24(5)

AUTHOR: Okonov, E. O. SOV/56-35-5-25/56

TITLE: On the Possible Existence of the Ξ^0-Hyperon (O vozmozhnom sushchestvovanii Ξ^0-giperona)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 5, pp 1232-1234 (USSR)

ABSTRACT: It might be possible that the existence of the Ξ-hyperon is the cause of the observed difference between the experimentally determined mean lifetimes of Λ^0-particles which were observed in cosmic radiation and in accelerators. In this paper the author examines this problem. A $\Xi^- \longrightarrow n + \pi^-$ decay has hitherto not been noticed. Gell-Mann and Pais (Pays) herefrom drew the conclusion that for decays with participation of strongly interacting particles the compensation rule $|\Delta S| = 1$ applies, which forbids decays with a "strangeness" variation by two units (Ref 1). It follows herefrom that for a strangeness of the Ξ-particle of -2, its decay products would have to have the total strangeness of -1. It follows from $Q = I_z + N/2 + S/2$ that the Ξ-hyperon occurs as an isotopic doublet (Ξ^- : $I_z = -1/2$,

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Ξ^0 : $I_z = +1/2$). The decay $\Xi^0 \longrightarrow \Lambda^0 + \pi^0$ has actually been observed. Therefore, the hypothesis $|\Delta S| = 1$, as Okun' and Pontekorvo (Ref 2) have shown, is no longer justifiable, except when in decay the strangeness extends to normal particles. Measurements of the mean lifetime of cosmic Λ^0-particles gave $\tau_{\Lambda^0} = (3.5^{+0.2}_{-0.1}).10^{-10}$ sec., and in the case of particles artificially produced in accelerators the value $(2.8 \pm 0.1).10^{-10}$ sec. was obtained. The higher value in the former case could be explained by the fact that recording extends also to such Λ^0-particles as are produced by $\Xi \longrightarrow \Lambda^0 + \pi^0$ decay. Therefore, knowledge of the lifetime and the relative probability for Ξ^0-hyperon production would be of great importance, because then it would be possible to decide whether the yield of Ξ^0-decay actually quantitatively satisfies the higher value of the lifetime in cosmic radiation. The author makes the attempt to give a rough estimate of lifetime and production probability for Ξ^0-hyperons for the purpose of explaining the difference in lifetime. He obtains for $q = 0.1 \div 0.2$: $\tau_{\Xi^0} = (4 \div 6).10^{-10}$ sec.

On the Possible Existence of the Ξ^0-Hyperon SOV/56-35-5-25/56

($q = m/n$, m = number of Λ^0-particles produced primarily, n = number of particles produced in Ξ^0-decay). An experimentally found value $\tau_{\Xi^-} \geqslant 4.6 \cdot 10^{-10}$ sec. (Ref 7) is within this scope. In conclusion, the author thanks M. I. Podgoretskiy for his valuable comments. There are 1 figure and 7 references, 1 of which is Soviet.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute for Nuclear Research)

SUBMITTED: May 31, 1958

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21(4)

AUTHOR: Okonov, E. O.

SOV/56-36-5-63/76

TITLE: Some Particular Features of Antiproton-annihilation on the Deuteron (Nekotoryye osobennosti annigilyatsii antiprotona na deytrone)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 5, pp 1597-1598 (USSR)

ABSTRACT: In the present "Letter to the Editor" the author discusses the probability of the annihilation of the antiproton on the deuteron and the probability of such reactions on the basis of the material published in this field. Pontekorvo (Ref 1) already showed that besides the ordinary annihilation of the antiproton on one of the deuterium nucleons also the so-called process of one-mesonic annihilation $\bar{p} + d \longrightarrow p + \pi^-$ (1) or $\bar{p} + d \longrightarrow n + \pi^0$ (2) is possible. It is possible to show that the relative probability of processes of this kind cannot be less than that of the reaction $\pi^+ + d \longrightarrow p + p$ if statistical corrections are taken into account. In the case of a pion momentum of $\sim$130 Mev/c the cross section of

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this reaction is ~ 10 % of the total π^+d-interaction cross section. In the case of a smaller momentum the fraction becomes still larger. The fraction of "mesonless" annihilation stars in photoemulsions amounts to ~ 5 % (Ref 3), the cross section ratio of the reactions (1) and (2): $d\sigma_1/d\sigma_2 = 2$ according to isotopic invariance; this equation is not satisfied if the isotopic invariance is disturbed or also in the case of the emission of a (hypothetical) ρ^0-meson ($T = 0$) according to $\bar{p} + d \longrightarrow n + \rho^0$ (4). If the ρ^0-meson has the same structure as the π^0-meson, it holds that $d\sigma_1 : d\sigma_2 : d\sigma_4 = 2 : 1 : 3$, i. e. "neutral" annihilation occurs twice as frequently as "charged" annihilation. In the case of an annihilation capture also the following reactions may, however, occur besides the reactions (1), (2), and (4): $\bar{p} + d \longrightarrow \Sigma^- + K^+$, $\bar{p} + d \longrightarrow \Sigma^0 + K^0$, $\bar{p} + d \longrightarrow \Lambda^0 + K^0$ (5),(6),(7).

Some Particular Features of Antiproton-annihilation on the Deuteron SOV/56-36-5-63/76

According to charge invariance $d\sigma_5/d\sigma_6 = 2$ and $d\sigma_6 = d\sigma_7$ is obtained. Also processes with cascade hyperons would be possible: $\bar{p} + d \rightarrow \bar{\Xi}^- + K^+ + K^0$ and $p + d \rightarrow \Xi^0 + K^0 + K^0$.

The author thanks L. I. Lapidus, B. M. Pontekorvo and R. M. Ryndin for discussions, and D. Miller for placing experimental results at his disposal before publication.
There are 5 references, 2 of which are Soviet.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: February 9, 1959

Card 3/3

21(0)

AUTHOR: Okonov, E. O.

SOV/53-67-2-2/7

TITLE: The Decay Properties of Heavy Mesons and Hyperons (Raspadnyye svoystva tyazhelykh mezonov i giperonov)

PERIODICAL: Uspekhi fizicheskikh nauk, 1959, Vol 67, Nr 2, pp 245-291 (USSR)

ABSTRACT: The present paper gives a very detailed and clear survey of the problem mentioned in the title and of its border fields; nearly 300 publications of experimental and theoretical nature are dealt with. The survey is made on the basis of the latest research results. In the introduction a table is published which contains a compilation of data concerning K-meson and hyperon decay according to conditions prevailing on September 1, 1958. For a large number of various K-mesons, as well as for Λ^0, Σ^+, Σ^0, Σ^-, Ξ^-, Ξ^0, particles and for the antihyperon $\bar{\Lambda}^0$ it contains data concerning decay products, relative probability, mass, and average life. The first chapter of the paper deals with the decay properties of K-mesons; the author discusses specifically the so-called $\tau\theta$-problem, the various decay probabilities of the K^+-meson, the mean life of the K^+-meson and its measurement, mass and spin of the K^+-meson, the K^--meson, the K_1^0 - meson

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its experimental observation and its properties, and the long-lived K^0-meson (K_2^0)(this chapter is dealt with very much in detail and contains many experimental details). The second part of the paper deals with the decay properties of hyperons. Individual chapters deal with: The Λ^0-hyperon (Tables 6 and 7 contain data on life-time measurements carried out by various authors), the Σ-hyperons, the cascade Ξ-hyperon, hyperon spin, the lepton-decay of hyperons, the nonconservation of parity in the decay of hyperons, antihyperons. The next chapter deals with the experimental verification of the selection rules $|\Delta I| = \frac{1}{2}$, and, finally, the author discusses the so-called "new" particles discovered in cosmic radiation. The material dealt with was obtained mainly from American and Italian periodicals; the following Soviet authors are mentioned: Yu. A. Yappa, L. B. Okun', M. A. Markov, N. V. Smirnov, I. V. Dunin-Barkovskiy, N. P. Klepikov, S. N. Sokolov, I. Yu. Kobzarev, I. Ye. Tamm, S. G. Matinyan, I. G. Ivanter, I. S. Shapiro, E. I. Dolinskiy, A. P. Mishakova, A. O. Vaysenberg, M. Ya. Danysh, B. M. Pontekorvo, L. D. Landau, I. Ya. Pomeranchuk,

The Decay Properties of Heavy Mesons and Hyperons SOV/53-67-2-2/7

I. M. Shmushkevich, V. M. Shekhter, A. I. Alikhanyan, N. V. Shostakovich, E. Sh. Mandzhavidze and N. N. Roinishvili. There are 23 figures, 8 tables, and 293 references, 24 of which are Soviet.

