

CHETVERNIN, L.A.; SEMURNOV, K.V., dots., kand. tekhn. nauk, nauchnyy red.;
SMIRNOVA, A.P., red. izd-va; TOKER, A.M., tekhn. red.

[Design and manufacture of precast reinforced concrete sewers]
Proektirovanie i stroitel'stvo sbornykh zhelezobetonnykh kollektorov. Moskva, Gos. izd-vo lit-ry po stroit. i arkhit., 1958.
178 p. (MIRA 11:9)

(Sewers, Concrete)

ROZENBLYUMAS, Anatoliy Moiseyevich; SHMURNOV, K.V., nauchn. red.

[Masonry construction elements] Kamennye konstruktsii.
Moskva, Vysshaia shkola, 1964. 300 p. (MIRA 19:1)

SHMUROVA, E. M.

USSR/Geophysics - Soils

Feb 53

"Influence of the Soil-forming Process on the Accumulation and Composition of Organic and Mineral Phosphorus Compounds in Soils," E. M. Shmurova, Chair of Soil Sci

Vest Mos Univ, Ser Fizikomat i Yest Nauk, No 1, pp 129-137

Describes the main chemical characteristics of three types of soil: 1) peat medium podzols, 2) dark gray and 3) plain black earth. Also describes the contents of their mineral and organic phosphorus compounds along a profile.

269T64

SHENROVA, E. M.

"The Influence of Soil Conditions on the Productivity of Oak Plantings in the Forest Steppe Zone." Cand Biol Sci, Moscow Order of Lenin State U imeni M. V. Lomonosov, 12 Nov 54. (VM, 2 Nov 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (11)

SO: Sum. No.521, 2 Jun 55

. USSR / Forestry. Forest Economy

K-3

Abs Jour: Ref Zhur-Biol., No 13, 1958, 58396

Author : Shmurova, E. M.

Inst : Not given

Title : Data on Nutrient Regulation in the Low-Productive
Oak Groves Of Voronezh Preserve

Orig Pub: Tr. Voronezhsk. gos. zapovednika, 1957, vyp. 7,
65-71

Abstract: Comparative studies on the availability of N, K,
P and Ca in sufficient supply to nourish oak trees
were conducted in the 47-55 year old oak groves
of the first-fourth degree of quality in 4 areas
of the Voronezh Preserve. The supply of oak trees
with accessible compounds of Ca is found to be

Card 1/3

USSR / Forestry. Forest Economy

K-3

Abs Jour: Ref Zhur-Biol., No 13, 1958, 58396

groves of low efficiency with food substances,
which are in insufficient supply, must increase
their productivity. --V. I. Klimov

Card 3/3

REMEZOV, N. (ed.), KAMENOVA, E. (ed.), SVIRIDOVA, I. (ed.),
L.G.; Priznaniye uchastvuyey: BYKOVA, I.N., SHMEROVA, E.M.;
UTENKOVA, A.I.; POYARKOVA, I.A.; BULLEVIKH, N.I.

Dynamics of the interaction of oak forests and soils.
Pochvovedeniye no.3:1-14 Nr 101. (MIRA 1964)

1. Sotrudniki kafedry pochvovedeniya Moskovskogo gosudarstvennogo
universiteta imeni Lomonosova (for Samoylova, Bogashova, Bykova,
Shmurova, Utenkova). 2. Sotrudniki Veronezhskogo zapovednika
(for Poyarkova, Sviridova).

SHMURUN, A.I., inzh.

Determining center of buoyancy elevation above the base line by
means of Firsov's and Fisher's diagram, Sudostroenie 22 [i.e.23]
no.10:14-16 0 '57. (MIRA 11:2)

(Stability of ships)

SHMURUN, R.I.

Changes in the internal organs of rabbits following bilateral
vagotomy [with summary in English]. Trudy ISGMI 41:213-216 '58
(MIRA 11:11)

(VAGOTOMY, eff.
vilateral, on internal organs of rabbits (Rus))

SHMURUN, R.I.

Trophic role of the vagus nerves. Trudy LSAMI 45:239-247 '58
(MIRA 11:11)

1. Kafedra patologicheskoy anatomii Leningradskogo sanitarno-
gigiyenicheskogo meditsinskogo instituta (zav. kafedroy-
chlen-korrespondent AMN SSSR, prof. V.D. TSingerling).
(VAGUS NERVE)

SHMURUN, R.I.

Chloroma with an unusual localization of tumorous growths.
Probl. gemat. i perel. krovi no.6:52-53 '65.

(MIRA 18:11)

1. Patologoanatomicheskoye otdeleniye (zav. R.I.Shmurun)
"Olkhovskoy tsentral'noy rayonnoy bol'nitsy (glavnyy vrach
Z.A.Aleksandrov).

SHIBUYAMA, A., WILKINSON, L. S. and MERRILLSON, R. S.

"A Comparative Study of the Lytic Activity of Dry and Liquid Bacteriophage",
Zhur Mikrobiol, Epidemiol i Immunobiol, No. 4, pp 96-102, 1950.

