Bernardini, G., Stoppini, G. and Tau, L. 259
Photoproduction of negative π^- mesons on deuterium	Adamovich, M. I., Veksler, V. I., Kuzmicheva, G. V., Larionova, V. G. and Kharlamov, S. P. 265
On the theory of photoproduction of mesons on bound nucleons	Baldin, A. M. 272
π^0 photoproduction from protons	Barringer, R., Meunier, R. and Osborne, L. S. 281
π^0 photoproduction from complex nuclei	Barringer, R., Meunier, R. and Osborne, L. S. 282
π^+ photoproduction from protons	Richter, B., Osborne, L. S. and Russell, J. 284
π^+ and π^- photoproduction from deuterium	Land, R. H. 286
Photoproduction of pions complex nuclei	Belousov, A. S., Popova, V. M., Semashko, N. G., Shitov, E. V., Tamm, E. I., Veksler, V. I. and Igudina, F. R. 288
An experiment for measuring the Compton effect on protons beyond pion threshold	Auerbach, L. B., Bernardini, G., Filosofo, I., Hanson, A. O., Odian, A. C. and Yamagata, T. 291
The structure of the proton	Chambers, E. E. and Hofstadter, R. 295
Interaction of pions with nuclei	Ferretti, L., Gessaroli, R., Puppi, G., Quarenii, G., Ranzi, A., Stantic, S. and Tomasini, A. 308
Positive pion scattering in deuterium	Lederman, L. M., Rogers, K. C. and Rockmore, R. 310
Interaction of negative π^- mesons with complex nuclei in the energy range 140-400 Mev. (Review of experiments performed on the six-metre synchro cyclotron)	Ignatenko, A. E. 313
Diffraction scattering of high-energy pions	Williams, R. W. 324
Discussions	264, 271, 279, 287, 307, 323
Pion production by nucleons	Production de mésons π par les nucléons
The production of mesons in nucleon-nucleon collisions	Merrison, A. W. 329
Positive pion production in p-p collisions at 383 Mev	Alston, M. H., Crewe, A. V., Evans, W. H. and Gierke, G., von Batson, A. P., Culwick, B., Riddiford, L. and Walker, J. 334
Cloud chamber work on meson production in proton-proton collisions at 650 Mev	Duke, P. J., Lock, W. O., Munir, B. A., Gibson, W. M. and McEwen, J. G. 340
Charged pion production by 600 Mev protons on carbon	342

Inelastic proton-proton scattering at 925 Mev	Hughes, I. S., March, P. V., Muirhead, H. and Lock, W. O.	344
Energy spectra of π^+ mesons in the $pp \rightarrow np\pi^+$ reaction at 556 and 657 Mev	Meshcheriakov, M.G., Zrelov, V.P., Neganov, B. S., Vzorov, I. K. and Shabudin, A. F.	347
Magnetic analysis of the reactions $pp \rightarrow np\pi^+$ (I), $pp \rightarrow pp\pi^0$ (II) and $pp \rightarrow d\pi^+$ (III) at an energy of 660 Mev	Meshcheriakov, M. G., Neganov, B. S., Vzorov, I. K., Zrelov, V. P. and Shabudin, A. F.	353
Charged pion production by 660 Mev protons on beryllium and carbon	Meshcheriakov, M.G., Vzorov, I.K., Zrelov, V. P., Neganov, B. S. and Shabudin, A. F.	357
On the generation of positive π mesons by 660 Mev protons on hydrogen	Meshkovski, A. G., Pligin, Iu. S., Shalamov, Ia. Ia. and Shebanov, V. A.	362
The production of charged π mesons by 660 Mev protons on hydrogen, deuterium and carbon	Sidorov, V. M.	366
Pion production in p-p collisions at 0.8, 1.5 and 2.75 Bev.	Block, M. M., Harth, E. M., Fowler, W. B., Shutt, R. P., Thorndike, A. M., Whittemore, W. L., Cocconi, V. T., Hart, E., Fowler, E. C., Garrison, J. D. and Morris, T. W.	374
Investigation of neutral pion production by 390-660 Mev nucleons (Review)	Prokoshkin, Iu. D.	385
Investigation of energy and angular distributions of π^0 mesons produced by protons with energies of 470 and 660 Mev	Baiukov, Iu. D., Kozodaev, M. S. and Tiapkin, A. A.	398
The spectra of π mesons generated by fast cosmic ray neutrons in thin layers of matter	Alikhanian, A. I. and Kamalian, V. S.	407
Discussions		339, 361, 383
Mesonic atoms	Atomes mésiques	
Mesonic atoms	Roberts, A.	413
Proportional counter measurements of π mesonic X- rays	West, D. and Bradley, E. F.	417
Absolute yields and energies of mesonic X- rays	Stearns, M. and Stearns, M. B.	422
Lifetime of negative muons in various materials	Lederman, L. M. and Weinrich, M.	427
Discussions		426, 428
List of participants	Liste des participants	429
List of journals	Liste des périodiques	437
Name index	Table des noms cités	439