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OKONOV, E.O

82601
S/056/60/039/01/10/029
B006/B070

24.6910

AUTHORS: Okonov, E. O., Petrov, N. I., Rozanova, A. M., Rusakov, V. A.

TITLE: Four-pronged Decay of the Long-lived K^0-Meson

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 1 (7), pp. 67-69

TEXT: A cloud chamber was exposed to a neutral particle beam of the proton synchrotron at the OIYal (Joint Institute of Nuclear Research). Out of 140 K_2^0 decays recorded, one four-pronged decay was found (at 8 m distance from the inner target). A photograph of this event is given on an insert between pages 64 and 65. The tracks to be seen on this photograph and denoted by A, B, C, D are discussed in the introduction, and the results obtained from measurements of the tracks are tabulated (momentum, sign of the charge, angles). All possible ways of explaining this event are next considered. The conclusion is that considering all data of measurement as well as the CP-invariance, only the following possibilities remain:

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Four-pronged Decay of the Long-lived K^0-Meson S/056/60/039/01/10/029
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(1) $K_2^0 \rightarrow \pi^+ + \pi^- + \gamma \rightarrow e^+ + e^-$ and (2) $K_2^0 \rightarrow \pi^+ + \pi^- + \pi^0 \rightarrow e^+ + e^- + \gamma$

The subsequent discussion establishes the fact that the decay takes place according to mode (2). The authors thank B. M. Pontekorvo for his interest in the work, M. I. Podgoretskiy for discussions, D. Nyag for help in calculations, and M. Kh. Anikina and P. I. Zhabin for taking part in the measurements. There are 1 figure, 1 table, and 8 references: 2 Soviet, 5 American, and 1 Italian.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: March 18, 1960

Card 2/2

SHIROKOV, M.I.; OKONOV, E.O.

Space and charge parity of a proton—antiproton system and its two-meson annihilation. Zhur. eksp. i teor. fiz. 39 no.2:285-292 Ag '60. (MIRA 13:9)

1. Ob"yedinennyy institut yadernykh issledovaniy.
(Mesons) (Protons)

8413

S/056/60/039/004/031/048
B006/B063

24.6900

AUTHOR: Okonov, E. O.

TITLE: The Problem of the Annihilation of the System Antiproton - Proton

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 4(10), pp. 1059 - 1061

TEXT: The present paper follows Ref. 1 in which the author jointly with M. I. Shirokov has shown that a study of the decay of proton + antiproton into two pions may give information on the inner spatial and charge parities of the p-p system. Experimentally, the reaction $\bar{p} + p \to \pi^+ + \pi^-$ has not yet been found. The author discusses all possibilities of the occurrence of such a reaction from the theoretical point of view, as well as the results of a number of related publications. Supposing that the annihilation transition matrix is strongly dependent on the isotopic and spin states of the $\bar{p}$-p system, the annihilation process is considerably affected. Specifically, the fact that the $^1S_0$ state predominates in

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The Problem of the Annihilation of the System Antiproton - Proton

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B006/B063

annihilation leads to an increase in the mean multiplicity of the pions, and since annihilation takes place primarily in the singlet state, annihilation into two pions may be suppressed (Ref. 4). In this case, two-pion annihilation for the lower orbital states of the $\bar{p}$-p system is forbidden by the law of conservation of spatial and charge parities. The question as to whether there is really such a close relationship between the transition matrix and the state of the $\bar{p}$-p system can be solved by studying the reduced probability for annihilation from different states of the $\bar{p}$-p system, especially from the S-states. The following scheme is obtained for the possibilities of annihilation from S-states into six pions:

State of the p-p system	$^1S_0$	$^1S_0$	$^3S_1$	$^3S_1$
Spin	0	0	1	1
Isospin	0	1	0	1
Parity	-	-	-	-
Charge parity	+	+	-	-
$2\pi^0$	+	+	+	+
$\pi^+\pi^-$	+	+	+	

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The Problem of the Annihilation of the System Antiproton - Proton

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State of the p-p system	$^1S_0$	$^1S_0$	$^3S_1$	$^3S_1$
$3\pi^0$	+		+	+
$\pi^+\pi^-\pi^0$	+			+
$4\pi^0$			+	+
$\pi^+\pi^-2\pi^0$		+	+	
$2\pi^+2\pi^-$		+	+	

+ denotes the forbiddenness of annihilation transitions in accordance with the selection rules given in Ref. 6. This compilation is discussed in detail. The following relation is given for an annihilation from the $^1S_0$ state ($I = 1$): $w(\bar{p}+p\to\pi^+\pi^-\pi^+\pi^0)/w(\bar{p}+p\to 3\pi^0) = 2/3$. Among other things, the author notes that it may be experimentally found out whether capture of stopped antiprotons takes place from the S-orbit in accordance with the estimates made for K^- mesons. The author thanks V. S. Barashenkov, S. M. Bilen'kiy, and V. I. Ogiyevetskiy for discussions. There are 7 references: 3 Soviet.

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The Problem of the Annihilation of the System Antiproton - Proton

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B006/B063

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: May 12, 1960

Card 4/4

ANIKINA, M.Kh.; NEAGU, D.; OKONOV, Ye.O.; PETROV, N.I.; ROSANOVA, A.M.; RUSAKOV, V.A.; SARANTSEVA, V.R., tekhn. red.

An experimental investigation of CP-invariance consequences K_2^0 decays. Dubna, Ob"edinennyi institut iadernykh issledovanii, 1961. p.8.

(No subject heading)

NYAGU, D.V.; OKONOV, E.O.; PETROV, N.I.; ROZANOVA, A.M.; RUSAKOV, V.A.

Experimental verification of the $\Delta I = 1/2$ selection rule for lepton decay of K-mesons. Zhur. eksp. i teor. fiz. 40 no.6:1618-1624 Je '61. (MIRA 14:8)

1. Ob"yedinennyy institut yadernykh issledovaniy.
(Nuclear spin)
(Mesons—Decay)

OKONOV, E.O.

Suppression of two-meson annihilation in antiproton-proton interaction. Zhur. eksp. i teor. fiz. 40 no.6:1728-1731 Je '61. (MIRA 14:8)

1. Ob"yedinennyy institut yadernykh issledovaniy.
(Mesons)
(Protons)
(Nuclear reactions)

OKONOV, Ye.O.

Limits for a possible magnetic moment of the K^0 meson.
Dubna, Ob"edinennyi in-t iadernykh issledovanii, 1962. 6 p.
(No subject heading)

OGIYEVETSKIY, V.I.; OKONOV, E.O.; PODGORETSKIY, M.I.; SARANTSEVA, V.R., tekhn. red.

[Some properties of pairs of K^0K^0-mesons] O nekotorykh svoistvakh par K^0K^0-mezonov. Dubna, Ob"edinennyi in-t iadernykh issledovanii, 1962. 13 p. (MIRA 15:6)

(Mesons)

OKONOV, E. O.

AMINIMA, M. Kh., [illegible], D. M., NIELOV, A. A., LOMBAVLEVA, N. G., MANDZHAVIDZE G. M., MGEBRISHVILI, A. N. NIAGU, D. V., [illegible], N. I. POLANOVA, A. M., [illegible], V. A. CHLNOV, E. O., [illegible], O. G., CHERENDE, L. B.

"Decay Properties of $K^{\pm}$-Mesons"

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

Joint Inst. for Nuclear Research
Lab. of High Energies, Dubna, 1962

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001237910018-9"

S/823/62/000/000/007/007
B125/B102

AUTHORS: Gal'per, A. M., Kuzin, L. A., Okonov, E. O.

TITLE: The usability of bubble chambers for examining the decay properties of K_2^0-mesons

SOURCE: Nekotoryye voprosy fiziki elementarnykh chastits i atomnogo yadra. Ed. by V. D. Mikhaylov and I. L. Rozental'. Mosk. inzh.-fiz. inst. Moscow, Gosatomizdat, 1962, 131-135

TEXT: Various possibilities of recording decay products of K_2^0-mesons by using bubble chambers filled with various liquids were considered. Neutral decay products (π^0 and γ) of K_2^0-mesons were found to be recorded most efficiently by the use of xenon chambers. In these, the high density of matter allows of slowing down the charged particles effectively but complicates the identification of pions and muons stopped at very short ranges. Propane chambers are very useful for identifying pions and muons but are less efficient when recording neutral decay products and for slowing down charged particles. Chambers filled with liquids having

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The usability of bubble chambers...