USSR/Medicine - Typhoid

Mar 53

"Modifiability of Vi-Type and O-Type Typhoid Bacteriophages Depending on the Conditions of Cultivation," A. A. Shmurygina, Inst of Epidemiol and Microbiol Imeni N. F. Vavilova, Acad Med Sci USSR

"Zhur Mikrobiol, Epidemiol, i Immunobiol" No 3, sp 57-62

Using O₂ bacteriophage of the [Moscow] Inst of Epidemiol and Microbiol Imeni I. Mechnikov and Vi₁ bacteriophage and typhoid strains of the Control Inst of Sera and Vaccines Imeni L. A. Tarasvich, the bacteriophages were first adapted to

244T39

intermediate V-W strains of bacteria (Ty₂ in the case of O₂ phage, Ty O Essen in the case of the Vi₁ phage). As a result of subsequent passages through cultures of a Vi₁ strain of bacteria, the O₂ phage acquired the properties of a Vi phage. On being passed through cultures of an O-901 strain of bacteria, the Vi₁ phage acquired the properties of an O phage. The stability of the characteristics acquired in this manner and the possibility of a reverse modification will form the subject of subsequent research.

244T39

SHMURYGINA, A. A.

USSR/ Medicine - Modification of Microorganisms; Dysentery

Nov 53

"Investigation of Filterable Forms of Bacteria Isolated From Dysentery Phage Filtrates;
V. D. Timakov, R. S. Mikhel'son, L. S. Kolyaditskaya, A. A. Shmurygina, Inst of Epidem
and Microbiol in N. F. Gamaleya Acad of Med sci USSR

Zhur Mikro, Epid, i Immun, No 11, pp 5-11

Secondary cultures obtained from phagolysates of dysentery bacilli were not very active. They could be regenerated by repeated culturing on a nutrient medium. Secondary culture No 23 exhibited a common antigenic structure with the initial strain. By cross-agglutination, the mutual resemblance of antigenic structures of different secondary cultures as well as of secondary initial strains could be shown. The immune serum obtained by immunizing rabbits with a secondary culture protected mice from lethal doses of the culture and of the initial strain. Animals immunized with the initial strain were more resistant to a homologous culture than to secondary cultures. Immunization with secondary cultures did not assure complete protection against the initial strain, while there was pronounced resistance to homologous cultures.

271T33

KOLYADITSKAYA, L.S.; SHMURYGINA, A.A.

Improving a dry living tularemia vaccine preparation. Zhur. mikrobiol.
epid. i immun. 28 no.10:84-89 0 '57. (MIRA 10:12)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei AMN
SSSR.

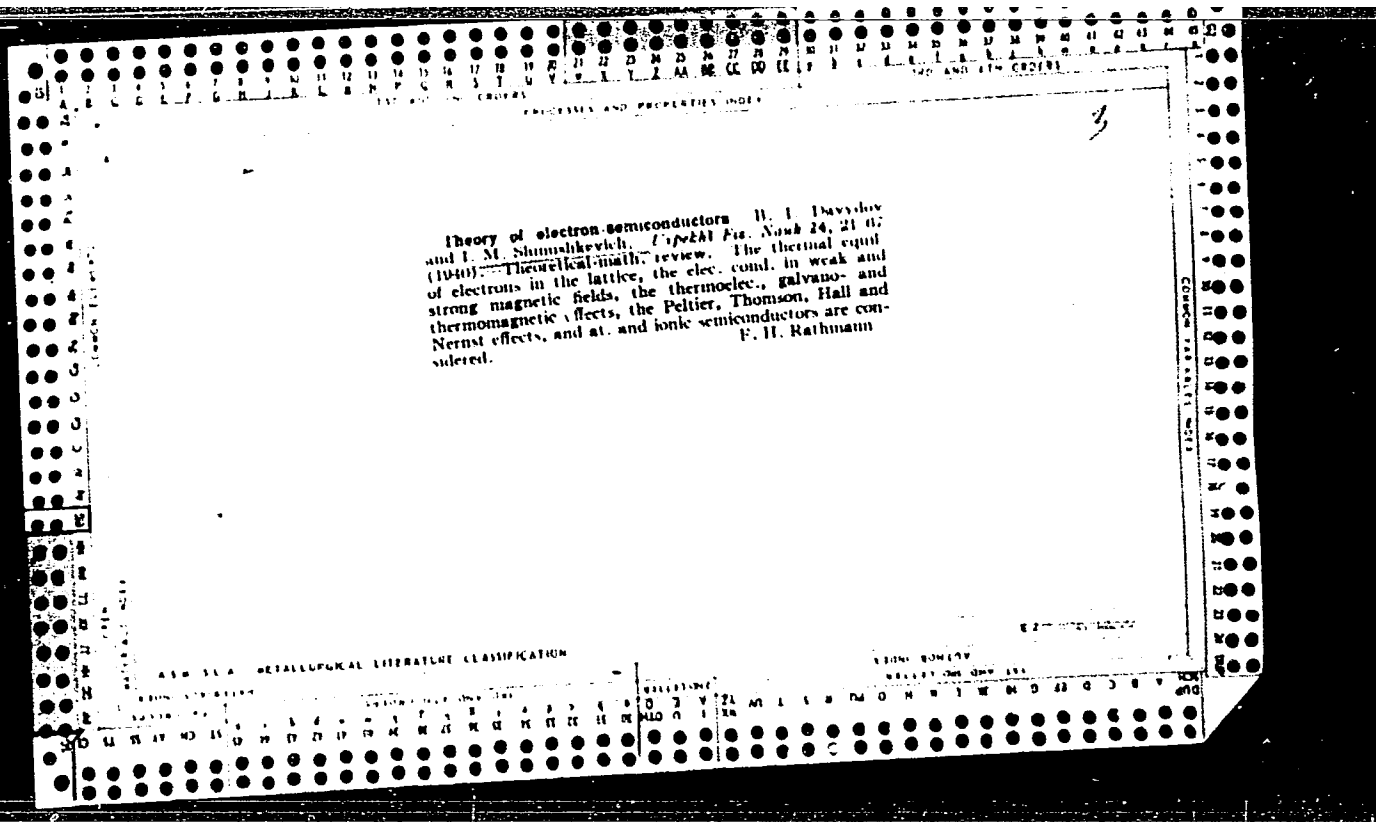
(TULAREMIA, immunology,
vaccine, dry living (Rus))

KOLYADITSKAYA, L.S.; KUCHINA, K.V.; SEMURYGINA, A.A.

