

KOVACS, Lajos; BALINT, Lajos, dr.; BODOR, Jozsef; KOZSA, Gyorgy

Remarks on the article "Hungarian problems of export packaging".
Kozleked kosl 18 no.4:48-52 Ja '62.

SPIOCH, Franciszek M.; KOBZA, Romuald; RMP, Slawomir

Effects of respirators on some physiological reactions to physical effort. Acta physiol. polon. 13 no.5:637-649 '62.

1. Z Instytutu Medycyny Pracy w Przemysle Węglowym i Hutniczym w Zabrsu-Rokitnicy Dyrektor: doc. dr J. Hofer Z Lekarskiego Ośrodka Naukowo-Badawczego przy Centralnej Stacji Ratownictwa Górniczego w Bytomiu Kierownik: dr med. Fr. M. Spioch.

(EXERTION) (RESPIRATORS) (BLOOD PRESSURE)
(HEART FUNCTION TESTS) (RESPIRATORY FUNCTION TESTS)

SPIOCH, Franciszek M.; KOBZA, Romuald

Dynamics of functional changes in the human circulatory system under the influence of high air temperature and humidity. Acta physiol. Pol. 14 no.4:411-418 J1-Ag '63.

Dynamics of biochemical and morphological changes of the human blood under the influence of high air temperature and humidity. Ibid. 1419-129

1. Z Instytutu Medycyny Pracy w P.W. i H. w Zabrze-Rokitnicy (Dyrektor: doc. dr. J. Nofe) i z Lekarskiego Ośrodka Naukowo-Badawczego Centralnej Stacji Ratownictwa Górniczego w Bytomiu (Kierownik: doc. dr. F.M. Spioch).

SPIOCH, Franciszek M. doc. dr.; KOBZA, Romuald

Biochemical basis of the functional "Harvard step-up test".
Acta physiol. Pol. 16 no.1:65-80 Ja-F'65.

1. Pracownia Fizjologii Pracy Instytutu Medycyny Pracy w
Przemysle Węglowym i Hutniczym w Zabrsu-Rokitnicy (Dyrektor
Instytutu: prof. dr. W. Zahorski; Kierownik Pracowni: doc. dr.
F.M. Spioch).

KOBZANTSEV - 1. B
FINKEL', M.Ya.; LYUKOMSON, M.I.; KOBZANTSEV, V.A.

Lowering the acidity of ammonium sulfate. Koks i khim. no.4:
37-39 '57. (MLRA 10:5)

1. Ukrainkiy uglekhimicheskiy institut (for Finkel'). 2.
Zhdanovskiy koksokhimicheskiy zavod (for Lyukomson and Kobzantsev).
(Ammonium sulfate)

KOBEZAR', A.I. (Khar'kov); YANTOVSKIY, Ye.I. (Ihar'kov); TOLMACH, I.M. (Khar'kov)

Flow of a two-phase mixture in a channel with varying cross section. Izv.
AN SSSR. Energ. i transp. no.4:522-528 J1-Ag '64.

(MIRA 17:10)

KOBZAR', E.B.

Plenum of the All-Union Scientific Medical Society on Medical
Control and Exercise Therapy. Vop.kur., fizioter. i lech. fiz.
kul't. 27 no. 1477 8-0'62. (MIRA 16:9)
(EXERCISE THERAPY)

BONDARENKO, Viktor Biktorovich; VIRNYK, D.F., kandidat ekonomicheskikh nauk, otvetstvennyy redaktor; ~~NOBZAR~~ NOBZAR', G.A., redaktor; ZHUKOVSKIY, A.D., techredaktor.

[Growth of the communal economy of Ukrainian collective farms during the prewar five-year plans] Razvitie obshchestvennogo khoziaistva kolkhosov Ukrainy v gody dovoennykh piatiletek. Kiev, Izd-vo Akad. nauk USSR, 1957. 441 p. (MLRA 10:5)
(Ukraine--Collective farms)

KOBEAR, O. G.; red.

[Agriculture in the Soviet Ukraine] Sil'e'ke hospodarstvo Radian'skol
Ukrainy. Kyiv, Derzh. vyd-vo sil's'kohospodarskol lit-ry Ukrain's'kol
RSR, 1957. 327 p. (MIRA 11:4)
(Ukraine--Agriculture)

LESHCHENKO, G.T. [Leshchenko, H.T.], dots.; ~~KOBZAR, G.O.~~ [Kobzar, H.O.], kand. ekon. nauk; BOBOSHKO, B.M., st. prepod.; TOTS'KIY, Yu.A. [Tots'kyi, I.U.A.], assistant; RYABENKO, A.I., red.

[Analysis of the managerial operations of agricultural enterprises] Analiz hospodars'koi diial'nosti sil's'ko-hospodars'kykh pidpriemstv. Kyiv, Urozhai, 1964. 278 p. (MIRA 18:1)

KOBZAR', I.; BOCHKOVY, V.

Work training on tractor-driven multiple-purpose machinery.
Prof.-tekh.obr. 22 no.8:7 Ag '65.

(MIRA 18:12)

1. Zamestitel' direktora po uchebno-proizvodstvennoy rabote kochubeyevskogo sel'skogo professional'no-tehnicheskogo uchilishcha No.8, Stavropol'skiy kray (for Kobzar').
2. Starshiy master kochubeyevskogo sel'skogo professional'no-tehnicheskogo uchilishcha No.8, Stavropol'skiy kray (for Bochkovoy).

ROBART, L.

In the interests of the majority. Voen. znan. 41 no.4:42 Ap '65.
(MIRA 18:3)
1. Inspektor Krymskogo oblasnogo komiteta Vsesoyuznogo dobrovol'-
nogo obshchestva sodeystviya armii, aviatsii i flotu.

L 10331-67 EWP(m)/EWT(1)/EWT(m)/EWP(w) KJP(c) EM/WW/JR
ACC NR: AF6029797 SOURCE CODE: UR/0089/66/021/002/0101/0107

AUTHOR: Ibragimov, M. Kh.; Isupov, I. A.; Kobzar', L. L.; Subbotin, V. I. 77

ORG: none

TITLE: Calculation of tangential stresses on the channel wall and of the velocity distribution in the case of turbulent liquid flow

SOURCE: Atomanaya energiya, v. 21, no. 2, 1966, 101-107

TOPIC TAGS: turbulent flow, nuclear reactor coolant, hydraulic resistance, flow velocity, heat transfer, stress distribution, flow distribution, temperature distribution

ABSTRACT: In view of the extensive use of channels of varying shapes in nuclear reactor installations, and in view of the complexity of standard hydrodynamic flow calculations, the authors propose a simplified method based on results of experimental data on the mechanism of turbulent transfer of momentum in the flowing liquid. Equations are derived for the tangential stresses on the channel wall, the velocity fields and hydraulic resistances in smooth straight channels of arbitrary cross section. The calculation is valid for a hydrodynamically stabilized stream under developed turbulence conditions ($Re > 10^4$). The calculated stress on the walls can be used to calculate the coefficients of turbulent heat transfer and thus solve problems connected with

UDC: 621.039.517:621.039.517.5

Card 1/2

L 10331-67
ACC NR: AF6029797 APPROVED FOR RELEASE: 09/18/2001 CIA-RDP86-00513R000723420009-4

the determination of the temperature fields and heat-transfer coefficients. The constants involved in the equations for the stress distributions are obtained from experimental data, and the results are compared with data on channels with eight different cross sections. Agreement between the calculations and experiment was found to be within 10%. Orig. art. has: 6 figures, 13 formulas, and 1 table.

SUB CODE: 20, 18/ SUBM DATE: 28Dec65/ ORIG REF: 005/ OTH REF: 005

Card 2/2 in L

ACC NR: L 38193-66 KT6023934 EWT(d)/EWT(1)/EWP(1) IJP(c) TG/GG/BB
SOURCE CODE: UR/3220/66/000/001/0087/0102

AUTHOR: Kobzar', M. T.; Smaglyi, A. M.

ORG: none

TITLE: Maintenance and design improvements in the M-20 computer

SOURCE: Tsifrovaya vychislitel'naya tekhnika i programmirovaniye,
no. 1, Moscow, 1966, 87-102

TOPIC TAGS: digital computer, computer reliability

ABSTRACT: An extended reliability study has been made on the M-20 computer, a medium capacity general purpose digital computer which has core memory, external tape and drum storage, and uses tubes and diodes as active elements. Maintenance and repair records were kept for five years on two M-20's; the main findings from these data are reviewed. Based on the failure history of various components, a preventive maintenance schedule was developed as follows: 1) daily checks requiring 2-3 hours, of test routines at under- and over-voltage, including separate checks of reader, output printer, and output perforator; 2) weekly checks, 6-8 hours, of memory read and write operations and logic circuit tests; 3) quarterly checks, requiring 5 days, including disassembly and overhaul of power supplies and signal circuits, plus

Card 1/3

UDC: 681.142.004

L38193-66

ACC NR: AT6023934

Table 1.