'intermediate' properties are best suited (e.g., Freon). Bubble chambers containing 50 % Freon 12 and 50 % Freon 13 record neutral pions and γ-quanta more efficiently than do propane chambers of equal size, and pions and muons can be better identified than in xenon chambers. In addition, xenon and Freon chambers can be used for studying the decay probability ratios

$$\frac{\omega(K_2^0 \to 3\pi^0)}{\omega(K_2^0 \to \pi^0+\pi^+ +\pi^-)} \sim 2,$$

$$\frac{\omega(K_2^0 \to 3\pi^0) + \omega(K_2^0 \to \pi^0+\pi^+ +\pi^-)}{\omega(K^+ \to \pi^+ +\pi^0+\pi^0) + \omega(K^+ \to \pi^+ +\pi^+ +\pi^-)} \sim 1.$$

which follow from the selection rule $\Delta I = 1/2$. If a sufficient number of $K_2^0 \to \pi^+ + \pi^- + \gamma$ decay events could be found, it would be possible to study a pure $\pi\pi$-interaction, to analyze spectra of muons and neutrinos for $K_{\mu 3}$ decays especially at fixed pion energies, to obtain information on the

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interaction of K_2^o-mesons, to examine the reaction $K_2^o + (p,n) \rightarrow \Lambda^o + p$ and the regeneration of K_1^o-mesons in a beam of K_2^o-particles, and to investigate the decay products of K_2^o-mesons with a view to discovering new particles. In addition, this would make it possible to verify the selection rule $\Delta I = 1/2$ for lepton decays and would offer the very rare opportunity of checking the CP invariance in weak interactions directly by way of experiments. Big bubble chambers can also be used in the search for new neutral particles with lifetimes from 10^{-9} to 10^{-7} sec. There is 1 table.

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S/056/62/042/001/021/049
B104/B102

24.6700

AUTHORS: Anikina, M. Kh., Nyagu, D. V., Okonov, E. O., Petrov, N. I., Rozanova, A. M., Rusakov, V. A.

TITLE: Experimental investigation of some consequences of CP invariance in K_2^0-meson decays

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 1, 1962, 130-134

TEXT: The application of CP invariance to the decay of neutral K-mesons leads to three conclusions: (1) The decay of a long-lived K^0-meson into two pions is forbidden; (2) in three-particle lepton decays, the ratio between the probabilities of emission of negative and positive pions $R = w(K_2^0 \to \pi^- + e^+(\mu^+) + \nu)/w(K_2^0 \to \pi^+ + e^-(\mu^-) + \nu) = 1$; (3) only a K_2^0-meson can decay into three π^0-mesons, and the $K_2^0 \to \pi^+ + \pi^- + \pi^0$ decay is about hundred times more probable than the relevant decay of a short-lived K^0-meson. At the proton-synchrotron of the Joint Institute of Nuclear Research as much as 649 long-lived K^0-meson decays were record-

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S/056/62/042/001/021/045
B104/B102

Experimental investigation of

with a cloud chamber in a magnetic field. Of these, [illegible] were disturbed because the resulting particles escaped at nearly 90° [illegible] because the background was too intense. The events were analyzed using the following kinematic criteria of two-particle decay: (a) coplanarity of secondary particles with the direction of the decayed K_2^0-meson. [illegible]; (b) balance of transverse components of the momenta of decayed particles; (c) agreement between the measured momenta of secondary particles and the angle of emission. Among the K_2^0-decays no decay into two charged particles was detected. This result evidences that the CP invariance is applicable. The equality between the probabilities of lepton K_2^0-decays with emission of π^- and π^+ mesons does not contradict this hypothesis. Previous investigations indicating the probability of $K_2^0 \longrightarrow 3\pi$ decays also agree with the authors' results. Among the 597 K_2^0-decays, no decay into two charged leptons [illegible] was detected. L. I. Zinov'yev, head of the proton-synchrotron team, Chief Engineer N. I. Pavlov, section chief K. P. Myrnikov, and the operators S. V. Fedukov, I. N. Yalovyy, Ye. N. Kulakova, L. Pe[illegible]

Card 2/5

31004

Experimental investigation of... S/056/62/042/00?/021/046
B104/B102

thanked for the synchrotron experiments, B. M. Pontekorvo for his interest, V. I. Veksler and V. P. Dzhelepov for cooperation, and P. I. Zhabin, V. A. Smirnov, L. Filatova, and N. Kurilina for help in the measurements. There are 1 table and 10 references: 3 Soviet and 7 non-Soviet. The four most recent references to English-language publications read as follows: M. Bardon, K. Lande, L. Lederman. Ann. of Phys., 5, 156, 1958; F. Muller, O. Piccioni et al., Phys. Rev. Lett., 4, 418, 1960; D. Neagu, E. O. Okonov, N. J. Petrov, A. M. Rosanova, V. A. Rusakov. Phys. Rev. Lett., 6, [illegible] 1961; T. Lee, C. Yang. Phys. Rev., 119, 1410, 1960.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: September 2, 1961

Card 3/3

24 6700

3h639
S/056/62/042/002/[illegible]
B108/B104

AUTHORS: Kyagu, D. V., Okonov, E. O., Petrov, N. I., Romanova, A. M., Rusakov, V. A.

TITLE: Production of hyperons in lead by K_2^0 mesons with a mean energy of ~100 Mev

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 2, 1962, 435 - 438

TEXT: The production of hyperons by K_2^0 mesons from the OIYaI (see Association entry) proton synchrotron striking a thin lead target (5.6 g/cm^2) was studied with the aid of a cloud chamber. Out of 440 Λ^0 events, 39 involving one proton were selected visually. The mean mass of the decaying particle was 1116 ± 8 Mev which agrees well with the Λ^0 hyperon mass. The mean energy of the registrated Λ^0 hyperons was 40 Mev. All 39 events can be attributed to the decay $\Lambda^0 \rightarrow p + \pi^-$. The estimate production cross section of Λ^0 hyperons on Pb nuclei is 200 ± 70 mb. The low number of charged hyperons observed is due to the strong absorption inside the Pb nucleus. In a study

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of the hyperon generation mechanism it is shown that absorption of K_2^0 mesons by two nuclei does not predominate. The ratio of the $K_2^0 \longrightarrow K_1^0$ regeneration and hyperon production cross sections is considerably less than unity (about $5 \cdot 10^{-2}$). The authors thank B. M. Pontekorvo, V. P. Dzhelepov, V. I. Veksler, M. I. Podgoretskiy, and M. Anikina for helpful discussions. There are 1 figure, 2 tables, and 8 references: 1 Soviet and 7 non-Soviet. The four most recent references to English-language publications read as follows: F. S. Crawford et al. Phys. Rev. Lett., 2, [illegible] 1959; O. Dahl et al. Proc. 1960 Ann. Intern. Conf. on High-Energy Physics at Rochester, Publ. Univ. Rochester, 1961, p. 414; Kripendra N. Biswas, Phys. Rev., 118, 866, 1960; R. H. Dalitz, S. F. Tuan. Phys. Rev. Lett., 2, 425, 1959.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: September 26, 1961

S/056/62/042/003/019/049
B102/B138

24.6610

AUTHORS: Okonov, E. O., Podgoretskiy, M. I., Khrustalev, O. A.

TITLE: Gravitational masses of K^0 and $\overline{K}^0$ mesons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 3, 1962, 770 - 771

TEXT: In connection with the problem of "antigravitation" an experiment is considered to determine the up - down deviation of $\overline{K}^0$ and K^0 mesons contained in a horizontal K_2^0 meson beam. Such a deviation of the order of magnitude of de-Broglie wavelength should exist if the gravitational mass of $\overline{K}^0$ is negative. Estimates of the possible effects show, however, that they are too weak to be detectable. E. g. for the inert mass ratio $|M(K^0)-M(\overline{K}^0)|/M \leq 10^{-17}$ is obtained. D. I. Blokhintsev, V. I. Veksler, V. A. Nikitin, V. I. Ogiyevetskiy, L. B. Okun', B. M. Pontekorvo, Ya. A. Smorodinskiy and I. Ye. Tamm are thanked for discussions. There are 10 references: 5 Soviet and 5 non-Soviet. The four most recent references to English-language publications read as follows: L. Schiff. Proc. Nat.

Card 1/2

Gravitational masses ...