Tularemia bacteriophage; preliminary report. Zhur.mikrobiol.
epid. i immun. 30 no.3:13-17 Mr '59. (MIRA 12:5)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei
AMN SSSR.

(PASTEURELLA TULARENSIS,
bacteriophage (Rus))
(БАКТЕРИОФАГ,
of Pasteurella tularensis (Rus))



PROCESSES AND PROPERTIES INDEX

SA

536.24 : 532.542

984. Heat transfer in a laminar flow of liquid through short pipes. SHMUSHKEVICH, T. M. *J. Tech. Phys., USSR*, 18, 29-34 (Jan., 1948) *In Russian*.— The temperature distribution for the problem was determined, and the heat flux at the tube outlet found to be proportional to $(\gamma L)^{1/2}$, where L is length of the tube, γ the coefficient of temperature conductivity of the liquid. A.

ASIA-USA METALLURGICAL LITERATURE CLASSIFICATION

1948

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

SHMUSHKEVICH, I. M.

USSR/Electricity
Conductors, Semi-
Resistance, Contact
May 48

PA 7/49T60

"The Dependence of Contact Resistance of Semiconductors on the Frequency of the Field," I. M. Shmushkevich, 13 pp

"Zhur Ekspier 1 Secret Fiz" Vol XVIII, No 5

Studies changes in the electron concentrations and the fields in a chemically homogeneous semiconductor placed in contact with a metal during the passage of a small alternating current. The problem is solved for the two limiting cases of frequency, the low

7/49T60

USSR/Electricity (Contd) May 48

and the high. It is assumed that no depletion of impurities occurs in the electrode region close to the semiconductor.

7/49T60

SEMUSHKEZICH, I. M.

21386

BERESTETSKIY, V. B. I SEMUSHKEZICH, I. M. Unutrennyaya konuersiya V Luchey
S obrazovaniem par V legkikh elementakh. Zhurnal eksperim I teoret. Fiziki,
1949, Vyp. 7, S. 591-96.-Bibliogr: 7 Nazv.

SO: Letopis' Zhurnal'nykh Statey, No. 29, Moskva, 1949.

PA 38/49T98

USSR/Nuclear Physics - Neutrons
Energy of
Nuclear Physics - Radiation
Apr 49

"Electromagnetic Radiation During Collisions of
Thermal Neutrons With Protons," I. Shmushkevich,
Leningrad Physicotech Inst, Acad Sci USSR, 5 pp

"Zhur Ekspert Fiz" Vol XIX, No 4

Considers collisions, accompanied by radiation,
between protons and neutrons with energies less
than 20 MeV. For energy E of neutrons much greater
than e_0 (e_0 is the binding energy of the deuteron),
the full transverse cross section of scattering with
38/49T98

USSR/Nuclear Physics - Neutrons
Energy of (Contd)
Apr 49

radiation of quanta having frequencies higher than
a certain ω , much less than E/h (h -bar is Planck's
constant divided by 2π) increases logarithmically
with energy according to the following formula:
Cross section sigma is approximately equal to
 $1.6 \cdot 10^{-29}$ (In $2E/h\omega$) $h/3$ cm² (Where h is h -bar).
Submitted 4 Dec 48.

SHMUSHKEVICH, I.

38/49T98

SHR:USHKEVICH, I. M.

PA 51/49T49

USSR/Nuclear Physics - Internal Con- Jul '49
version
Nuclear Physics - Gamma Rays

"Internal Conversion of Gamma Rays With Pair-
Production in the Light Elements," V. B. Bere-
stetskiy, I. M. Shmushkevich, Acad Sci USSR, 6 pp

"Zhur Eksper i Teoret Fiz" Vol XIX, No 7

Calculates coefficients of internal conversion of
the radiation of electric and magnetic multipoles
with pair-production for high gamma-quanta
energies and small nuclear charge. Submitted
3 Mar 49.

51/49T49

PA 27/49T88

USSR/Nuclear Physics - Protons
Nuclear Physics - Electrons - Emission

Feb 49

"Emission During Collisions of High-Velocity
Neutrons With Protons," I. Pomeranchuk, I. Shmush-
kevich, Leningrad Physicotechn Inst, Acad Sci USSR,
4 pp

"Dok Ak Nauk SSSR" Vol LXIV, No 4

Character of angular distribution of diffused neutrons
during their elastic collisions with protons (For the
case of high speed of relative motion) is mainly
dependent on the nature of the forces acting between
these particles, i.e., whether they are constant

27/49T88

USSR/Nuclear Physics - Protons (Contd)

Feb 49

forces or changing forces. Mathematically analyzes
this distribution. Submitted 28 Nov 48.

SHMUSHKEVICH, I.

27/49T88

8

1988
INTERNAL CONVERSION OF γ RAYS WITH GENERATION OF PAIRS IN LIGHT ELEMENTS. V. B. Bereiatshii and L. M. Shmushkevich. *Zhur. Ekspl. i Teoret. Fiz.* 30, 574-8(1950) June. (Letter to the editor; in Russian)

In a recent paper on internal conversion with pair generation (*Zhur. Ekspl. i Teoret. Fiz.* 19, 597(1949)), the authors derived formulas for the differential conversion coefficients of magnetic and electric multipoles corresponding to an emission of a positron. Since the integrals giving the total conversion coefficient could not be expressed by elementary functions, results of a numerical integration are given here. They agree with similar data published later by Rose (*Phys. Rev.* 76, 678(1949)).