Year	No. tubes tested	Category							
		I		II		III		IV	
		No.	%	No.	%	No.	%	No.	%
1964	1784	481	26.9	305	17.1	321	18.6	667	37.4
1965	1762	278	15.8	577	33.3	210	16.6	614	34.3

operation at subnormal filament voltage; h) yearly checks, 10-15 days long; for power supply and cooling systems overhaul; overhaul of input/output hardware and external memories; cleaning and adjustment of all subassemblies; testing all tubes and replacement as needed. Decreased output and self-oscillation caused most tube failures; attempts were made throughout the program to eliminate these faults by design change and tube substitution. Table 1 lists tube deterioration for two years, divided into four categories according to severity; Table 2 lists the annual tube and diode replacement totals for 1961 through 1964. Reducing filament voltage by 5% was an effective way to detect incipient tube failures; over-frequency tests similarly showed potential weaknesses in timing circuits. To test the core memory, test routines were

Card 2/3

GUBAREV, Ye.M., prof.; GRABENKO, I.K., prof.; BALAYEV, Yu.V.; KOBZAR', N.A.

Significance of urease of Brucella in the pathogenesis of
brucellosis and its treatment with glutamic acid and adenosine
triphosphate. Kas.med.shmr. 40 no.3:29-32 My-Je '59.
(MIRA 12:11)

1. Iz kafedry biokhimii i fakul'tetskoy terapevticheskoy kliniki
Rostovskogo meditsinskogo instituta.

(BRUCELLA)

(UREASE)

(GLUTAMIC ACID)

(PHOSPHORIC ACID)

KOBZAR', N. A., Cand Med Sci (diss) -- "Material on the clinical aspects and treatment of brucellosis". Rostov na Donu, 1960. 16 pp (Rostov na Donu State Med Inst), 200 copies (KL, No 11, 1960, 138)

TELEPNEV, D.Ya., inzh.; KOBZAR', N.T., inzh.; SHCHEKODIN, A.N., inzh.

New pneumatic concrete placing machine. Ugol'.prom. no.4:72-73
Jl-Ag '62. (MIRA 15:8)

1. Ukrainskiy nauchno-issledovatel'skiy institut organizatsii i
mekhanizatsii shakhtnogo stroitel'stva.
(Concrete construction--Equipment and supplies)
(Pneumatic conveying)

PASKAL', Yu.I.; KOBZAR', N.Ya.

Change in the electric resistance of partially aged Duralumin in the course of its plastic deformation. Izv. vys. ucheb. zav.; fis. 8 no.2: 181-182 '65. (MIRA 18:7)

1. Sibirskiy fiziko-tekhnicheskii institut imeni Kuznetsova.

KOZAR', P.H.

Oxidation of iron carbonates. Trudy Gor.-geol. inst. UZAN
SSSR no. 42:179-186 '59. (MIRA 14:2)
(Kazakhstan—Iron ores)

BELYASHOV, N.M.; GLEBOV, A.V.; NGUYEN, T'YEN FUONG; RYZHKOV, I.P.;
KAZANTSEV, M.I., glav. red.; TOPORKOV, D.D., otv. red.;
IVKIN, N.M., red.; KOBZAR', P.N., red.; YEFIMOV, I.A., red.;
SAGUNOV, P.G., red.

[Iron and titanium ore deposits in the Democratic Republic
of Vietnam] Mestorozhdenia zheleznykh i titanovykh rud
Demokraticheskoi Respubliki V'etnam. [By] N.M.Beliashov i
dr. Alma-Ata, Kazakhskii nauchno-issl. in-t mineral'nogo
syr'ia, 1963. 83 p. (MIRA 17:9)

KONDRAT'YEVA, L.O.; VARSHAVSKAYA, N.B.; SHUBS, Z.V.; KOBZAR', V.I.

Use of levomycetin for the preservation of placental serum.
Antibiotiki 10 no.7:657-660 J1 '65. (MIRA 18:9)

1. Otdel proizvodstva γ -globulina Kiyevskogo nauchno-
issledovatel'skogo instituta epidemiologii i mikrobiologii.

KOZAR, V. M.; KUCHER, V. M.

Micrognesses of the northern Krivoy Rog Basin and their strati-
graphic position. Trudy Inst. geol. nauk AN URSR, Ser. petr.,
min. i geokhim. no.16:22-33 '62. (MIRA 15:10)

(Krivoy Rog Basin--Onciss)

KOBZAR, V.M.

Stratigraphic and structural position of metamorphic rocks in the western
Annovia belt of the northern Krivoy Rog Basin. Geol.zhur. 23 no.1:65-72
'63. (MIRA 16:4)

1. Institut geologicheskikh nauk AN UkrSSR.
(Krivoy Rog Basin--Rocks, Crystalline and metamorphic)

STRYGIN, A.I.; KOBZAR', V.N.

Conglomerates of the central part of the Ukrainian shield. Dokl.
AN SSSR 146 no.2:430-432 S '62. (MIRA 15:9)

1. Institut geologicheskikh nauk AN UkrSSR. Predstavleno
akademikom V.S. Sobolevym.
(Ukraine—Conglomerate)

STRYGIN, A.I.; KOBZAR', V.N.; KAZAKOV, L.R.

Boulder-pebble material in the gneisses of the Teterev Valley (Ukrainian Shield). Dokl. AN SSSR 158 no.3:609-612 S '64.

(MIRA 17:10)

1. Predstavleno akademikom V.S.Sobolevym.

KOBZAR', V.M. [Kobzar, V.M.]

Distribution of accessory elements in metamorphic rocks and
migmatites in the region of the western Anna zone of the northern
Krivoy Rog Basin. Geol.shur. 23 no.3:84-94 '63. (MIRA 16:9)

1. Institut geologicheskikh nauk AN UkrSSR.
(Krivoy Rog Basin—Trace elements)

KOBZAR', V.F.

Observation of a fireball in Sumy. Astron. tsir. no. 221:11
Ap '61. (MIRA 14:11)

1. Sumskoy pedagogicheskiy Institut.
(Meteors)

KOZAR', V.V.

IZMAIRSKIY, N.A.; PROVORNOV, S.M.; KOZAR', V.V.

Study of the tension of motion-picture film using the polarisation
optical method, Trudy LIKI no.4:86-91 '56. (MIRA 10:5)

1.Kafedra teoreticheskoy i tekhnicheskoy mekhaniki i kafedra
kinoapparatury.

(Cinematography--Film)

KRASHENINNIKOV, Yevgeniy Mikhaylovich; FREYNDLING, Aleksandr
Fedorovich; SHUBIN, Arkadiy Dmitriyevich; KOLCHANOV,
Boris Dmitriyevich; KOZAR', Yevgeniy Porfir'yevich;
PANKHASHOV, A.P., red.; SHEVCHENKO, L.V., tekhn.red.

[Maintenance of machines at lumbering enterprises]
Tekhnicheskoe obelushivanie mashin na lesosagotvitel'-
nykh predpriyatiyakh. Pod red. E.M.Krasheninnikova.
Petrosavodsk, Karel'skoe knizhnoe izd-vo, 1963. 257 p.
(MIRA 16:10)

(Karelia--Lumbering--Machinery)

KOBEAR, Y. I., 1965.

Hardening cast-iron sleeve by ball burnishing. Vcs . mashinost. (MIRA 18:6)
45 no.6:50-51 Je '65.

KOBZAR', Ye.P.

Ball burnishing of cast-iron sleeves. Avt. prom. 30 no.11:
36-37 N '64 (MIRA 18:2)

1. Petrosavodskiy gosudarstvennyy universitet.

POPOV, V.M., inzh.; SOROKIN, Ye.M.; KOZARENKO, B.I.; GEGMER, A.F.

The quality of fancy postcards and envelopes should be improved. Vest. svyazi 23 no.8:28-29 Ag '63. (MIRA 16:11)

1. Sudakskiy usel svyazi (for Popov).

BRISKMAN, A.M.; KOBZARENKO, M.P.; MESHALKIN, Ya.I.

Treatment of multiple sclerosis with endolumbar introduction
of vitamin B₁₂. Zhur. nevr. i psikh. 64 no.6:854-857 '64.
(MIRA 17:12)

1. Nevrologicheskoye otdeleniye (saveduyushchiy A.M. Briskman).
Cherkasskoy oblastnoy bol'nitsy (glavnyy vrach S.Ya. Yevchenko).

BRISKMAN, A.M.; KOZARENKO, M.P. (Cherkassy)

Disturbance of sensibility in amyotrophic lateral sclerosis.
Vrach. delo no.4:138 Ap'63. (MIRA 16:7)

1. Nevrologicheskoye otdeleniye Cherkasskoy oblastnoy bol'-
nitsy.

(AMYOTROPHIC LATERAL SCLEROSIS)
(SENSES AND SENSATION)

ANDREYEV, P.A.; KOBZARENKO, Z.N.