S/056/62/042/003/019/049
B102/B138

Acad. Sci. 45, 69, 1959; M. Good. Phys. Rev. 121, 311, 1961; M. Bardon et al. Phys. Rev. 110, 780, 1958; D. Neagy et al. Proc. of the 1960 Ann. Int. Conf. on High Energy Phys. at Rochester., Univ. of Rochester, 1960, p. 603.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: January 10, 1961

Card 2/2

S/056/62/042/006/021/047
B104/B102

AUTHOR: Okonov, E. O.

TITLE: Limits of a possible magnetic moment of a K^o meson

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 6, 1962, 1554-1557

TEXT: The problem of whether the K^o meson has a spin or not is investigated by estimating the limits of a possible magnetic moment of the meson. Results of experiments carried out with the proton synchrotron at the Joint Institute of Nuclear Research are evaluated (M. Kh. Anikina et al., ZhETF, 42, 130, 1962). It is found that the upper limit of the magnetic moment $\mu \leq 0.04\ \mu_o$, where $\mu_o = e/M_K$. A value of $\mu \geq 20\ \mu_o$ leads to a markedly large production cross section of K^o ($\bar{K}^o$) meson in comparison with the K^+ production cross section.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: December 20, 1961

Card 1/1

S/056/62/043/002/048/053
B108/B102

AUTHORS: Ogiyevetskiy, V. I., Okonov, E. O., Podgoretskiy, M. I.

TITLE: Properties of K-meson pairs

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 2(8), 1962, 720-723

TEXT: Some properties of the production and decay of K-meson pairs are considered. It is pointed out that the type of decay is determined by the parity of the orbital angular momentum in the system $K^{o}\bar{K}^{o}$.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: March 31, 1962

Card 1/1

OKONOV, E.O.

[Mean lifetime of a long-lived K^0-meson] O srednem vremeni zhizni dolgozhivushchego K^0-mezona. Dubna, Ob"edinennyi in-t iadernykh issl., 1963. 7 p. (MIRA 17:7)

LYUBOSHITS, V.L.; OKONOV, E.O.

[Possible resonances in K-meson decay] O vozmozhnykh rezonansakh v raspadakh K-mezonov. Dubna, Ob"edinennyi in-t iadernykh issl., 1963. 8 p. (MIRA 17:7)

ANIKINA, M.Kh.; GOGITIDZE, O.N.; ZHURAVLEVA, M.S.; KOZLOV, A.A.; KOTLYAREVSKIY, D.M.; MANDZHAVIDZE, Z.Sh.; MESTVIRISHVILI, A.N.; NYAGU, D.; OKONOV, E.O.; PETROV, N.I.; ROZANOVA, A.M.; RUSAKOV, V.A.; TAKHTAMYSHEV, G.G.; CHKHAIDZE, L.V.; U TSZUN-FAN' [Wu Tsung-fan]; TSERELOV, A.A.

Observation of $K_2^0 \rightarrow \pi^+ + \pi^- + \pi^0$ decays. Zhur. eksp. i teor. fiz. 45 no.3:469-473 S '63. (MIRA 16:10)

1. Ob"yedinennyy institut yadernykh issledovaniy i Institut fiziki AN Gruzinskoy SSR.
(Photography, Particle track) (Mesons)

ACCESSION NR: AP4012523 S/0056/64/046/001/0059/0066

AUTHORS: Anikina, M. Kh.; Zhuravleva, M. S.; Kotlyarevskiy, D. M.; Mandzhavidze, Z. Sh; Mestvirishvili, A. N.; Nyagu, D. V.; Okonov, E. O.; Petrov, N. I.; Rusakov, V. A.; Takhtamy*shev, G. G.; Chkhaidze, L. V.; Wu, Tsung-fan

TITLE: Estimate of the relative possibility of the $K_2^0 \rightarrow 3\pi^0$ decay

SOURCE: Zhurnal eksper. i teoret. fiz., v. 46, no. 1, 1964, 59-66

TOPIC TAGS: K_2 decay, Dalitz pair, neutral kaon decay, CP invariance, selection rules, V sup 0 event, ionization selection rule

ABSTRACT: Continuing an earlier investigation (D. V. Nyagu, E. O. Okonov, N. I. Petrov, A. M. Rozanova, and V. A. Rusakov, ZhETF v. 40, 1618, 1961), the authors registered the $K_2^0 \rightarrow 3\pi^0$ decay by the Dalitz pairs observed in a one-meter cloud chamber placed in a beam of neutral particles from a proton synchrotron, using an experimental

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ACCESSION NR: AP4012523

setup described earlier (ZhETF v. 45, 469, 1963). Applying more stringent selection rules, they found the ratio of the probability of the $K_2^0 \to 3\pi^0$ decay to the probability of all K_2^0 meson decays to be (0.24 ± 0.08). "We thank the proton synchrotron crew, whose precise work enabled us to set up the project. We are deeply grateful to B. M. Pontecorvo who called attention to the possibility of investigating $K_2^0 \to 3\pi^0$ decay by means of Dalitz pairs and for numerous discussions. We are grateful to E. L. Andronikashvili, V. I. Veksler, and V. P. Dzhelepov for collaboration, and also to the group of laboratory assistants and particularly student Yu. Luksty*n'sh of Riga University for participating in the measurements." Orig. art. has: 2 figures, 1 formula, and 1 table.

ASSOCIATION: Ob"yedinenny*y institut yaderny*kh issledovaniy (Joint Institute of Nuclear Research); Institut fiziki AN GruzSSR

Card 2/3

ACCESSION NR: AP4012523

(Physics Institute, AN GruzSSR)

SUBMITTED: 10Jul63 DATE ACQ: 26Feb64 ENCL: 00

SUB CODE: PH NO REF SOV: 004 OTHER: 006

Card 3/3

LYUBOSHITS, V.L.; OKUNOV, E.O.; POLGORETSKIY, M.I.

Effect of the medium on the properties of pairs of $K^0\overline{K}^0$-mesons. Zhur. eksp. i teor. fiz. 47 no.5:1868-1873 N '64. (MIRA 18:2)

1. Ob"yedinennyy institut yadernykh issledovaniy.

L 48126-65 EWT(1)/EWT[illegible] EWG[illegible]/T/EWA(m)-2 Pa-5/Pab-2
UR/0367/65/001/003/[illegible]
ACCESSION NR: AP5011219

AUTHOR: Lyuboshits, V. L., [illegible], Podgoretskiy, M. I.

TITLE: The galactic hypercharge [illegible] and decay of long lived neutral me[illegible] k two pi mesons

SOURCE: Yadernaya fizika, v. [illegible], no. 3, 1965, 490-496

TOPIC TAGS: galactic [illegible], radiation, radioactivity, [illegible] reaction, physics, mass [illegible], relativity, elementary [illegible] theory

ABSTRACT: The authors [illegible] fields generated by [illegible] tact" principle. By [illegible] finiteness of the speed [illegible] duction of the above [illegible] fields cannot [illegible] the experimental results [illegible] (Phys. Rev. Lett., 13, [illegible] The authors also disagree with [illegible] (Phys. Rev. Lett., 1[illegible] Bernstein, [illegible] et al. (Phys. [illegible]

Card 1/4

L 08125-65
ACCESSION NR: AP5011[illegible]

1964). These papers [illegible]
which is basic to modern [illegible]
tance from the general[illegible]
K_1^0 mesons in the spe[illegible]
properties of the system [illegible]
The difference in the [illegible]
charge in weak interac[illegible]
antigravitation [illegible]
tion, positive for part[illegible]
their work to classical [illegible]
of creation and annihil[illegible]
down of the equation [illegible]
this field will violate energy conservation [illegible] particle gravity [illegible]
lates are made. It appears that in making certain assumptions about the
assumption of violation of conservation is [illegible] under certain
tain cyclic processes [illegible] conservation. The authors formulate [illegible]
lates common for all classical fields, which hold for g-fields. Then [illegible]
energy relations for charge change in an external static g-field. Many
authors have used the assumption that in change of charge of particles for

Card 2/4

L 48126-65
ACCESSION NR: AP5011219

point A, their potential energy instantaneously changes by a value $\Delta q\varphi$, where Δq is the change in charge and φ is the field potential. This contradicts the principle of short-range action. Instantaneous change in [illegible] field is analyzed from the point of view of short-range [illegible] charges that are not conserved is not a single valued function of [illegible] or of their mutual distribution in space. The [illegible] of $k_2^0 \to 2\pi$ decay is assumed in the paper [illegible] in the gravitational field [illegible] short-range action. If short-range action is [illegible] cannot be affected by the [illegible] from the neutral K meson [illegible] the neutral K mesons [illegible] servation of CP [illegible] posed in this article, [illegible] should lead to different [illegible] Christenson, exists. [illegible] with nonconserved charge, the $K_2^0 \to 2\pi$ decay which was experimentally [illegible]

Card 3/4

L 48126-65
ACCESSION NR: AP5011213

Christensen cannot be explained within the "relation by contact" theory [illegible] of the regeneration in this field of [illegible] means. "We are glad to thank [illegible] Baryshevskiy, V. I. Ogiyevetskiy and A. V. Tarasov for participation [illegible] cussions and for their valuable comments."