E-2

METALLURGICAL LITERATURE CLASSIFICATION

GROUP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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155T53

SHMUSHKEVICH, I.

USSR/Nuclear Physics - Radiation, Electromagnetic Jan 50

"Electromagnetic Radiation Under the Action of Exchange Forces," I. Pomeranchuk, I. Shmushkevich, 4 pp

"Dok Ak Nauk SSSR" Vol LXX, No 1

Attempts to show that approximation for cross

section $\sigma = \frac{4}{3\pi} \frac{e^2}{hc} \frac{1}{g} \frac{\sqrt{Ve}}{h\omega} \frac{E}{Mc^2} \sigma_e$ holds only for collisions between neutrons and protons. In collisions with heavy nuclei, flying particle (neutron or proton) may undergo

155T53

USSR/Nuclear Physics - Radiation, Electromagnetic (Contd) Jan 50

several collisions with individual nucleons before it flies out of nucleus. Submitted by A. F. Ioffe 25 Oct 49.

155T53

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45

111 AND 7th ORDERS PROCESSES AND PROPERTIES INDEX 180 AND 4th ORDERS

N

6542
 ON THE PSEUDOSCALAR VARIANT OF THE THEORY OF β DECAY. I. M. Shmushkevich. Zhur. Eksptl. i Teoret. Fiz. 21, 661-3(1951) May. (Letter to the editor, in Russian)
 It is generally thought that the spectra of allowed transitions have the same shape in all variants of the theory of β decay and that the angular correlation between the electron and the neutrino is described by the same expression, except for the value of a numerical coefficient. This thought is based on the assumption that the matrix element of the nuclear transition has a finite, nonzero, value when the momenta of the light particles (i.e., the electron and the neutrino) approach zero. However, it can be shown that such an assumption is not true in the pseudoscalar variant, in which, as is known, the interaction of nucleons with the field of light particles approaches zero as the velocities of heavy particles approach zero.

COMMON ELEMENTS COMMON VARIABLES INDEX

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

111 AND 7th ORDERS 180 AND 4th ORDERS

SHMUSHKEVICH, I. M.

USSR/Nuclear Physics - Mesons

Dec 51

"Scattering of π -Mesons by Protons and Deuterons,"
V. B. Berestetskiy, I. M. Shmushkevich, ~~Acad~~
Sci USSR

"Zhur Eksper i Teoret Fiz" Vol XXI, No 12,
pp 1321-1329

Computes effective cross sections of π -mesons in hydrogen of deuterium in case of pseudovectorial or pseudoscalar binding. Pseudoscalar type of binding leads to too high values of cross sections, which in this case indicates int contradictions of theory. Submitted 8 Mar 51.

198T89

SHMUSHKEVICH, I. M.

USSR/Nuclear Physics - Mesons, Neutral

Jan 52

"Formation of Gamma-Quanta and Neutral Mesons During Capture of "neg pi mesons"
π⁻-Mesons by Deuterons. I, " B. L. Ioffe, A. P. Rudik, I. M. Shmushkevich, Acad
Sci USSR

"Zhur Eksper i Teoret Fiz" Vol XXII, No 1, pp 11-20

A brief exposition of results of present work was published in "Dok Ak Nauk SSSR"
Vol LXXVII, 1951, 403. Calculates the probability of gamma-quanta formation during
capture of π⁻-mesons by deuterons for various variations of the meson theory of
particles with zero spin. Considers the capture of pseudoscalar mesons and the
capture of scalar mesons. Submitted 22 Mar 51.

PA 204T79

SHMUSHKEVICH, I. M.

USSR .

Production of γ -quanta and neutral mesons in the capture of π^- -mesons by deuterons. II. B. L. Ioffe, A. P. Rudik, and I. M. Shmushkevich. *Zhur. Ekspil. i Teoret. Fiz.* 22, 21-8(1952); *Science Abstr.* 56A, 478(1953); cf. *C.A.* 46, 834g.—Derivation by nonrelativistic perturbation theory is given of differential and total cross sections for the capture of a π^- with the emission of a π^0 when both mesons have spin 0 and for the 4 possible combinations of their parities and all possible types of coupling. The corresponding results for the capture of a π^- by a proton and for radiative capture are listed and discussed in view of exptl. cross sections. Agreement can be obtained only if both π^- and π^0 are pseudoscalar. K. L. C.

②
62

SHMUSHKEVICH, I. M.

USSR/Physics - Mesons
Electron Microscope

Feb 52

"Letters to the Editor"

"Zhur Ekspert i Teoret Fiz" Vol. XXII, No 2,
pp 249-256

(1) "Theory of Close Order in Liquids," A. Ye. Glauber, I'vov State U; (2) "Determining the Spin of Charged Pi-Mesons," I. M. Shmushkevich, Leningrad Phys-Tech Inst, Acad Sci USSR; (3) "Theory of Electrical Conduction of Binary Progressive Ordering Metallic Alloys," K.B. Vlasov, Inst of Phys of Metals, Ural Affiliate, Acad Sci

207185

USSR/Physics - Mesons (Contd)

Feb 52

USSR; (4) "Generalized Law of Interaction," D.I. Blokhintsev, Moscow State U; (5) "Beta-Spectrometer With Two Magnetic Lenses and With Internal Correcting Coils," V. S. Shpindel'.