Improvement of the method of determining phosphorus in nitrophoska.
Trudy MKHTI no.44:152-154 '64. (MIRA 18:1)

Kobzarev, A.A.

807/2-29-3-2/48

22(1)

ATTENTION:

Kobzarev, A.A., Professor, Department, Technological Sciences, U.S.S.R., all Divisions of Technical Sciences, Acad. Sci. U.S.S.R. and Branch, U.S.S.R. - all Divisions of Technical Sciences, Academy of Sciences, U.S.S.R. - all Divisions of Technical Sciences

TITLE:

Our Research Support (Should abstract proceedings)

FREQUENTIAL:

Technical Yearbook, January, 1979, No. 3, pp 24-25 (USSR)

ABSTRACT:

Industrial academies existed in the USSR until 1946. Their principal task was to raise the qualifications of the leading engineers of the country. Members of academies were invited to work in the leading institutions of higher education of the country. After graduation of training leading academies, workers of academies were made in this direction. As a result, it was established that industrial academies should be established. The term of their existence should not exceed 1 year, and for some categories of students it may even be reduced to 3 or 4 months.

Card 1/2

Our Research Support

807/2-29-3-2/48

Card 2/2

The authors make suggestions on the methods of implementation and point out that in some cases a certain reservation for industrial academies should be established for the first workers who have successfully graduated from the academy but refuse to transfer work.

MOSKALENKO, S.I.; GABOVICH, M.S.; BACHINSKIY, Yu.V.; TOMILIN, A.V.;
MEDVEDEV, P.M.; LOMANOVA, M.M.; GOLOVKOV, P.D.; GAYDUKOV, G.I.;
ALBYNIKOV, V.V.; STANIN, M.D.; MINOMOVA, V.V.; BELAVINSEVA,
Ye.S.; TSVETSINSKIY, S.Y.; NECHEPURNYY, P.; ~~KOBZAR', M.K.~~
BOZHKOVA, Ye.S.; PRELTMINSKIY, V.N.; GORDNYCHUK, V.K.; SEDERIGO,
V.F.; KISLYUK, N.

Fifty years in the sugar industry. Sakh.prom. 33 no.2:18
P '59. (MIRA 12:3)

(Shtepan, Georgii Viacheslavovich, 1888-)

Kobzarev, I.

USSR/ Physics - Annihilation

Card 1/1 Pub. 22 - 20/54

Authors : Kobzarev, I., and Shushkevich, I.

Title : A relation between the probabilities of three types of annihilation of nucleon - antinucleon

Periodical : Dok. AN SSSR 102/5, 929-932, June 11, 1955

Abstract : A study of the following reactions is presented:

- | | |
|---|---|
| 1) $p\bar{p} \rightarrow \pi^0 + \pi^0$ | 4) $n\bar{n} \rightarrow \pi^0 + \pi^0$ |
| 2) $p\bar{p} \rightarrow \pi^0 + \pi^-$ | 5) $n\bar{n} \rightarrow \pi^+ + \pi^-$ |
| 3) $n\bar{p} \rightarrow \pi^- + \pi^0$ | 6) $p\bar{n} \rightarrow \pi^+ + \pi^0$ |

and relation between the probabilities of these types of reactions is established on the basis of the hypothesis of the isotopic invariance. One USSR reference (1954).

Institution :

Presented by : Academician L. D. Landau, March 14, 1955

Kobzarev, I. Yu.

3

~~Annihilation cross section of the antiproton~~
~~Kobzarev, Moscow Eng. Phys. Inst. U.S.S.R.~~
~~1967, 1971, 1973~~ *NI*
... for the annihilation of the antiproton by
...
...
...
...
... and the path was ~10⁷ cm in air and ~10⁸
cm in Pb. J. Rostan Leach

NI

KOBZAREV, I. Yu.

Category : USSR/Nuclear Physics - Elementary Particles

C-3

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3148

Author : Kobzarev, I. Yu., Okun', L.B.

Title : Concerning the Spin of the Λ -Particle.

Orig Pub : Zh. eksperim. i teor. fiziki, 1956, 30, No 4, 798-799

Abstract : The non-meson Λ -nucleus disintegration is considered. It is shown that were the spin of the Λ particle greater than $3/2$, the lifetime of the Λ nuclei would be considerably less than observed.

Card : 1/1

"APPROVED FOR RELEASE: 09/18/2001

CIA-RDP86-00513R000723420009-4

APPROVED FOR RELEASE: 09/18/2001

CIA-RDP86-00513R000723420009-4"

"APPROVED FOR RELEASE: 09/18/2001

CIA-RDP86-00513R000723420009-4

APPROVED FOR RELEASE: 09/18/2001

CIA-RDP86-00513R000723420009-4"

PA - 2037

AUTHOR
TITLE
PERIODICAL

KOBZAREV, I. YU.

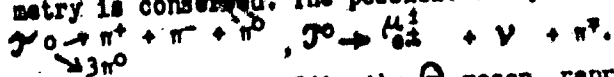
On the Problem of the K^0 - decay. (Russian)
Zhurnal Eksperimental'noi i Teoret. Fiziki, 1957, Vol 32, Nr 1,
pp 180-181 (U.S.S.R.)

Reviewed 3/1957

ABSTRACT

Received 3/1957.
If it is assumed that on the occasion of the decay acts of K-mesons symmetry is conserved, the following apparently follows from the totality of experimental results: Two mesons, \mathcal{Y} and Θ , exist with spin and symmetry 0^- and 0^+ respectively. There is then a certain "degeneration with respect to symmetry" of the "strange particles". On the other hand, it may be assumed that only a K-meson exists and that symmetry is not conserved on the occasion of decay interactions. The present work shows a possibility of experimentally verifying the hypothesis of the non-conservation of symmetry.

At first the acts of decay are investigated on the assumption that symmetry is conserved. The possible decay-schemata are then the following:



The \mathcal{Y}^0 -meson must, like the Θ -meson, represent the mixture of a charge-symmetric and a charge-asymmetric component $\mathcal{Y}^0 = (\mathcal{Y}^0_8 + i\mathcal{Y}^0_8)/\sqrt{2}$. \mathcal{Y}^0_8 will decay in accordance with all four possible schemata, on which occasion the point of decay $\mathcal{Y}^0_8 \rightarrow 3\pi$ is the isotopic analogon of the $\mathcal{Y}^+ + \pi^+ + \pi^- + \pi^0$ must develop in one state with non-vanishing orbital moments. The last-named decay is suppressed so that the principal decay is as follows $\mathcal{Y}^0_8 \rightarrow \frac{4}{3}\pi^+ + \nu + \pi^0$. In the case of both components life is of the

Card 1/2

KOBZAREV, I. YU.

56-4-42/52

AUTHOR:

KOBZAREV, I. Yu., OKON', L.B.

TITLE:

On the Common Production of Λ - and Θ -Particles.(O sovmetnem roshdemi Λ - i Θ -chastits. Russian).

PERIODICAL:

Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 32, Nr 4, pp 933 - 934
(U.S.S.R.)

ABSTRACT:

Analysis of the angular τ and energy distributions of pions on the occasion of the decay $\tau^+ \rightarrow 2\pi^+ + \pi^-$ leads to the conclusion that spin- and parity of the τ -meson are equal to 0^- . The meson, in this case, cannot decay into two pions, so therefore two K^+ -mesons must exist: τ^+ and Θ^+ . Masses and life of the K^+ -mesons agree with one another. This equality of the masses can be explained by the hypothesis by LEE and YANG. Besides, the following hypothesis is also possible: The decay-interactions of the K -mesons do not keep their parity and only a K -meson exists.

Experiments on the pair-like creation of K^0 , K^{\pm} -particles may be suited for the clarification of the problem of the number of mesons. J. STEINBERGER, et al. Phys. Rev., 103, 1827 (1956) observed acts of the decay of the type: $\Lambda^0 \rightarrow p + \pi^-, \Theta^0 \rightarrow \pi^+ + \pi^-$. The particles

Λ and Θ^0 are created in the course of the process $\pi^- + p \rightarrow \Lambda^0 + \Theta^0$. These acts of decay have a life of $\tau \sim 10^{-10}$ sec. The authors next discuss the case in which one (single) K -meson

Card 1/2

KOZAROV, I.Yu., OKUN', L.B.

Probability of Σ -hyperon disintegration considering nonconservation
of parity. Zhur. eksp. i teor. fiz. 33 no.1:296-297 J1 '57.
(Particles, Elementary) (MLBA 10:9)

KOBZAREV, I. Yu.

56-2-44/47

AUTHOR

Kobzarev, I. Yu.

TITLE

On the Possibility of the $\pi \rightarrow e + \nu + \gamma$ Decay.
(O vozmozhnosti $\pi \rightarrow e + \nu + \gamma$ -raspada.)