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute for Nuclear Research)

SUBMITTED: 02Jan65 ENCL: 00 SUB CODE: [illegible]

NO REF SOV: 003 OTHER: 013

Card 3/4

LYUBOSHITS, V.L.; OKONOV, E.O.; PODGORETSKIY, M.I.; U TSZUN-FAN' [Wu Tsung-fan]

Disturbance of CP-invariance and interference phenomena in the disintegration of a neutral K-meson into two π-mesons. IAd. fiz. 1 no.3: 497-506 Mr '65. (MIRA 18:5)

1. Ob"yedinennyy institut yadernykh issledovaniy.

KOTLYAREVSKIY, D.M.; [illegible], A.N.; [illegible], L.; [illegible], L.; PETROV, N.I.; TUSAKOV, V.A.; CHERNAIEV, I.V.; U TSUNG-FAN' [Wu Tsung-fan]

Energy spectra and angular correlations of particles in $K^0 \rightarrow \pi^{\pm} + e^{\pm} + \nu$ decays. IAd. fiz. 1 no.6:1035-1044 Je '65. (MIRA 18:7)

1. Ob"yedinennyy institut yadernykh issledovaniy i Institut fiziki AN Gruzinskoy SSR.

ANIKINA, M.; VASILENKO, G., CHUDAKOVA, M., KOTLYAREVSKIY, I., LYUBIMOV, V.,
[illegible] MGALOBELISHVILI, A.; NYAGU, I., OKONOV, E.; TAPIOVSKIY, V.;
[illegible] TSZUN-FAN' [Wu Tsung-fan]; CHERNAVSKAYA, L.

K_2^0-meson decay. IAd. fiz. 2 no.3:471-484 S '65. (MIRA 18:9)

1. Ob"yedinennyy institut yadernykh issledovaniy i Institut fiziki AN Gruzinskoy SSR.

L 55176-65
ACCESSION NR

AUTHOR: Okonov, E.

TITLE:

SOURCE: AN SSSR

TOPIC TAGS: meson,

ABSTRACT: A group of
a beam of K_2^0-mesons
that the products
of the K^0 meson
processes. The
is forbidden by
Lett., 13, No.
disintegrating part
theoretically possible
served a two-particle
no systematic searches

Card 1/3

L 65186-65

ACCESSION NR: AP5021272

present paper analyze ... Taking the ... experiment by the Princeton ... decay gives ... tionship:

p = p ... is the momentum ... mass ... their angle of emission ... disintegrating part... tionship may be used ... integrating part... might simulate K_2^0 ... procedure give ... various masses ... for K^+K^- decay ... hypothetical particles ... thors examine the ... the speculative ... considerations given in ... products of disintegration must be identified to prove the existence of ... $\pi^+\pi^-$ decay. "In conclusion, we thank V. Grishin, I. Gurevich, G. Kopylov, Kotlyarovskiy, V. Lyuboshchits, M. Podgoretskiy and G. Takhtamyshev for ... sultation." Orig. art. has: 1 figure.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Insti...

Card 2/3

L 65186-65

ACCESSION NR: AP5021272

Nuclear Research)

SUBMITTED: 16Jan65 ENCL: 00 SUB CODE: NP

NO REF SOV: 002 OTHER: 004

Card 3/3

AMIKINA, M.; VARDENGA, G.; ZHURAVLEVA, M.; KOTLYAREVSKIY, D.; NYAGU, D.; OKONOV, E.; TAKHTAMYSHEV, G.; U TSZUN-FAN' [Wu TSung-fan]; CHKHAIDZE, L.

Determining the relative probabilities of $K_2^0 \rightarrow 3\pi$ decay. IAd. fiz. 2 no.5:853-858 N '65. (MIRA 18:12)

1. Ob"yedinennyy institut yadernykh issledovaniy.

ACC NR: AP7011837 SOURCE CODE: UR/0367/66/004/006/1194/1201

AUTHOR: Lyuboshits, V. L.; Okonov, E. O.

ORG: Joint Institute for Nuclear Research (Ob"yedinennyy institut yadernykh issledovaniy)

TITLE: Interference of K sub L approaches pi sup + pi sup minus and K sub S approaches pi sup + pi sup minus decays in correlation experiments with K sup 0 K sup 0 pairs

SOURCE: Yadernaya fizika, v. 4, no. 6, 1966, 1194-1201

TOPIC TAGS: K meson, radioactive decay

SUB CODE: 20,18

ABSTRACT: It is shown that an investigation of interference effects in correlation experiments with $K^0\bar{K}^0$ pairs makes it possible to determine the magnitude and relative phase of a small admixture of states with even (or odd) orbital moments in the $K^0\bar{K}^0$ system. The authors thank M. I. Podgoretskoy for his valuable discussion. Orig. art. has: 23 formulas. [Based on authors' Eng. Abst.] [JPRS: 40,423]

Card 1/1

0192 0435

OKCNOV, Z.V.; ZANDERSONS, J.; KALNINS, A.; ZHUKOVS, L., red.; PAEGLIS, J., tekhn. red.

[Automatic machine for manufacturing staples. Increasing the extraction of resin by utilizing the wood around injured areas of tapped pines] Automats skavu izgatavosanai. Sveku ieguves paplasinasanai var izmantot ari atsvekotu priezu brucu koksnes svekus by J.Zandersons, A.Kalnins. Riga, Tehniskas informacijas centrlais biroja, 1960. 11 p. [In Latvian translated from the Russian] (MIRA 14:12)
(Staples and stapling machines) (Turpentining)

OKONSKI, S.

"A Polish Ship as a Base in the North Sea." P. 11, (GOSPODARKA RYBNA, Vol. 5, No. 12, Dec. 1953. Warszawa, Poland.)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

OKONSKI, S.; KNOPOL, H.

Knowledge of the vertical wanderings of herring increases the catch.

P. 3, Vol. 7, no. 8, Aug. 1955

SOURCE: East European Accessions List (EEAL), LC, Vol 5, No. 3, March 1956

OKONSKI, S.; KONKOL, H.

The reaction of a school of herring to the extension of herring catching nets. p. 12. GOSPODARKA RYBNA (POLSKIE WYDAWNICTWA GOSPODARCZE) Warszawa. Vol. 7, no. 10, 1955.

So. East European Accessions List. vol, 5, no. 1, Jan. 1956

OKONSKI, Zbigniew, mgr inz.

Aerodynamic method of testing hydraulic rotary pumps. Przegl mech 23 no.13:368-370 '64.

1. Department of Electric Machine Parts and Equipment, Technical University, Gdansk.

OKOL'SKIY, Ye. S.

OKOL'SKIY, Ye. S. - "The effect of plant acidophilin on the development, metabolism, and fattening of pigs", Kiev, 1955. Min Higher Educ. Ukr. Ukrainian SSR. Ukrainian Order of Labor Red Banner Agricultural Academy. (Dissertation for the Degree of Candidate of Agricultural Science.)

SO: Knizhnaya Letopis', No. 43, 22 October 1955. Moscow

OKOPNIK, B.M.; FETISOVA, G.G.

Physical therapy in endarteritis obliterans. Vop. kur., fizioter. i lech. fiz. kul't. 27 no.1:46-48 '62. (MIRA 15:5)

1. Iz klinicheskogo otdela (zav. - prof. G.M.Freydovich) Uzbekskogo instituta kurortologii i fizioterapii imeni Semashko (dir. - dotsent Ya.K.Muminov) i Tashkentskoy gorodskoy fizioterapevticheskoy poliklinniki (zav. - Z.N. Nazurullayev).
(ARTERIES--DISEASES) (PHYSICAL THERAPY)

[illegible], M.I., [illegible], L.S., [illegible], A.I.