207185

SHMUSHKEVICH, I. M.

USSR/Nuclear Physics - Deuterium, Mesons 21 Feb 52

"The Formation of π -Mesons by Gamma-Rays on Deuteron," B. L. Ioffe, I. M. Shmushkevich

"Dok Ak Nauk SSSR" Vol LXXXII, No 6, pp 869-872

Acknowledges the interest and helpful discussion of Prof I. Ya. Pomeranchuk. Calculates the cross section of photo-production of charged mesons on deuteron by the 2 methods of perturbation and phenomenology. Submitted by Acad A. F. Ioffe 27 Dec 51.

214T70

SHMUSHKEVICH, I. M.

PA 245T67

USSR/Nuclear Physics - Neutrons on 21 Nov 52
Protons

"Emission of High-Energy Gamma Quanta During
Collisions of Fast Neutrons With Protons,"
I. Ya. Pomeranchuk and I. M. Shmushkevich

"Dok Ak Nauk SSSR" Vol 87, No 3, pp 385-387

State that photofission of deuterons is easily
investigated both theoretically and experi-
mentally for energies of gamma quanta up to 20
Mev. Discuss the difficulties encountered in the
case of higher energies. Submitted by Acad L. D.
Landau 25 Sep 52.

245T67

(PA 56 no. 672:8684)-'53)

SHMUSHKEVICH, I. M.

USSR/Physics - Quantum electrodynamics

Card 1/1 : Pub. 118 - 7/9

Authors : Abrikosov, A. A.; Pomeranchuk, I. Ya.; and Shmushkevich, I. M.

Title : "Quantum Electrodynamics" by A. I. Akhizer and B. B. Berestetskiy.
Gosizdat, 1953, 428 p.

Periodical : Usp. fiz. nauk 53/3, 442-444, July 1954

Abstract : A monographical work by two Soviet scientists is reviewed. The monograph deals with quantum electrodynamics and is considered to be a unique and very valuable work on theoretical physics.

Institution : ...

Submitted : ...

Shmushkevich, I.

USSR/Physics - Annihilation

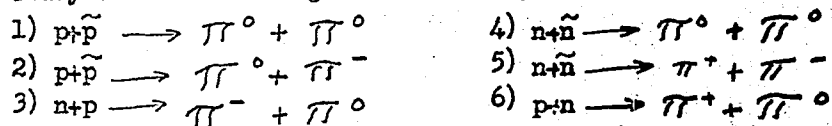
Card 1/1 Pub. 22 - 20/54

Authors : Kobzarev, I., and Shmushkevich, 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:



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

SHMUSHKEVICH, I.

USSR/Physics

Card 1/1 Pub. 22 - 17/45

Authors : Shmushkevich, I.

Title : On deriving the correlations among the cross-sections as they come out from the hypothesis of an isotopic invariance

Periodical : Dok. AN SSSR 103/2, 235-238, Jul 11, 1955

Abstract : A method of deriving correlations among cross-sections, as they come out from the hypothesis of an isotopic invariance, is described. The method is very simple and needs only simple arithmetical calculations. Six references: 1 Brit., 1 French, 1 USSR and 3 USA (1946-1955). Tables.

Institution : The Acad. of So., USSR, Physico-Technical Institute, Leningrad

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

SHAMUSHKEVICH, I.

1-AMK

19
✓ Derivation of the relations between cross sections based
on the assumption of isotopic invariance. N. Dushin and
I. Shamshkevich. *Soviet Phys. "Doklady"* 1, 94-7(1950)
(English translation).—See C.A. 51, 870a. B. M. R.

new
see 2
AMK
uyi

SHMUSHKEVICH, M. I.

3995

14

CAPTURE OF K⁻-MESONS BY DEUTERIUM AND HYPERON-NUCLEON INTERACTION. L. B. Okun' and M. I. Shmushkevich (Academy of Sciences, USSR), Soviet Phys. JETP 3, 792-3(1956) Dec.

2

*Phys
Sci*

K-meson capture in hydrogen and deuterium was studied for information concerning the properties of K mesons and the interactions between hyperons and nucleons. (F.S.)

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myi*

SHMUSHKEVICH, M.I.

Category : USSR/Nuclear Physics - Elementary Particles

C-3

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3140

Author : Okun', L.B., Shmushkevich, M.I.

Inst : Academy of Sciences USSR

Title : Capture of K^- Mesons by Deuterons and the Interaction Between Hyperons and Nucleons.

Orig Pub : Zh. eksperim. i teor. fiziki, 1956, 30, No 5, 979-981

Abstract : The momentum approximation was used to calculate the cross section of the absorption of a K^- meson in deuterium with production of a nucleon, π^- -meson and hyperon. Equations are obtained for the energy spectrum of the π^- -mesons. The energy distribution of the π^- -mesons near the upper boundary of the spectrum depends on the character of the hyperon-nucleon interaction occurring upon capture of a K^- meson.

Card : 1/1

Shmushkevich, I. M.

me

630.146
1963. THE IMPULSE APPROXIMATION. I. M. Shmushkevich.
Zh. eksper. teoz. Fiz., Vol. 41, No. 4(10), 1269-1276, 1963.
Whereas Brusilov has shown that impulse approximation
yields wrong results for the total cross-section, at high energies
it gives the small-angle differential cross-sections correctly.
G. E. Brown

Brusilov

Shmushkevich, I.