PERIODICAL

Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33,
Nr 2(8), pp. 551-553 (USSR)

ABSTRACT

In the case of a strong interaction between pions and nucleons a decay $\pi \rightarrow e + \nu$ might occur because of β -decay interaction, viz. with a life of the same order as in the case of the decay $\pi \rightarrow \mu + \nu$. In reality, however, the β -decay interaction contains a scalar (S) and a tensorial (T) invariant. The decay $\pi \rightarrow e + \nu$ can apparently not be brought about by the T-variant. It is possible to show that such a decay is caused by the A-variant with non-conservance of parity.

In reality the experiment tends to confirm the existence of terms in the lepton part of the interaction, in the case of which parity is not conserved. However, for the lack of $\pi \rightarrow e + \nu$ decay it suffices that the interaction of heavy particles contains no heavy particles.

However, the lack of the decay $\pi \rightarrow e + \nu + \gamma$ is difficult to explain. Such a decay might be caused by a tensorial

CARD 1/2

On the Possibility of the $\pi \rightarrow e + \nu + \gamma$ -Decay.

56-2-44/47

interaction if the virtual nucleon emits a γ -quantum. The author estimates the probability of such a process in first perturbational approximation with respect to G . Here G denotes the constant of pion nucleon interaction. The most simple graph of the decay $\pi \rightarrow e + \nu + \gamma$ as well as the formulae for the matrix element and the probability of this decay are given. For the total probability one finds $W \sim 0.5 \cdot 10^4 \text{ sec}^{-1}$ and for the ratio of decay probabilities

$$(\pi \rightarrow e + \nu + \gamma) / (\pi \rightarrow \mu + \nu) \sim g_{\gamma} \sim 0.5 \cdot 10^4 / 0.4 \cdot 10^8 \sim 10^{-4}.$$

There is 1 figure.

ASSOCIATION: None given.
 SUBMITTED: May 30, 1957
 ASSOCIATION: Library of Congress.

CARD 2/2

KOBZAREV, B. Yu.

AUTHOR:
TITLE:

KOBZAREV, I. Yu., OKUN', L. B.

56-7-57/66

On the Decay Probabilities of Σ -Hyperons if Parity is not Conserved. (O veroyatnostyakh raspada Σ -giperonov pri nesokhraneni chetnosti.)

PERIODICAL:

Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 33, Nr 7, pp. 296 - 297 (USSR)

ABSTRACT:

L. Alvarez et al. Phys. Rev., Vol. 105, p. 1127 (1957) drew the conclusion that the decay of the Σ -hyperons does not obey the selection rule $\Delta T = 1/2$. The present paper is intended to show that this conclusion is not the only possible one if the conservation of parity is renounced. The non-conservation of parity in the decay of hyperons is a consequence of the non-conservation of parity in the case of $K\pi_2^-$ and $K\pi_1^-$ - acts of decay, because the decay of the hyperon can always develop by virtual chains with $K \rightarrow \pi$ -acts of decay. The authors above all assume that the decay interactions are invariant as regards inversions with respect to time in Wigner's sense (or, which is one and the same thing, with respect to the combined inversion CI). Because of this assumption the phases of the matrix elements of the decay can be expressed by the phases of scattering in the final state. The corresponding relations are here explicitly given. Also the relations for probabilities are ex-

Card 1/2

AUTHORS: Kobzarev, I. Yu., Tamm, I. Ye.

56-34-4-17/60

TITLE: The Decay Processes of the Strange Particles in the Theory by Feynman and Gell-Mann (Ruspany strannykh chastits v teorii Faynmana i Gell-Manna)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol. 34, Nr 4, pp. 899 - 901 (USSR)

ABSTRACT: This work gives an explanation of the equal probability of the K_{e3}^- - and $K_{\mu 3}^-$ - decays in the case of absent K_{e2}^- -decay and of the high asymmetry in the decays of the polarized hyperons on the assumption of the universal A-V-interaction by Gell-Mann and Feynman. One of the most interesting features in the lepton decays of the K-mesons is the ~~presence~~ absence of the decay $K^+ \rightarrow e^+ + \nu$ in the case of the presence of the decay $K^+ \rightarrow \mu^+ + \nu$ on which occasion the decays $K^+ \rightarrow \mu^+ + \nu + \pi^0$, $K^+ \rightarrow e^+ + \nu + \pi^0$ have approximately the same decay probabilities. These features very easily can be explained by the following assumption: All these decays take place because of the universal four-fermion interaction which was suggested by Gell-Mann and Feynman (Ref 1) and

Card 1/3

The Decay Processes of the Strange Particles in the Theory by Feynman and Gell-Mann

56-34-4-17/60

by Sudarshan and Marshak (Ref 2). If such an interaction is present the decays $K^+ \rightarrow \mu^+ + \nu$, $K^+ \rightarrow e^+ + \nu$ must be caused by the transformation of a K-meson into a pair baryon-antibaryon with subsequent transformation into $e\nu$, $\mu\nu$. A graph is given for such a process. The corresponding probability is proportional to $1 + (v_{\mu,e}/c)\cos\vartheta$, where ϑ means the angle between the direction of the momenta of the myon and of the neutrino. The probabilities of the decays $K \rightarrow e + \nu$, $K \rightarrow \mu + \nu$ show a ratio of $0,25 \cdot 10^{-4}$. The situation changes completely if a pion is emitted from the baryon-loop. Then the authors derive the following relationships for the probabilities:

$$(K \rightarrow e + \nu) / (K \rightarrow \mu + \nu) \approx (m_e/m_\mu)^2 \sim 0,25 \cdot 10^{-4} \quad \frac{K \rightarrow e + \nu + \pi}{K \rightarrow \mu + \nu + \pi} \sim 1.$$

$$\frac{\pi \rightarrow e + \nu}{\pi \rightarrow \mu + \nu} \sim 1,3 \cdot 10^{-4}$$

$$\int \gamma = \frac{\pi \rightarrow e + \nu + \gamma}{\pi \rightarrow \mu + \nu} \sim e^2 \frac{K \rightarrow e + \nu + \pi}{K \rightarrow \mu + \nu} \sim 10^{-3}$$

Card 2/3

The Decay Processes of the Strange Particles in the
Theory by Feynman and Gell-Mann

56-34-4-17/60

According to the examined scheme the ratio of the probabilities of the decays $\Lambda \rightarrow p + \bar{\pi}^0, \Lambda \rightarrow n + \pi^0$ is determined mainly by the relative probability of the production of a charged and of a neutral pion by a baryon. This ratio is equal to about 2, which approaches the experimental value of this ratio. There are 3 figures and 8 references, 0 of which are Soviet.

ASSOCIATION: Fizicheskii institut im. P.N. Lebedeva Akademii nauk SSSR (Institute of Physics im. P.N. Lebedev, AS USSR)

SUBMITTED: January 16, 1958

1. Mesons--Decay

Card 3/3

SOV/56-34-3-43/55

AUTHORS: Kobzarev, I. Yu. , Okun', L. B.
 TITLE: On the Life of the K_2^0 -Meson (O vremeni zhizni K_2^0 -mezona)
 PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1958,
 Vol. 34, Nr 3, pp. 763 - 764 (USSR)

ABSTRACT: The authors assume here that the weak interactions are invariant with respect to a reversion of time, and that the K_2^0 -meson has a negative invariance with respect to time. The following possibilities exist for the decay of the K_2^0 -meson:

1) $K_2^0 \rightarrow e^+ + \nu + \pi^-$ 2) $K_2^0 \rightarrow e^- + \bar{\nu} + \pi^+$ 3) $K_2^0 \rightarrow \mu^+ + \nu + \pi^-$
 4) $K_2^0 \rightarrow \mu^- + \nu + \pi^+$ 5) $K_2^0 \rightarrow \pi^+ + \pi^- + \pi^0$ 6) $K_2^0 \rightarrow \pi^0 + \pi^0 + \pi^0$

(the corresponding probabilities are denoted here with w_n , in which case n signifies the number of the reaction). The decays 1, 2 and 3, 4 are analogues of the decays 7) $K^+ \rightarrow e^+ + \nu + \pi^0$, 8) $K^+ \rightarrow \mu^+ + \nu + \pi^0$ and the decays 5, 6 are

Card 1/4

SOV/56-34-3-43/55

On the Life of the K_2^0 -Mesonanalogous to the τ^+ -decays: 9) $K^+ \rightarrow \pi^+ + \pi^+ + \pi^-$,

10) $K^+ \rightarrow \pi^+ + \pi^0 + \pi^0$. It is essential in this connection that the pions emitting are in S-state in the decays 5, 6 and also in the decays 9, 10. L. B. Okun', (Reference 3) showed the following: When the decays of all strange particles take place by way of decays of Λ -hyperons, the rule $\Delta T = 1/2$ (which was previously discussed in connection with the pion decays of the strange particles) refers also to the lepton decays of the strange particles. The authors apply here this rule for the calculation of the probability of the various kinds of decays of the K_2^0 -meson and for the evaluation of their life. $w_1 = w_2 = w_7$, $w_3 = w_4 = w_8$; $w_6/w_5 = 3/2$, $w_{10}/w_9 = 1/4$, $(w_5 + w_6)/(w_9 + w_{10}) = 1$ is easily obtained by means of the rule $\Delta T = 1/2$. The relations, however, do not take into account the difference of the masses of charged and neutral pions. The correction caused by this mass-difference was taken into account by R. H. Dalitz (Reference 4). The present report takes account of this correction only with statistic weights. If the statistic weights of the corresponding decays are denoted with g_n , $g_5/g_9 = 1.09$, $g_{10}/g_9 =$