Boots and Shoes - Trade and Manufacture

New method of making and stitching stiff counters, Leg. prom. 12 no. 4:43-44 Ap '52.

Monthly List of Russian Accessions, Library of Congress, July 1952. Unclassified

RABICHENKO, N.I.; SAPOZHNIKOV, A.M.; OKOPOV, M.S.

Lug-stopper with shock absorber. Leg.prom. 14 no.8:25-26 Ag '54.
(Shoe machinery)
(MLRA 7:8)

Okopov, M. S.

BABICHENKO, N.I.; SAPOZHNIKOV, A.M.; OKOPOV, M.S.

Broaden the use of the new method of sewing in stiff counters.
Leg.prom. 14 no.12:51-52 D '54. (MLRA 8:2)
(Shoe industry)

OKOPOV, M.S.; BABICHENKO, N.I.

Machine for ironing out the back seam of a kersey boot. Leg.prom. 16 no.9:46-48 S '56. (MLRA 9:11)
(Shoe industry)

BABICHENKO, N.I.; OKOPOV, M.S.

Multineedle sewing machine for footwear manufacture. Leg.prom. 18 no.6:47-48 Je '59. (MIRA 12:10)
(Sewing machines) (Shoe industry)

OKORDY, Janos

Aquarium photographs. Kep hang 5 no.3:72-73 Je '59.

SHISHLYAKOV, A.V., kand. tekhn. nauk; MIKHAYLOV, A.F., inzh.;
KRAVTSOV, Yu.A., inzh.; OKORKOV, V.A., inzh.; REMESH, V.V., inzh.

Operation of pulse-type track circuits on tracks with reinforced concrete ties. Avtom., telem. i sviaz' 7 no.7:4-7 Jl '63.
(MIRA 16:10)

OKORKOV, V.A.

Blue light of a trackside signal. Avtom., telem. i sviaz' 9 no.11:42 N '65. (MIRA 18:12)

1. Glavnyy inzh. sluzhby signalizatsii i svyazi Belorusskoy dorogi.

1. OKOROCHKOV, V. P., Eng.

2. USSR (600)

4. Hydraulic Engineering

7. Suggestions for using cell construction in hydro-technical consturction. Gidr.stroi. 21 no. 10 1952

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

OKOROCHKOV, Yu.V., inzh.

Forming rock fill in a stream at low temperature. Sbor. nauch. trud. Dnepr. inzh.-stroi. inst. no.[illegible]:[illegible]-46 '61 (MIRA 17:7)

OKOROCHKOV, Yu.V., inzh. (Dnepropetrovsk)

Device for fixing the position of measuring instruments in air piping. Vod. i san. tekh. no.1:37 Ja '64 (MIRA 18:2)

GRINBOYM, M.Ya.; GUTOROV, V.O.; ZHILYAYEV, A.V.; KASATKIN, V.N.; LEVIN, P.V. [deceased]; MITYAKOV, V.S.; OKOROKOV, A.A.; USHAKOV, P.N.; BURKOV, G.A., laureat Stalinskoy premii, redaktor [deceased]; AYZENSHTAT, I.I., redaktor; FRIDKIN, A.M., tekhnicheskiy redaktor.

[Handbook on boiler inspection] Spravochnik po kotlonadzoru. Izd. 2-e, perer. Pod obshchei red. G.A.Burkova. Moskva, Gos. energ. izd-vo, 1954. 568 p.[Microfilm] (MLRA 8:2)
(Boilers--Inspection)

AUTHOR: Okorokov, A.A., Engineer.

TITLE: New Regulations for the Installation and Maintenance of Load-lifting Cranes. (Novyye pravila po ustroystvu i soderzhaniyu gruzopod"yemnykh kranov) 122-3-28/30

PERIODICAL: Vestnik Mashinostroyeniya, 1957, No.3, pp. 81-83 (USSR).

ABSTRACT: The new rules revise the methods of inspection of welded joints. New standards have been issued for crane hooks (ГОСТ 2105-53 for solid hooks and ГОСТ 6619-53 for plate hooks). Building-up of worn-out hooks of wear does not exceed 10% is acceptable. The safety factors for ropes have been reviewed. Hoists for passenger transport require a factor of 9 instead of 16. Cast iron supporting wheels are not allowed. The brake torque reserve factors have been reviewed. A more refined procedure is introduced for the stability analysis of derrick cranes. The conception of inherent stability is introduced expressing the overturning moment due to wind action; numerical stability margins are given in conjunction with analytical formulae for computing the margins. There are two figures.

AVAILABLE: Library of Congress

Card 1/1

KASATKIN, V.N., inzh.; ZHILYAYEV, A.V.[deceased]; KONDRASHOV, A.M., inzh.; OKOROKOV, A.A., inzh.; USHAKOV, P.N., inzh.; GURVICH, S.M.; MOROZOV, M.P., red.; AYZENSHTAT, I.I., red. [deceased]; KORIKOVSKIY, I.K., red.; VORONIN, K.P., tekhn. red.; LARIONOV, G.Ye., tekhn. red.

[Handbook on boiler inspection] Spravochnik po kotlonadzoru. Izd.3., perer. i dop. Pod obshchei red. M.P.Morozova. Moskva, Gos. energ.izd-vo, 1961. 688 p. (MIRA 15:2)
(Boiler inspection) (Hoisting machinery)

OKOROKOV, A.A., inzh.

Causes for accidents and injuries during freight crane operation. Bezop.truda v prom. 6 no.6:11-14 Je '62. (MIRA 15:11)

1. Komitet po nadzoru za bezopasnym vedeniyem rabot v promyshlennosti i gornomu nadzoru pri Sovete Ministrov RSFSR.
(Cranes, derricks, etc.—Safety measures)

OKOROKOV, A.A., otv. red.; NAZKIN, A.M., otv. red.;
BEREZOVSKIY, V.I., red.; DOLGUSHIN, N.I., red.;
KIRILLOV, I.Ye., red.; MIKHAYLOV, G.N., red.;
NEVZOROV, L.A., red.; NIKOLAYEVSKIY, G.M., red.;
ROZHDESTVENSKIY, V.A., red.; [illegible], P.N., red.;
KHODOV, M.P., red.; SHARKOV, M.S., red.

[Regulations for the design and safe operation of load-lifting cranes] Pravila ustroistva i bezopasnoi ekspluatatsii gruzopod"emnykh kranov. Moskva, Nedra, 1965. 127 p.
(MIRA 18:7)

1. Russia (1917- R.S.F.S.R.) Gosudarstvennyy komitet po nadzoru za bezopasnym vedeniyem rabot v promyshlennosti i gornomu nadzoru.

DRABKIN, G.M.; ZABIDAROV, Ye.I.; KASMAN, Ya.A.; OKOROKOV, A.I.; TRUNOV, V.A.

Neutron scattering by spin waves in iron. Zhur.eksp. i teor.fiz. 47 no.6:2316-2318 D '64. (MIRA 18:2)

1. Fiziko-tekhnicheskiy institut imeni Ioffe AN SSSR.

L 12049-66 EWI(m)/EPF(n)-2/EWP(t)/EWP(z)/EWP(b)/EWA(h) IJP(c) JD/HM

ACC NR: AP6002656 SOURCE CODE: UR/0386/65/002/012/0541/0544

AUTHOR: Drabkin, G. M.; Zabidarov, Ye. I.; Kasman, Ya. A.; Okorokov, A. I.

ORG: Physicotechnical Institute im. A. F. Ioffe, Academy of Sciences SSSR (Fiziko-tekhnicheskiy institut Akademii nauk SSSR)

TITLE: Critical scattering of polarized neutrons in nickel

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 2, no. 12, 1965, 541-544

TOPIC TAGS: nickel, neutron scattering, small angle scattering, phase transition, Curie point, neutron polarization

ABSTRACT: A study of the critical small-angle scattering of neutrons is a very effective means of investigating phase transitions. To obtain more complete information on space-time spin correlation motions, which are responsible for the dynamics of the phase transitions, the authors investigated the critical scattering of polarized neutrons. They present in this article the results of the first stage of this research. The measurements were made with the aid of a previously described installation (G. M. Drabkin et al., ZhETF v. 47, 2316, 1964). A single-crystal nickel sample was placed in a ~10 oe magnetic field. The sample temperature was kept accurate to ±0.07°. The beam of the incident neutrons is character-

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L 12049-66

ACC NR: AP6002656

ized by the following parameters: wavelength ~5.1 Å, polarization after reflection from the analyzer 80%, horizontal divergence ±1.5 min, vertical ±10 min. The experiments yielded the polarizations of the scattered neutrons passing through the sample and of the neutrons scattered through 10.2 minutes of angle. The Curie point was determined from the maximum scattering cross section. Near the Curie point the behavior of the polarization of the transmitted neutron beam is connected with the development of magnetization fluctuations. The magnetic fields of these fluctuations give rise to non-coherent precession of the spins of the neutrons passing through the sample. This precession is just the cause of the depolarization. The polarization of neutrons scattered through 10.2 minutes is analyzed in detail. It is concluded that the neutron scattering is quasielastic near the phase transition point, and it is noted that a direct determination of such a change in the scattered-neutron energy is beyond the capabilities of modern experimental techniques. Authors are grateful to S. V. Maleyev for valuable advice and to D. M. Kaminker for interest in the work and a discussion of the results. Orig. art. has: 2 figures and 1 formula.