6933. DEDUCTION OF RELATIONSHIPS AMONG CROSS-SECTIONS BASED ON THE HYPOTHESIS OF ISOTOPIC INVARIANCE. N.Dushin and I.Shmushkevich. Dokl. Akad. Nauk SSSR, Vol. 166, No. 3, 607-1 (1956). In Russian.

539.18

In a previous paper (see preceding abstract) a simple method for obtaining relationships among cross-sections based on the hypothesis of the isotopic invariance, has been deduced. In some cases, however, their actual number is larger than that obtained by the above method. In the present paper it is shown with the help of a few examples (collisions of π -mesons with nucleons, scattering of π -mesons by deuterons, pair formation of π -mesons in $\pi + d$ reactions, decay of τ -mesons into three π -mesons) how a slight modification of the established procedure may give the full set of required relationships.

G.Martelli

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Shmushkevich, I. M.

25-10-10/41

AUTHOR: Shmushkevich, I. M., Professor, Doctor of Physico-Mathematical Sciences, Leningrad

TITLE: Puzzle of "Tau - Teta" (Zagadka "Tau - Teta")

PERIODICAL: Nauka i Zhizn', 1957, # 10, pp 23-29 and 48 (USSR)

ABSTRACT: The author describes the history of "tau-teta" puzzle, which was solved by Lee and Yang by suggesting that the law of parity conservation does not hold in weak interactions, and the experiments carried out in the USA on beta-decay and pion-muon-decay which confirmed the non-conservation of parity.

In the USSR, a series of experiments have been performed by Academician A. I. Alikhanov with his co-workers and by Professor S. Ya. Nikitin and his co-workers on determination of polarization of electrons produced in the beta-decay of unoriented nuclei, and by A. O. Vaysenberg on the angular distribution of electrons produced in pion and muon decay. All these experiments have shown that parity was not conserved in weak interactions. Academician L. D. Landau has advanced a hypothesis according to which there is a symmetry

Card 1/2

Puzzle of "Tau - Teta"

25-10-10/41

in weak interactions with respect to the mirror reflection accompanied by the simultaneous substitution of the particles with antiparticles. Landau named this operation, the mirror reflection with switching from particles to antiparticles, the combined inversion. According to this hypothesis, the asymmetry of right and left is transferred from being a property of space to the property of the particles.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549810011

Landau, also Lee and Yang and other physicists, put forth the concept of a two-component or longitudinal neutrino. However, recent experimental data induce serious doubts as to the correctness of this theory. The article contains 4 photos, 2 figures and 1 table.

AVAILABLE: Library of Congress

Card 2/2

SHMUSHKEVICH, I. M.

AUTHORS: Akhiezer, A.I., Rozentsveyg, L.N., 56-3-31/59
Shmushkevich, I.M.

TITLE: On the Scattering of Electrons by Protons (O rasseyanii elektronov
protonami)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 3,
pp. 765-772 (USSR)

ABSTRACT: It is demonstrated theoretically that also in the case of most
general conditions prevailing the scattering of electrons by pro-
tons can be represented by two real functions $a(q^2)$ and $b(q^2)$ of the
invariant $q^2 = (p_1 - p_2)^2$. p_1 and p_2 is the fourdimensional electron
momentum before and after the collision. Since the terms a and b
do not depend on q^2 an unlimited number of experiments independent
of each other exist from which in the case of fixed q^2 a and b
can be computed. If the comparison of the results for the determin-
ation of a and b leads to contradictions in the case of high
electron energies it is an important indication that the theory
developed is not applicable for high energies. There are 5 figures.

SUBMITTED: March 21, 1957.

AVAILABLE: Library of Congress
Card 1/1

SHMUSHKEVICH, I M.

56-6-24/47

AUTHOR: Shmushkevich, I. M.

TITLE: The Angular Distribution and the Polarization of Electrons in the β -Decay of the Orientated Nuclei (Uglovoye raspredeleniye i polarizatsiya elektronov pri β -raspade oriyentirovannykh yader)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1957, Vol. 33, Nr 6 (12), pp. 1477 - 1482 (USSR)

ABSTRACT: For the permitted transitions the present paper determines β -neutrino-correlation, the angular distribution, and the polarization of electrons (positrons), which are produced in the β -decay of orientated nuclei. The author a priori presupposes nothing as to whether the various interaction constants are real or imaginary. Therefore, the formulae obtained here are suited for the solution of the problem as to whether an invariance with respect to combined inversion exists. In the computation of the matrix elements the pseudoscalar interaction is disregarded and the wave functions of the electron (positron) and of the anti-neutrino (neutrino) are here replaced by their value at $r \rightarrow 0$. For reasons of certainty at first electron decay is investigated; the respective wave function of the electron is explicitly written down. Also for the matrix

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56-6-24/47

The Angular Distribution and the Polarization of Electrons in the β -Decay of the Orientated Nuclei

element of β -decay an ansatz is written down. When computing the probability of decay it is necessary to sum the square of the modulus of the matrix element over the spins of the electrons and the anti-neutrino. The differential probability of β -decay resulting here from these computations is explicitly written down. For the computation of the polarization of the electrons produced a density matrix is introduced. The angular distributions and the polarizations of electrons are computed in the usual manner. Here only the results for the three types of transitions $J' = J, J \pm 1$ for electron decays and positron decays are mentioned. There are 9 references, 3 of which are Slavic.

ASSOCIATION: Leningrad Physico.-Technical Institute
(Leningradskiy fiziko-tehnicheskiy institut)

SUBMITTED: June 25, 1957

AVAILABLE: Library of Congress

Card 2/2

AUTHORS: Okun', L. B., Pomeranchuk, I. Ya., SOV/56-34-5-27/61
 Shmushkevich, I. M.