Card 2/4

BOV/56-34-3-43/55

On the Life of the K_2^0 -Meson

≈ 1.20 , $g_6/g_9 = 1.31$ is obtained. Taking into account these relations,

$$w_6/w_5 = 3g_6/2g_5 \sim 2, \quad w_{10}/w_9 \sim g_{10}/4g_9 \sim 0,30$$

$$(w_5+w_6)/(w_9+w_{10}) \sim ((2/5)g_5 + (3/5)g_6)/((4/5)g_9 + (1/5)g_{10}) =$$

$$= 1,2 \text{ is obtained. The value } \tau_{K_2^0} = \tau_K + 100/(2.5 \cdot 9 + 2.5 \cdot 1 +$$

$$+ 1,2 \cdot 7,9) = 3,8 \cdot 10^{-8} \text{ sec. is obtained for the life of the}$$

K_2^0 -meson by utilizing the data on the life of the K^+ -meson

and on the relative frequency of the various types of the K^+ -

-decays. The probabilities of the various decay-processes

must then amount to the following percentages of the pro-

bability of the K_2^0 -decay: $w_1-w_2 \sim 16\%$; $w_5-w_4 \sim 19\%$;

$w_5 \sim 10\%$; $w_6 \sim 20\%$. The experimental examination of the

results obtained here could be useful for the determination

of the correctness of the rule $\Delta T = 1/2$ with the lepton de-

Card 3/4

SOV/56-34-3-43/55

On the Life of the K_2^0 -Meson

cays and non-lepton decays of K-mesons. The probability of the decay $K \rightarrow 2\pi + \gamma$ and of the other possibilities of the K_2^0 -decay was neglected in this communication. There are 6 references, 3 of which are Soviet.

SUBMITTED: December 11, 1957

Card 4/4

AUTHOR: Kobzarev, I. Yu. SOV/56-34-5-56/61

TITLE: On the Determination of the Variants of the K_{e3} -Decay
(K voprosu ob opredelenii variantov K_{e3} -raspada)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958,
Vol. 34, Nr 5, pp. 1347 - 1349 (USSR)

ABSTRACT: In this article a method for the analysis of the decay is
exposed, which has its analog in the method of the analysis
of the τ^+ -decay, suggested by R. H. Dalitz (Dalitz) (Ref 4).
This is valid under the assumption that the decay inter-
action has the general form suggested in the work by A. Pais
and S. V. Treiman (Ref 5):

$$M \sim \bar{f}_V (f_S + f'_S) + (ip_C^K/M) \bar{f}_V (f_V + f'_V) +$$

$$+ (p_C^K p_V^K/M^2) \bar{f}_V (f_T + f'_T)$$

Card 1/3

The scheme by Gell-Mann and Feynman corresponds with the
pure V-variant, i.e. $f_S = f'_S = f_T = f'_T = 0$ (and $f_V = f'_V$).

On the Determination of the Variants of the K_{e3} -Decay SOV/56-34-5-56/61

The decay probability can be written in the form

$W \sim \int (E_{\pi}, E_e) dE_{\pi} dE_e$. The author gives an image of the decays by points $P(x, y)$ inside an equilateral triangle ABC such that the distances of the point P from AB, AC, and BC respectively are proportional to the energy of the electron, neutrino, and pion. The decays which were observed give a certain distribution of the points in this triangular domain. According to the results by L. B. Okun' (Ref 6) the analysis can be performed in the following way: 1) It has to be determined whether the distribution of the decay processes is symmetrical with regard to the axis y. A symmetry will exist only in the case of simultaneous existence of the S- and T-variant, probably with an admixture of V. 2) The further interpretation of the distribution is described for the case that this distribution is symmetrical. There are 1 figure and 6 references, 2 of which are Soviet.

SUBMITTED: February 24, 1958

Card 2/3

On the Determination of the Constants of the K_{α} -Decay 307/56 34-5-56/0

1. Particles—Decay 2. Mathematics—Applications

Card 3/5

KOBZAREV, I. Yu., Candidate Phys-Math Sci (diss) -- "Some problems in the theory of weak interactions". Moscow, 1959. 8 pp (Acad Sci USSR, Inst of Theoretical and Experimental Phys) (KL, No 24, 1959, 125)

KO BZAREV, I. Yu.

1
 Dzerzhinsky, Yu. G., Izvestiya, A. G., 1976-77-3-12/12
 Zhurnal, In. Yu. Zhukov, V. A., Elektronika, 1976
 On the theory of $p \dots p$ and $p \dots p \dots p$
 Zhurnal obratnoy teorii i teoreticheskoy fiziki, 1976,
 Vol. 31, No. 5 (5), pp. 677-678 (1976)
 From the hypothesis of the existence of an intermediate beam
 of great size $\gg \lambda$ is possible, which is forbidden according to
 the theory of diffraction. Neglecting the probability of
 this phenomenon and assuming that the ratio
 $\frac{p}{\lambda} = \frac{2\pi}{\lambda} \sqrt{\frac{1}{2}(\mu \dots \mu)}$ depends on the diffraction
 parameter μ , $\frac{1}{2} \sqrt{\frac{1}{2}(\mu \dots \mu)}$ is equal to the beam size $\frac{p}{\lambda} \approx 10^4$
 $\frac{1}{2} \sqrt{\frac{1}{2}(\mu \dots \mu)}$ is equal to the beam size $\frac{p}{\lambda} \approx 10^4$
 of a 17 line Group table channel. The channel is
 named in the article by the name of the corresponding
 signal (Latin translation of Russian language). The 200 line
 channels were checked from the point of a probable filter and
 were stopped in the channel system. About 2000 microphotographs

were obtained, which were taken according to the evaluation lines
 are given of the three possible theory $p \dots p \dots p$
 $\frac{1}{2} \sqrt{\frac{1}{2}(\mu \dots \mu)}$ and $\frac{1}{2} \sqrt{\frac{1}{2}(\mu \dots \mu)}$ not a single one of the three
 kind was found among 2000 microphotographs. The results
 according to 4-3-1975. In the evaluation of the plane
 positions of the first kind were found with $(\mu \dots \mu) < 10^4$ such
 a photo is shown in Figure 1. Such a theory has already been
 been observed. A table shows all cases in which $p \dots p \dots p$ are
 and in which the angle $(\mu \dots \mu) \geq 10^4$. The table contains
 data concerning the $(\mu \dots \mu)$ -angles, μ and $\frac{p}{\lambda}$ as well as the
 energy of the Group parameter. For purposes of the first
 kind it was found that $\mu \approx 10^4$ for, for those of the second
 kind - 20-30 for. Figure 2 shows investigation results in form
 of a diagram, where the number of sampled points is plotted
 versus the angle of rotation in the same stepping point. The
 table of the results is $\frac{1}{2} \sqrt{\frac{1}{2}(\mu \dots \mu)}$ $\frac{1}{2} \sqrt{\frac{1}{2}(\mu \dots \mu)}$
 was determined as amounting to $(\mu \dots \mu) \approx 10^4$
 Theoretically, $1.02 \cdot 10^{-7} < \mu < 1.00 \cdot 10^{-1}$ was obtained

(for the A-F investigation). The authors finally thank
 Academician A. I. Zhukov for his attention and interest,
 S. F. Lomonosov, R. Yu. for making it possible to carry out
 investigations. The electronic computer of the U.S.S.R. of the
 Institute of Electronic and Control Systems of the A.S. USSR,
 and S. A. for carrying out these calculations. There
 are 3 figures, 1 table, and 8 references, 1 of which is Soviet,
 June 7, 1976

KOBZAROV, I.Yu.; OKUN', L.B.

Symbols for strong interaction constants. Zhur. eksp. i teor.
fiz. 39 no. 1:210 J1 '60. (MIRA 13:12)
(Nuclear physics--Notations)

84964

S/056/60/039/003/050/058/XX
B006/B070

24.6900

AUTHORS:

Kobzarev, I. Yu., Okun', L. B.

TITLE:

Which Is Heavier: the K_1^0 Meson or the K_2^0 Meson ?