SUB CODE: 20/ SUBM DATE: 29Oct65/ ORIG REF: 002/ OTH REF: 004

Card 2/2

83549

1.2300

S/135/60/000/009/004/015
A006/A002

AUTHORS: Patskevich, I. R., Candidate of Technical Sciences, Okorokov, A. K., Bautina, V. A., Engineers

TITLE: Investigation Into the Protective Effect of Liquid in Vibro-Arc Building-Up

PERIODICAL: Svarochnoye proizvodstvo, 1960, No. 9, pp. 13-16

TEXT: It was previously considered that the use of water as a shielding medium in arc welding was inefficient due to its oxidizing effect on the metal and the increased hydrogen saturation of the metal. The authors present calculational and experimental data characterizing the efficiency of using water for protecting the metal against oxygen and air nitrogen during vibro-arc building-up process. The protective effect of water was determined from the saturation of the metal with nitrogen and from the magnitude of the coefficients of transition of C, Mg and Si from the electrode wire to the built-up metal. Experiments were made using a vibro-arc ВДГ-5Э (VDG-5E) head on d-c of reversed polarity from two or three series-connected rectifiers. Grade "20" steel specimens of 40 - 50 mm were built-up (welding speed was 58 m/hr; amplitude of electrode vibrations - 2 mm; operational length of the electrode wire:

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Investigation Into the Protective Effect of Liquid in Vibro-Arc Building-Up

9 to 12 mm). The consumption and feed location of the liquid, the average voltage of the arc and the frequency of electrode vibrations varied during the experiments. Figure 1 shows the wire and liquid feed to the part to be welded. Inductivity of the welding circuit was set-up depending on the frequency of electrode vibrations. A chemical analysis was made of metal built-up with 60 and 70 grade steel electrodes and an automatic KUMA-5 (KUMA-5) head, differing from the VDG-5E head by a circular motion of the electrode wire and by the liquid feed supplied in the form of a hollow cone-shaped jet around the electrode. The electrode composition was 0.74% C, 0.86% Mn, 0.30% Si. The welding conditions were: 18 v average arc voltage; 53 m/hr electrode wire feed; building-up speed: 24 m/hr; speed of the circular motion of the electrode tip 46.7 rpm; diameter of the circle described by the electrode tip: 2.5 mm; operational length of the electrode 10 mm; inductivity of the welding circuit 17 - 19 millihenry; the cooling liquid was technical water. The location and angles of the wire feed were the same as in building-up with the VDG-5E head. The water consumption was variable. Tables are given showing the effect of the welding conditions on the saturation of the built-up metal with nitrogen; the average time of the building-up periods and the dependence of the chemical

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A006/A002

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composition of built-up metal on the liquid consumption. The dependence of the coefficients of transition of the components on the liquid consumption, the average arc voltage and the vibration frequency of "45Г2" (45G2) and 60 steel electrodes are given in graphs. The experiments yielded the following results: Water has essential protective properties. Its use in building-up with vibrating and non-vibrating electrodes reduces the saturation with nitrogen of the built-up metal and the burning-out from the metal of C, Mg, Si and other elements. The degree of the protecting effect depends mainly on the quantity of the water supplied to the arc zone, and on the method and location of feed. The water used in vibro-arc welding is converted into vaporous state in the arc zone. Since the contact of the arc with large water drops impedes the building-up process, the use of steam as a shielding medium supplied to the arc zone is recommended. The built-up metal should be cooled by an individual water jet. There are 3 tables, 4 sets of figures and 7 Soviet references.

ASSOCIATION: Chelyabinskiy politekhnicheskiy institut (Chelyabinsk Polytechnic Institute)

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S/135/63/000/003/010/011
A006/A101

AUTHORS: Patskevich, I. R., Candidate of Technical Sciences, Okorokov, A. K., Engineer

TITLE: Vibration arc hardfacing in water vapor atmosphere

PERIODICAL: Svarochnoye proizvodstvo, no. 3, 1963, 40 - 41

TEXT: To eliminate deficiencies in vibration arc hardfacing in a water jet, such as unstable hardfacing process, chemical heterogeneity of the built-up metal and crystallization cracks, the possibility is shown of performing the process in water vapor atmosphere, and of cooling the part by a separate water jet, remote from the hardfacing area. A special device was used to produce the water vapor (Figure 1). The vapor is supplied to the arc zone with the aid of a special tip fixed on the torch holder (Author's Certificate no. 150558 with priority of August 10, 1961). Experiments were made to determine the coefficients of fusion and hardfacing, and losses of electrode material for splashes. It was found that the coefficient of fusion depends little upon changes in the hardfacing condition parameters. Metal losses decrease at a greater length of

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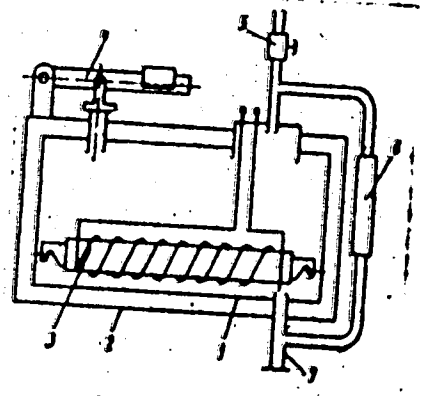
the vapor jet, lesser wire feed rate, and higher inductance in the circuit. The method assures a stable hardfacing process and built-up layers without cracks, if an electrode wire with higher C content is being used. The hardness of the built-up layer is slightly reduced. There are 3 figures.

ASSOCIATION: Chelyabinskiy politekhnicheskiy institut (Chelyabinsk Polytechnic Institute)

Figure 1. Scheme of vapor producing device
Legend: 1 - container; 2 - heat-insulating casing; 3 - heater; 4 - safety valve; 5 - cock; 6 - water level indicator; 7 - overflow of water.



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Okorokov, A.Z.

OKOROKOV, A. Z., SHAKHOV, S. D.

Our differences of opinion. Usp. Sovrem. biol. 30:2(5), Sept.-Oct. 50. p. 271-90

1. Kiev.

CLML 20, 3, March 1951

OKOROKOV, B.

On the shores of the Gulf of Finland. Pozh.delo 7 no.12:19 D '61. (MIRA 14:11)

(Lomonosov—Firemen)

OKOROKOV, B.N.; YAVOYSKIY, V.I.; KADYSHEVICH, A.Ye.; KUCHUR, B.K.

Certain optical and physical properties of the flame cone in a basic, oxygen-blown converter (in the visible part of the radiation spectrum) and their use to control the process. Izv. vys. uchsb. zav.; chern. met. 8 no.5:21-28 '65.

1. Moskovskiy institut stali i splavov. (MIRA 18:5)

OKOROKOV, G.N., POLYAKOV, A.Yu., SAMARIN, A.M.

"Influence of the Arc Cacuum Remelting on Properties of Steel and Alloys," lecture given at the Fourth Conference on Steelmaking, A.A. Baikov Institue of Metallurgy, Moscow, July 1-6 1957

AUTHORS: Okorokov, G. N., (Moscow) Polyakov, A. Yu. and Samarin, A.M. SOV/24-58-5-10/31

TITLE: Repeated Meltings of Steel and Alloys in an Arc-Vacuum Furnace (Pereplav stali i splavov v dugovoy vakuumnoy pechi)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 5, pp 59-62 (USSR)

ABSTRACT: A considerable reduction of gas contents and non-metallic impurities in steel and alloys has been obtained by remelting in a special arc-vacuum furnace constructed in the Metallurgical Institute of the Ac.Sc. USSR, a sketch of which is shown on p 60. Ten remeltings of ball-bearing steel under 1 x 10^{-1} mm pressure of mercury at the rate of 0.6 kg/min resulted in a reduction of oxide and sulphide contents by 40-50%. The same steady 40-50% reduction of oxides and sulphides has been obtained after a series of remeltings (under 1 x 10^{-3} to 1 x 10^{-4} mm pressure) of steel, previously rejected because of its high contents of non-metallic impurities. After remeltings it proved in many ways superior to the steel specially selected for ball-

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OKOROKOV G.N.