TITLE: On the Interaction of the Ξ^- -Hyperons With Nucleons and Light Nuclei (O vzaimodeystvii Ξ^- -giperonov s nuklonami i legkimi yadrami)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol. 34, Nr 5, pp. 1246 - 1249 (USSR)

ABSTRACT: This work determines the spin-correlations of the Λ -particles occurring in the reaction $\Xi^- + p \rightarrow \Lambda + \Lambda$. In the interaction of a slow Ξ^- -hyperon with protons the following reactions are possible:
 1) $\Xi^- + p \rightarrow \Xi^- + p$ (elastic scattering)
 2) $\Xi^- + p \rightarrow \Xi^0 + n$ (charge exchange), 3) $\Xi^- + p \rightarrow \Lambda^0 + \Lambda^0$ (absorption).
 The other processes (of the type $\Xi^- + p \rightarrow \Sigma^0 + \Lambda^0$) have a threshold value and for low energies can be neglected. If the Ξ^- -hyperon is sufficiently long-lived and if experiments with slow Ξ^- -hyperons are possible the investigation of reaction (3) with an observation of the subsequent

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On the Interaction of the Ξ -Hyperons With Nucleons
and Light Nuclei

SOV/56-34-5-27/61

decay processes of the Λ -hyperons would be of particular interest. The Λ -hyperon is supposed to decay under non-conservation of parity. Expressions for the amplitude of the decay $\Lambda^0 \rightarrow p + \pi^-$ and also for the angular distribution in the decay of a polarized Λ -hyperon are written down. The pions must fly off predominantly in the direction (or opposite to) of the polarisation of the Λ -hyperon. A table contains the spin states and the orbital states of two Λ -hyperons for the case that the Ξ^- -hyperon is captured by a proton from the S-state. In case of positive parity of the Ξ^- -particle the amplitude of only one transition

$^1S_0 \rightarrow ^1S_0$) must be considered. A formula for the angular

distribution of the pions occurring in the decay of two Λ -hyperons is derived. By comparing this formula with the experimental data the parity of the Ξ^- -hyperons could be computed. The derived formulae for the process (3) hold in the capture of slow Ξ^- -particles from a continuous spectrum as well as in the capture from bound states of the system $\Xi^- + p$. The most probable one is

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On the Interaction of the Ξ^- -Hyperons With Nucleons
and Light Nuclei

SOV/56-34-5-27/61

the decay $\Xi^- + p \rightarrow \Lambda^0 + \Lambda^0 + \gamma$. There are 1 table and 2 references,
1 of which is Soviet.

SUBMITTED: December 10, 1957

1. Particles--Properties
2. Particles--Decay
3. Nuclear spins
- Analysis
4. Mathematics--Applications

Card 3/3

SOV/56-36-2-60/63

21(7)
AUTHOR:

Shmushkevich, I. M.

TITLE:

The Depolarization of μ^- -Mesons in the Formation of μ -Meso-atoms (Depolyarizatsiya μ^- -mezonov pri obrazovanii μ -mezoatomov)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 2, pp 645-646 (USSR)

ABSTRACT:

The present paper deals with the estimation of the degree of polarization of the negative muons which fall on to the K-shell of the mesoatom. In order not to complicate the problem by taking account of the hyperfine structure, the author confines himself to the investigation of μ -mesoatoms produced on nuclei of zero spin. For the connection between the average values of $\vec{\sigma} = 2\vec{s}$ (where \vec{s} denotes the spin operator of the negative muon), i.e. $\vec{\sigma}_1$ and $\vec{\sigma}_2$ (in the initial and in the final state), the following relation is found: $\vec{\sigma}_2 = \beta \vec{\sigma}_1$ where

$$\beta = \frac{[j_2(j_2+1) - l_2(l_2+1) + 3/4] [j_1(j_1+1) + j_2(j_2+1) - 2]}{[j_1(j_1+1) - l_1(l_1+1) + 3/4] 2j_2(j_2+1)}$$

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Averaging is carried out over the state characterized by the

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The Depolarization of μ^- -Mesons in the Formation of μ -Mesoatoms

quantum numbers nlj and μ (μ denotes the projection of j) and also over all the values of μ for given nlj . The author then investigates one of the excited levels of the μ -mesoatoms of sufficiently high quantum numbers $n_0 l_0 j_0$ for which the condition $\Delta_{nl} \gg \Gamma_{nl}$ still holds. Δ_{nl} denotes the distance between the levels of the fine structure of the quantum numbers n and l , and of different j ($j = l \pm 1/2$). Γ_{nl} denotes the width of the corresponding level. For the mean value of σ on the K shell, the expression $\bar{\sigma}_K = \beta_K \bar{\sigma}_0$ is found. The analysis of this result gives $\beta_K \sim 1$ if n_0 and l_0 are great and if $j_0 = l_0 + (1/2)$. Under the same conditions, however, from $j_0 = l_0 - (1/2)$ follows $\beta_K = 0$. In the first stages of the formation of the mesoatom, the negative muons attain states of high n ($n \sim 14.15$) and of great l . No depolarization occurs in these states. Depolarization begins when the negative muon first comes to the level where the condition $\Delta_{nl} \gg \Gamma_{nl}$ is satisfied. This permits an estimate of $\bar{\sigma}_0$. This estimate is

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The Depolarization of μ^- -Mesons in the Formation of μ -Mesoatoms

discussed in short and gives for the mean value of σ_z (i.e. the degree of the polarization of the negative muons on the K-shell) the value $1/6 \sim 17^\circ$. This value agrees approximately with the results obtained by previous experiments. The author thanks S. S. Gershteyn, V. N. Gribov and A. Z. Dolginov for their interest in this paper and for useful discussions. There are 6 references, 3 of which are Soviet.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut
(Leningrad Physico-Technical Institute)

SUBMITTED: December 7, 1958

Card 3/3

SOV/56-36-3-62/71

24(5), 21(7)

AUTHOR:

Shmushkevich, I. M.