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,
Vol. 39, No. 3(9), pp. 605 - 609

TEXT: In the present paper, a method is proposed for determining the sign as well as the magnitude of the mass difference between K_1^0 and K_2^0 mesons. The K_1^0 meson has the shorter lifetime, $\tau_{K_1^0} = (1.00 \pm 0.04) \cdot 10^{-10}$ sec

(K_{*2} decay); $\tau_{K_2^0} = (6.1_{-1.1}^{+1.6}) \cdot 10^{-8}$ sec. From the fact that only transitions with $\Delta S = \pm 1$ are allowed in weak interactions (S - strangeness), it is concluded following Ya. B. Zel'dovich (Ref.4) that the mass difference of these two mesons is equal to

$\Delta m \sim g^2_{K_1} \sim 1/\tau_{K_1^0} \approx 10^{10} \text{ sec}^{-1} \approx 10^{-5} \text{ ev}$, where $g^2 \approx 10^{-13}$ is the square of

Card 1/4

84964

Which is Heavier: the K_1^0 Meson or the
 K_2^0 Meson ?

S/056/60/039/003/050/058/XX
 B006/B070

the weak interaction constant, m_K is the mass of the K-meson, ($\hbar = c = 1$).
 If transitions with $\Delta S = \pm 2$ were allowed, one would have
 $\Delta m \sim g m_K \sim 10^{16} \text{ sec}^{-1}$. It is known experimentally that $\Delta m \sim 10^{10} \text{ sec}^{-1}$; so
 transitions with $\Delta S = \pm 2$ are forbidden. The authors now propose a method
 of determining the sign of Δm . Experiments of this kind have so far been
 inconclusive. The method makes use of an interference phenomenon in a
 K_2^0 beam, which can appear only if $\Delta m \sim 10^{10} \text{ sec}^{-1}$. Suppose a monochromatic
 beam of K_2^0 falls on a target consisting of two thin plates, the plates
 (a and b) being made of different materials and separated from each
 other by a distance l . The following relation is derived for the total
 probability of K_1^0 decays on the right side of the plate b:

Card 2/4

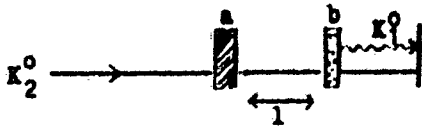
24964

Which Is Heavier: the K_1^0 Meson or the K_2^0 Meson ?

S/056/60/039/003/050/058/XX
B006/B070

$$w(K_{\pi_2}^0) = r_a^2 e^{-\lambda_1 t_0} + r_b^2 e^{-\lambda_2 t_0} + 2r_a r_b e^{-(\lambda_1 + \lambda_2)t_0/2} \cos(\Delta\varphi - \Delta m t_0);$$

$$\Delta\varphi = \varphi_a - \varphi_b, \Delta m = m_1 - m_2, t_0 = l/v\gamma.$$



X

Therefore, the magnitude and sign of Δm can be determined by measuring the number of $K_{\pi_2}^0$ decays on the right side of the plate b for different l

(different t_0). For the determination of the sign, it is essential that the two plates be made of different materials. It is most convenient if the value of $\Delta\varphi$ is nearly $\pi/2$. $(\frac{1}{2}kd_a(n_a - \bar{n}_a) - r_a e^{i\varphi_a})$, where d_a is the thickness of the plate a, k the momentum of the K_2^0 mesons, and n_a and \bar{n}_a

Card 3/4

84964

Which Is Heavier: the K_1^0 Meson or the
 K_2^0 Meson ?

S/056/60/039/003/050/058/XX
B006/B070

are the refractive indices of the K^0 and \bar{K}^0 mesons, respectively). It is suggested that one of the plates be made of a material with small Z and the other with large Z . Some other details of the experiment are discussed. The possibility of working with a non-monochromatic K_2^0 beam is considered but found to be less favorable. It is mentioned in conclusion that the experiment in practice would be more complicated than is sketched here. It is recommended that thick plates be used, because in that case the yield of K_1^0 mesons would be greater. According to

S. G. Natinyan, for example, the yield for a copper plate of ~ 1 cm thickness is 10^{-4} . The authors thank V. I. Veksler, Ya. B. Zel'dovich, I. Ya. Pomeranchuk, and B. M. Pontekorvo for interest and discussions. There are 1 figure and 7 references: 4 Soviet and 3 US.

SUBMITTED: March 12, 1960

Card 4/4

GRASHIN, A.F.; KOZLARNY, I.Yu.

Peripheral interaction of nucleons in the two-meson approximation. Zhur.eksp.i teor.fiz. 38 no.3:863-869 Mr '60.
(MIRA 13:7)

(Nucleons) (Mesons)

KOBZAREV, I.Yu.; OKUN', L.B.; RUDIK, A.P.

Remarks pertaining to the decay of the cascade hyperon.
Zhur.eksp.i teor.fiz. 38 no.3:1012-1013 M^r '60.
(MIRA 13:7)

(Mason)

KOBZAREV, I.Yu.; OKUN', L.B.

Model for anomalous muon interaction. Zhur. eksp. i teor. fis. 41
no. 4: 1205-1214 0 '61. (MIRA 14:10)

1. Institut teoreticheskoy i eksperimental'noy fiziki AN SSSR.
(Nuclear models) (Mesons)

31793
S/056/61/041/006/043/054
B109/B102

24.6700

AUTHORS: Kobzarev, I. Yu., Okun', L. B.

TITLE: Heavy neutral pseudoscalar mesons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41,
no. 6(12), 1961, 1949 - 1952

TEXT: Arguments in favor of the existence of heavy neutral pseudoscalar mesons with zero isotopic spin are discussed. Some experiments are suggested, which should help to ascertain whether such mesons exist. According to L. B. Okun' (ZhETF, 34, 469, 1958; Proc. CERN Conf. on High Energy Phys., 1958, p. 223), two neutral pseudoscalar mesons σ_1 and σ_2

with the zero isotopic spin state $\sigma_1 = \left\{ \alpha(p\bar{p} + n\bar{n}) / \sqrt{2} - \beta\Lambda\bar{\Lambda} \right\}$
 $\sigma_2 = \left\{ \beta(p\bar{p} + n\bar{n}) / \sqrt{2} - \alpha\Lambda\bar{\Lambda} \right\}$ might exist in addition to the well-known
 pseudoscalar mesons π and K within the framework of the Sakata model
 ($\alpha^2 + \beta^2 = 1$). In the case of identity of the strong interaction of the
 baryons p, n , and Λ , the mesons in the octet (π, K, σ_1) would have equal

Card 1/4

31793

S/056/61/041/006/043/054
B109/B102

Heavy neutral pseudoscalar mesons

masses according to the unitary symmetry, whereas the mass of the ninth meson σ_2 is possibly much larger. From the deviation from unitary symmetry it is concluded that the mass of the σ_1^0 meson is not likely to exceed 1 Bev (the mass of the σ_2^0 meson is still unknown). The decay modes

$\sigma \rightarrow 2\pi^+ + 2\pi^-$, $\sigma \rightarrow 2\pi^0 + \pi^+ + \pi^-$, $\sigma \rightarrow 4\pi^0$, suggested by Ya. B. Zel'dovich (ZhETF, 34, 1644, 1958) are improbable according to V. I. Ogiyevetskiy.

The probability of the mode $\sigma \rightarrow 2\pi^+ + 2\pi^-$ is $w \sim 10^{-7} \cdot L^4 (\Delta/\mu)^{17/2} \mu$, where

$\Delta = m_\sigma - 4\mu$ (μ - pion mass). Another possible decay mode is

$\sigma \rightarrow K^0 + \bar{K}^0 + \pi^0$ (either $2K_1^0 + \pi^0$ or $2K_2^0 + \pi^0$) $w \sim 10^{-3} L^2 \Delta^2 / m_\sigma$ ($L \sim 1$). ✓

The modes $\sigma \rightarrow \pi^0 + e^+ + e^-$, $\sigma \rightarrow \pi^0 + \mu^+ + \mu^-$, $\sigma \rightarrow 2\pi^0 + \gamma$ are forbidden, whereas $\sigma \rightarrow \pi^+ + \pi^- + \gamma$, $\sigma \rightarrow 2\gamma$ ($w_{2\gamma} = w_{\pi^+\pi^-} (m_\sigma/\mu)^3$) are possible. For large m_σ , the process $\sigma \rightarrow \pi^+ + \pi^- + \gamma$ ($w \sim 10^{-7} \mu L^6 (m_\sigma/\mu)^7$ for $m_\sigma \gg 2\mu$) is important. In this case, the photon spectrum can be described by

Card 2/4

Heavy neutral pseudoscalar mesons

31793
S/056/61/041/006/043/054
B109/B102

$n(\omega) d\omega \sim \omega^3 (m_\sigma^2 - 2m_\sigma\omega - 4\mu^2)^{3/2} (m_\sigma^2 - 2m_\sigma\omega)^{-1/2} d\omega$ For the reaction
 $d + d \rightarrow \text{He}^4 + \sigma^0$, experimental data of N. E. Booth, O. Chamberlain, and
 E. H. Rogers (Nuovo Cim., 19, 853, 1961) indicate $\sigma < 7 \cdot 10^{-32} \text{ cm}^2$ for the
 σ_1^0 production cross section for $m_\sigma = \mu$, and $\sigma < 0.2 \cdot 10^{-32} \text{ cm}^2$ for $m_\sigma = 1.8\mu$.