ДЕГАЗАЦИЯ СТАЛИ И СПЛАВОВ

[illegible] П.В.Гель [illegible]	[illegible]
[illegible] П.В.Гель	[illegible]
Г.Н.Окороков [illegible] [illegible]	[illegible]
А.М.Самарин [illegible] [illegible] [illegible] [illegible]	[illegible]
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Report submitted for the 5th Physical Chemical Conference on Steel Production, Moscow, 30 Jun 1959.

PROZOROV, N.; OKOROKOV, G., traktorist

Improving farm machinery and equipment. Sov.profsoiuzy 7 no.23:26-27 D '59. (MIRA 12:12)

1. Glavnyy inzhener-mekhanik sovkhoza "Shchugarovo," Moskovskoy oblasti (for Prozorov). 2. Sovkhoz "Shchugarovo," Moskovskoy oblasti (for Okorokov).
(Agricultural machinery)

OKOROKOV, G. N., Cand Tech Sci -- (diss) "Research into the process of smelting special steels in arc vacuum furnaces." Moscow, 1960. 26 pp; (Academy of Sciences USSR, Inst of Metallurgy im A. A. Baykov); 150 copies; price not given; printed on duplicating machine; (KL, 17-60, 157)

S/137/62/000/012/005/085
A006/A101

AUTHORS: Samarin, A. M., Polyakov, A. Yu., Belkov, S. F., Okorokov, G. N.

TITLE: The effect of vacuum arc remelting upon the quality of bearing steel

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 12, 1962, 45, abstract 12V286 ("Tr. N.-i. i ekasperim. in-ta podshipnik. prom-sti", 1960, 1, (21) 41 - 54)

TEXT: The authors investigated the effect of vacuum arc remelting techniques upon the quality of bearing steels. Data are presented on the effect of electric conditions of the vacuum rarefaction, the magnitude of inflow and the strength of the solenoid magnetic field upon the quality of the ingots (changes in the chemical composition and completeness of metal refining). It was established that the use of vacuum arc remelting reduces contamination of bearing steels by non-metallic inclusions, and its gas saturation. It is noted that in the process of vacuum remelting Mn and Si content are somewhat reduced. It was established that the electromagnetic mixing of the pool entails the formation

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of pores in high-carbon steel ingots and does not affect metal refining. It is mentioned that O_2 and S are uniformly distributed over the height and diameter of the Sh15 steel ingot and that only in the zone of shrinkage cavities an increased O content is observed. The pressure in the melting space of the furnace varied within a range of $10^{-4}-5 \cdot 10^{-2}$ mm Hg and did not affect the decrease in the O content and oxide inclusions. There are 5 references.

A. Savel'yeva

[Abstracter's note: Complete translation]

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S/180/61/000/003/001/012
E111/E135

AUTHORS: Okorokov, G.N., Polyakov, A.Yu., and Samarin, A.M. (Moscow)

TITLE: Removal of oxygen in arc vacuum remelting of special steels

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1961, No.3, pp. 3-9

TEXT: Vacuum arc remelting is now widely used for special steels and its efficacy has been established by the present authors (Ref.3: Izv. AN SSSR, OTN, 1958, No.3) and W.W. Dyrkacz (Ref.1: Iron Age, 1955, v. 176, No.7, and Ref.2: J. Metals, 1957, v. 9, December). The authors (Ref.8: Filial VINITI AN SSSR, Peredovoy proizvodstvennyy i nauchno-tekhnicheskiy opyt, 1959, No. M-59-270/6) and others have studied technological and theoretical aspects of the process, but sufficient attention has not been given to the way in which it eliminates oxygen and oxide non-metallic inclusions. Indications (Ref.8) are that the more favourable vacuum conditions for reaction of metallic oxides are not due to the carbon. On the basis of results of vacuum arc

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remelting of low-carbon iron initially deoxidized with various deoxidizers or initially not deoxidized, it was proposed that oxygen in the form of stable non-metallic inclusion could be removed without participation of the carbon (Ref.8). To check these results the experiments have been repeated. Ingots from a 12-kg open induction furnace were forged to 40-45 mm diameter rods and two electrodes from each ingot were prepared. These were remelted in an arc vacuum furnace with a 75-mm diameter mould, one of each pair in vacuum (10^{-2} to 10^{-3} mm Hg) and the others in still argon at 760 mm Hg; silicon, manganese and aluminium were used for deoxidation. Both procedures were effective in removing oxygen, vacuum giving the better results (up to 89% removal). The amount removed was always greatly in excess of the decrease in carbon. To study the relation between the amount of CO evolved and the change in carbon and oxygen content through vacuum arc remelting, the composition and quantity of gas evolved in the remelting of deoxidized (silicon, aluminium, manganese) and not deoxidized low-carbon iron was investigated. Pressure change (in the range

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Removal of oxygen in arc vacuum remelting of special steels

10^{-3} to 5 x 10^{-2} mm Hg) in a constant volume was used to measure the quantity of gas evolved in one minute (assumed independent of pressure). The melting current was 1200 amp, the voltage 21-23 V. The rate of melting of deoxidized iron was 450-400 and of undeoxidized 400-315 g/min. At low gas evolutions all the gas was assumed to be CO. The results are shown in Table 2. In the deoxidized metal the product of dissolved oxygen and carbon changes little on vacuum remelting and remains well above even the atmospheric-pressure equilibrium value. From the melting conditions it appears that flotation (i.e. effects leading to the concentrations of inclusions at or near the surface) must be an important factor. In manganese-deoxidized metal, where the carbon reaction is favoured by inclusions of x FeO. y MnO or MnO on which CO bubbles can nucleate, both factors are important; in undeoxidized metal the carbon reaction is decisive. With undeoxidized metal the boil produced by vacuum remelting makes this more effective than argon remelting. The arrival of metal at the bath in the form of fine droplets and vertical movement of the

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crystallization front also contribute to mechanical removal of inclusions. It has been shown that repeated arc remelting of ШХ -15 (ShKh-15) steel (0.0045% O, 0.018 S, 0.38 Mn) reduces the inclusions greatly and that the effect is not due to increased time in the molten state (variations represented by different ingot weights) but by the remelting process itself. The demonstrated decisive role of mechanical factors as distinct from the carbon reaction in vacuum arc remelting of special steels provides a theoretical justification for applying the method irrespective of carbon content. There are 2 figures, 3 tables and 8 references: 3 Soviet and 5 English. The four most recent English language references read as follows:

Ref.2: W.W. Dyrkacz, J. Metals, 1957, v. 9, December.
Ref.4: E.W. Johnson, J.T. Hahm, B. Itoh. Arcs in inert atmospheres and vacuum, 1956.
Ref.5: H. Gruber. Arcs in inert atmospheres and vacuum, 1956.
Ref.6: H. Gruber. J. Metals, 1958, v. 10, No.3.

SUBMITTED: May 30, 1960

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OKOROKOV, G.N.

PHASE I BOOK EXPLOITATION SOV/6270

Samarin, A. M., ed., Corresponding Member, Academy of Sciences USSR.

Vakuumnaya metallurgiya (Vacuum Metallurgy). Moscow, Metallurgizdat, 1962. 515 p. Errata slip inserted. 3200 copies printed.

Ed. of Publishing House: V. I. Ptitsyna; Tech. Ed.: L. V. Dobuzhinskaya.

PURPOSE: This book is intended for engineering personnel of metallurgical and machine-building plants, scientific research workers and teachers, and aspirants and students at schools of higher technical education.

COVERAGE: Thermoydnamic fundamentals of vacuum application in various metallurgical processes and problems of melting in vacuum induction and arc furnaces are discussed. Procedures of casting large ingots and vacuum degassing of steel in ladles are described, along with designs of metallurgical vacuum equipment. Problems connected with the use of mechanical and steam-ejector vacuum pumps, and with the

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designing, calculation, and operation of vacuum systems, are reviewed in detail, along with vacuum-measuring techniques. No personalities are mentioned. Each article is accompanied by references, mostly Soviet.

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