Other studies furnished $d\sigma/d\Omega < 6 \cdot 10^{-32} \text{ cm}^2/\text{steradian}$ for the cross section
 of the reaction $\gamma + p \rightarrow \sigma + p$ for σ -meson masses of up to 3.5μ . There are
 no experimental data indicating that the heaviest meson is the K meson.
 The authors think that the existence of the σ -meson can be proved by such
 experiments as made by G. Bernardini, R. Querosoli, G. Salvini, A.
 Silverman, G. Stoppini (Nuovo Cim., 14, 268, 1959), V. T. Zinov, A. D.
 Konin, S. M. Korenchenko, B. Pontekorvo (ZhETF, 38, 1708, 1960), and F.
 Solmitz (Proc. of the 1960 Ann. Int. Conf. on High Energy Phys. at
 Rochester, Univ. of Rochester, 1960, p. 165) and, with a sufficient
 σ -meson mass, by a study of the kinematic distribution of K mesons
 produced by the reaction $\sigma \rightarrow 2K + \pi$. S. M. Bilen'kiy, V. N. Gribov,
 V. I. Ogiyevetskiy, M. I. Podgoretskiy, I. Ya. Pomeranchuk, B. M.

Card 3/4

Heavy neutral pseudoscalar mesons

31793
S/056/61/041/006/043/054
B109/B102

Pontekorvo, P. M. Ryndin, and K. A. Ter-Martirosyan are thanked for discussions. There are 19 references: 7 Soviet and 12 non-Soviet. The four most recent references to English-language publications read as follows: S. Ogawa. *Progr. Theor. Phys.*, 21, 209, 1959; S. Ohnuki. *Proc. of the 1960 Ann. Int. Conf. on High Energy Phys. at Rochester, Univ. of Rochester, 1960*, p. 843; P. Solmitz. *Proc. of the 1960 Ann. Int. Conf. on High Energy Phys. at Rochester, Univ. of Rochester, 1960*, p. 165; M. Ikeda, S. Ogawa, Y. Ohnuki. *Progr. Theor. Phys.*, 22, 715, 1959.

SUBMITTED: July 17, 1961

Card 4/4

KOZAREV, I. Yu. and OKUN, L. B.

"On Fermion Gravitational Interaction"

report presented at the Intl. Conference on High Energy Physics, Geneva,
4-11 July 1962

Inst. of Theoretical and Experimental Physics, Moscow, USSR

KOZAROV, I. Yu. and OKUN, L. B.

"New particles and sakata model"

report presented at the Intl. Conference on High Energy Physics, Geneva,
4-11 July 1962

Inst. of Theoretical and Experimental Physics, Moscow, USSR

KOBZAREV, I. Yu. and OKUN, L. B.

"Unitary Symmetry and Universal Weak Interaction"

report presented at the Intl. Conference on High Energy Physics, Geneva,
4-11 July 1962

Inst. of Theoretical and Experimental Physics, Moscow, USSR

KOZAREV, I. Yu. and OKUN, L. B.

"Model of Muon Anomalous Interaction"

report presented at the Intl. Conference of High Energy Physics, Geneva,
4-11 July 1962

Institute of Theoretical and Experimental Physics, Moscow, USSR

KOBZAREV, I. Yu., OKUN, L. B.

"New Meson Possible Decays"

report presented at the Intl. Conference on High Energy Physics, Geneva,
4-11 July 1962

Inst. of Theoretical and Experimental Physics

S/825/62/000/000/001/002
B102/B186AUTHOR: Kobzarev, I. Yu.

TITLE: Neutral K-mesons

SOURCE: Voprosy teorii sil'nykh i slabykh vzaimodeystviy elementarnykh
chastits. Fiz. inst. AN Arm. SSR. Ed. by V. B. Berestetskiy.
Yerevan, 1962, 175 - 185

TEXT: The properties and behaviour of K-mesons are discussed in connection with the problem of classifying elementary particles. If elementary particles are divided into two classes, according to whether or not the particles and antiparticles are identical, then K-mesons lie on the dividing line and belong to neither class. The decay of K^0 -mesons into pions, and possible ways of determining the strangeness and parity of K^0 -mesons, are discussed from this point of view. The lifetime of K_1^0 , which can decay into two pions, is obtained as $\sim 10^{-10}$ sec; that of K_2^0 , which can only decay into three pions or leptons, is obtained as $\sim 5 \cdot 10^{-8}$ sec. The two K^0 -mesons have different masses, the mass difference being Δm , but it is impossible to say theoretically which of them is the heavier. As the probability of

Card 1/2

S/056/62/043/004/024/061
B108/B186AUTHORS: Kobzarev, I. Yu., Okun', L. B.

TITLE: Possible decays of new mesons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43,
no. 4(10), 1962, 1288 - 1295

TEXT: The probabilities of various decay modes of the neutral vector meson ω^0 and of the neutral pseudoscalar meson σ^0 (not hitherto observed) were studied using the matrix elements of these decays. Results: $\omega^0 \rightarrow \pi^+ + \pi^- + \pi^0$, $w = L^6 m_\omega^7 / 2^{12} 90 \pi^3$ with $f = 0.23$. $\omega^0 \rightarrow \pi^0 + \gamma$, $w = \alpha L^2 m_\omega^3 / 96 \pi$ with $\alpha = 1/137$. $\omega^0 \rightarrow \pi^+ + \pi^-$, $w = \beta^2 p^3 / 6 \pi m_\omega^2$ where p is the momentum of the decay products, β is a dimensionless quantity, L has the dimension of length. $\sigma^0 \rightarrow \pi^+ + \pi^- + \gamma$, $w = \alpha L^6 m_\sigma^7 / 2^{12} 30 \pi^3$ with $f \approx 0.3$ when $m_\sigma = 700$ Mev. $\sigma^0 \rightarrow 2\gamma$, $w = \alpha^2 L^2 m_\sigma^3 / 64 \pi$. Probably this decay is predominant in a wide

Card 1/2

24.6610

37889
8/056/62/042/005/040/050
B108/B138AUTHORS: Kobzarev, I. Yu., Okun', L. B.

TITLE: Unitarity symmetry and universal weak interaction

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42,
no. 5, 1962, 1400-1403

TEXT: The hypothesis is discussed according to which the strange particle lepton decay constant G_A is approximately a quarter of the universal constant $G = 10^{-5} \text{ s}^{-2}$. From the Sakata model it follows that the lepton decay matrix elements must satisfy the conditions

$$M(\Lambda \rightarrow p + e(\mu) + \bar{\nu}) : M(n \rightarrow p + e(\mu) + \bar{\nu}) = G_A : G_N. \quad (3)$$

$$M(K \rightarrow e(\mu) + \nu) : M(\pi \rightarrow e(\mu) + \nu) = G_A : G_N. \quad (4)$$

$$2M(K^+ \rightarrow \pi^0 + e(\mu) + \bar{\nu}) : M(\pi^+ \rightarrow \pi^0 + e(\mu) + \bar{\nu}) = G_A : G_N. \quad (5)$$

$$M(K^+ \rightarrow \sigma_1^0 + e(\mu) + \bar{\nu}) : M(K^+ \rightarrow \pi^0 + e(\mu) + \bar{\nu}) = \sqrt{3}. \quad (5')$$

Card 1/2

Unitarian symmetry and universal weak ...

8/056/62/042/005/040/050
B108/B138

which are imposed by the unitarian symmetry of strong interaction. This hypothesis agrees with recent experimental data and permits a number of predictions. It holds particularly for the decay probabilities, which should fit the relations

$$w(K_{e3}) = G_{\Lambda}^2 \cdot 0.6 / 1536\pi^3 = 5.1 \cdot 10^6 \text{ sec}^{-1}$$

$$w(K_{\mu 3}) = 0.4 \cdot G_{\Lambda}^2 \cdot m^5 / 1536\pi^3 = 3.4 \cdot 10^6 \text{ sec}^{-1}$$

$$w(K_{e3}) / w(K_{\mu 3}) = 1.5$$

$$w(\Lambda \rightarrow p + e + \bar{\nu}) \approx 6 \cdot 10^6 \text{ sec}^{-1}$$

The spectra and polarizations of the particles emitted in $K_{\mu 3}$ decay and in lepton decays of the Λ -hyperon can be predicted. There is 1 figure.

ASSOCIATION: Institut teoreticheskoy i eksperimental'noy fiziki Akademii nauk SSSR (Institute of Theoretical and Experimental Physics of the Academy of Sciences USSR)

SUBMITTED: January 3, 1962
Card 2/2

S/056/62/042/006/037/047
B104/B112

AUTHORS: Kobzarev, I. Yu., Okun', L. B.

TITLE: New particles and Sakata's model

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki,
v. 42, no. 6, 1962, 1651-1657

TEXT: Based on Sakata's model a classification of new particles was developed on the assumption that there is no difference between long-lived particles and resonances. Recently detected resonances in the interactions of elementary particles are interpreted as coupled states in Sakata's model. The ω^0 meson, for example, is regarded as a coupled 3S_1 state of baryons and antibaryons. Some predictions are made regarding the spin, parity, and charge parity of new mesons. Consequences following from the unitary symmetry of strong interaction are illustrated with the aid of the vector model. There are 3 figures and 1 table.

Card 1/2

New particles and Sakata's model

S/056/62/042/006/037/047
B104/B112

ASSOCIATION: Institut teoreticheskoy i eksperimental'noy fiziki Akademii nauk SSSR (Institute of Theoretical and Experimental Physics of the Academy of Sciences USSR) ✓

SUBMITTED: January 30, 1962

Card 2/2

KOBZAREV, I.Yu. - OKUN', L.B.

Heavy neutral pseudoscalar mesons. Zhur. eksp. i teor. fiz. 41
no.6:1949-1952 D '61. (MIRA 15:1)

(Mesons)

KOBZAREV, I.Yu.; OKUN', L.B.

On possible decays of new mesons. Zhur. eksp. i teor. fiz.
43 no.4:1288-1295 0 '62. (MIRA 15:11)

1. Institut teoreticheskoy i eksperimental'noy fiziki
AN SSSR.

(Mesons—Decay)

KOBZAREV, I.Yu.; OKUN', L.B.

Unitary symmetry and universal weak interaction. *Zhur. eksp.
i teor. fis.* 42 no.5:1400-1403 My '62. (MIRA 15:9)

1. Institut teoreticheskoy i eksperimental'noy fiziki AN SSSR.
(Nuclear models)

KOZAREV, I.Yu.; OKUN', L.B.

New particles and Sakata's model. Zhur. eksp. i teor. fiz.
42 no.6:1651-1657 Je '62. (MIRA 15:9)

1. Institut teoreticheskoy i eksperimental'noy fiziki
AN SSSR.

(Particles (Nuclear physics))
(Nuclear models)

43378

B/056/62/043/009/043/098
B125/B104

244600

AUTHORS: Kobzarev, I. Yu., Okun', L. B.
TITLE: On the gravitation interaction of fermions
PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43,
 no. 5(11), 1962, 1904-1909

TEXT: The effect of the spin of a fermion on its interaction with a spinor field is studied in linear relativistic approximation (S. Gupta. Proc. Phys. Soc., A65, 161; 608, 1952). In such an approximation, the interaction of two particles is described by Møller diagrams. The relation

$$\int \langle 2 | \theta_{ik}(x) e^{iqx} | 1 \rangle d^4x = (2\pi)^4 \delta(p_1 - p_2 - q) \Gamma_{ik}(p_1, p_2, q). \quad (3),$$

which is the mathematical formulation of the principle of equivalence, is deduced for the determination of the graviton vertex. $\langle 2 |$ and $| 1 \rangle$ are the physical states of a given particle. The symmetrical energy-momentum tensor θ_{ik} corresponds with the total Lagrangian $L = L_f + L_g + L_e + L_v + L_x$ of the

Card 1/5

On the gravitation interaction...

S/056/62/043/005/043/058
Bf25/B104

interacting elementary particles. L_f is the free Lagrangian of the elementary particles, L_s , L_e , and L_w are the Lagrangians of strong, electromagnetic, and weak interaction, respectively. L_x is the Lagrangian of unknown interactions that are possibly present. The vertex part satisfies the transverse condition $q_k \Gamma_{ik} = 0$. The gravitation vertexes for the bare particles after removal of L_s , L_e , L_w , and L_x are

$$\Gamma_{ik}^0 = \varphi_i \left[2p_i p_k - \frac{1}{2} (q_i q_k - q^2 \delta_{ik}) \right] \varphi_k \quad (7)$$

for a spin-zero meson (pion) and

$$\Gamma_{ik}^0 = \frac{1}{2} \bar{u}_i (\gamma_i p_k + \gamma_k p_i) u_i = \frac{1}{2} \bar{u}_i (\gamma_i p_k) u_i \quad (8)$$

for a spin-1/2 fermion (proton). The formulas

$$\Gamma_{ik}^0 = \frac{1}{2} \bar{u}_i (\gamma_i p_k) (1 + \gamma_0) u_i \quad (9)$$

Card 2/5

8/056/62/043/005/043/058
B125/B104

On the gravitation interaction...

and

$$\Gamma_{\mu\nu} = \frac{1}{2} \bar{u}_2(\gamma_\mu \rho_\nu) u_1 \quad (10)$$

hold for a neutrino whose free Lagrangian is 2 and 4, respectively. In the case of (10) the virtual gravitons can turn into a neutrino-anti-neutrino pair with "irregular" helicity. It is therefore a physical problem to establish whether a neutrino is a two-component particle. In principle this problem can be solved by measuring the neutrino flux in outer space using two different methods (gravitation effect, and weak interaction). It would also be possible to establish whether abnormal, inert neutrinos exist in nature. At a total energy of

$$E \sim \sqrt{2pk} \sim \pi^{-1} \sim 10^{19} \text{ e.p.}$$

in the c.m.s., the gravitation interaction becomes a strong interaction. The redshift and the deflection of light can be described as classical effects by means of the Lagrangian $L_g = \frac{1}{2} \gamma_{ik} \dot{r}_{ik}$ for the interaction of the particle with the external weak gravitational field γ_{ik} . The perihel

Card 3/5

S/056/62/043/005/043/058
B125/B104

On the gravitation interaction...

motion of Mercury is of the second order in regard of the gravitational field. In static approximation, i.e. when $p_1 = (m, 0, 0, 0)$, $p_2 = p_1 + q$, and when q has only small spatial components ($q = q(0, \vec{q})$), the relation (8) with the aid of $m\bar{u}_2\gamma_1 u_1 \rightarrow \bar{u}_2(p_1 + \frac{1}{2} \sigma_{ik} q_k)$ can be written in the form

$$\Gamma_{ik}^j = \bar{u}_2 \gamma_j \left(p_i p_k + \frac{1}{4} (\sigma_{ik} q_\alpha) \right) u_1. \quad (17).$$

+

Nonrelativistic approximation leaves only the terms $\Gamma_{00} = m$ (zeroth approximation with respect to \vec{q}) and $\Gamma_{0\alpha} = [\vec{\sigma}\vec{q}]_\alpha / 4$ with $\alpha = 1, 2, 3$ (first approximation) out of Γ_{ik} . \vec{q} is the three-dimensional proton spin-vector. After all possible interactions are brought into action, gravitation interaction is no longer a point interaction. The relations

Card 4/5

KOBZAROV, I.Yu.; OKUN', L.B.

Gravitational interaction of fermions. Zhur. eksp. i teor.
fis. 43 no. 5:1904-1909 N '62. (MIRA 15:12)

1. Institut teoreticheskoy i eksperimental'noy fiziki
AN SSSR.

(Nuclear spin)

KOBZAREV, I.Yu.; PONTEKORVO, B.

Parity nonconservation and macroscopic rotation. *Usp. fiz. nauk* 81
no.1:3-6 9 '63. (MIRA 16:12)

"APPROVED FOR RELEASE: 09/18/2001

CIA-RDP86-00513R000723420009-4

APPROVED FOR RELEASE: 09/18/2001

CIA-RDP86-00513R000723420009-4"

Card 3/3

ACCESSION NR: AP4031166

S/0056/64/046/004/1418/1419

AUTHORS: Kobzarev, I. Yu.; Okun', I. B.

TITLE: Absence of $\eta - 2\pi$ decays and conservation of space and combined parities

SOURCE: Zh. eksp'r. i teor. fiz., v. 46, no. 4, 1964, 1418-1419

TOPIC TAGS: parity conservation, combined parity, P invariance, CP invariance, η meson, strong interaction, 2π decay

ABSTRACT: The importance of a search for the 2π mode of decay of the η meson is emphasized in view of its relevance to the question of P and CP invariance of strong interactions. It is pointed out that present evidence on the absence of this decay indicates that the invariances in question hold to an accuracy of one part in

$10^5 - 10^6$. It is suggested that this result could be improved by perhaps three orders of magnitude and it is pointed out that it would

Card 1/2

ACCESSION NR: AP4031166

then provide a test of CP much superior to any known at present.
"The authors express gratitude to P. A. Krupchitskiy for useful re-
marks."

ASSOCIATION: None

SUBMITTED: 24Oct63

DATE ACQ: 07May64

ENCL: 00

SUB CODE: PH

NO REF SOV: 002

OTHER: 003

Card 2/2

"APPROVED FOR RELEASE: 09/18/2001

CIA-RDP86-00513R000723420009-4

APPROVED FOR RELEASE: 09/18/2001

CIA-RDP86-00513R000723420009-4"