TITLE:

Nuclear Polarization in the Capture of Polarized μ^- -Mesons in the Mesoatomic K-Shell (Polarizatsiya yadra pri zakhvate polarizovannykh μ^- -mezonov na mezoatomnuyu K-obolochku)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 3, pp 953 - 954 (USSR)

ABSTRACT:

The production of μ -mesic atoms with K-transitions of μ^- -mesons is accompanied by a considerable depolarization of the originally polarized μ^- -mesons (Refs 1-3). If the nucleus has the spin I , it too, owing to the magnetic interaction of spins, is polarized. The hyperfine splitting up in the ground state is found to be much greater than \hbar/τ (τ = life time of the μ^- -meson). Therefore the states with $F=I+1/2$ and with $F=I-1/2$ form an incoherent mixture (Ref 4). The spin state is described by the density matrix ρ . The nucleus is primarily assumed to be unpolarized; \vec{j} is assumed to be the unit vector in the direction of the original polarization of μ^- -mesons. With given F and by making use of the postulate of invariance, of the hermiticity and linearity of ρ with

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Nuclear Polarization in the Capture of Polarized μ^- -Mesons SOV/56-36-3-62/71
in the Mesoatomic K-Shell

respect to j , a general expression is first obtained for \mathcal{S}_F , and in the following explicit expressions for $\mathcal{S}_+(F=I+1/2)$ and $\mathcal{S}_-(F=I-1/2)$, as well as \bar{s}/s (in these two cases as functions of \vec{S}, \vec{I} and \vec{j} and s and I) are derived. (s and I denote the spin operators of μ^- -meson and nucleus respectively). For a nucleus with $I=1/2$ (e.g. μ -mesic hydrogen) one obtains

$$\mathcal{S}_+ = \frac{1}{4} \left[1 + \lambda_+ \vec{j} (\sigma_p + \sigma_\mu) + \frac{1}{3} \sigma_p \sigma_\mu \right]; \quad \mathcal{S}_- = \frac{1}{4} (1 - \sigma_p \sigma_\mu)$$

The calculated effect of nuclear polarization must be taken into account in the analysis of experiments which are connected with a capture of polarized μ^- -mesons, especially when determining the angular distribution of the produced neutrons. There are 7 references, 4 of which are Soviet.

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Nuclear Polarization in the Capture of Polarized μ^- -Mesons SOV/56-36-3-62/71
in the Mesoatomic K-Shell

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk
SSSR (Leningrad Physico-Technical Institute of the Academy
of Sciences, USSR)

SUBMITTED: December 7, 1958

Card 3/3

88465

s/056/60/039/006/057/063
B006/B063

24.2500
AUTHORS:

Malkov, Ye. I., Shmushkevich, I. M.

TITLE:

Electromagnetic Radiation Emitted in Collisions Between
Particles With Close Values of the Specific Charge e/m

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,
Vol. 39, No. 6(12), pp. 1837-1846

TEXT: The bremsstrahlung occurring in electron-electron collisions has been theoretically studied in Born approximation which, however, is sufficient only at high velocities. For v/c it has been studied by means of Coulomb wave functions, in which case the results obtained are applicable only to dipole radiation. The radiation occurring in electron-electron collisions or, quite generally, in collisions of particles with equal e/m , has mainly a quadrupole character, and the velocities of the particles (e.g., nuclei) are such that Born approximation cannot be used; $(Z_1 Z_2 e^2 / \hbar v \gg 1)$. If, in addition to this condition, also the energy of the radiation quanta is small compared to the kinetic energy of the nuclei

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Electromagnetic Radiation Emitted in Collisions Between Particles With Close Values of the Specific Charge e/m 88465
S/056/60/039/006/057/063
B006/B063

($\hbar\omega \ll E = \mu v^2/2$; μ - reduced mass of the colliding particles; v - their relative velocity), the radiation intensity or the corresponding cross section can be calculated in a classical manner. In doing so, the particle trajectories without radiation are calculated first, and then the radiation accompanying the particle motion. For dipole radiation, this has already been done by L. D. Landau, Ye. M. Lifshits, and others. Here, the case of quadrupole radiation is investigated in a classical manner. The e/m values of the colliding nuclei are supposed to be similar but not equal, and allowance is made for dipole radiation and the interference between dipole and quadrupole radiations. In this case, magnetic dipole radiation is never observed. The particles are assumed to have a non-relativistic velocity. Expressions are derived for the differential bremsstrahlung cross section for charged particle collisions in the case of predominating quadrupole radiation. The formulas obtained for angular and energy distributions and the radiation polarization, which make allowance for quadrupole and dipole radiations and their interference, are used to study the limiting cases of high and very low frequencies. It has been shown that classical approximation yields useful results for low radiation

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Electromagnetic Radiation Emitted in Collisions Between Particles With Close Values of the Specific Charge e/m S/056/60/039/006/057/063 B006/B063

frequencies and low energies of the colliding particles. I. Kh. Lemberg and A. P. Grinberg are thanked for discussions. There are 7 references: 6 Soviet and 1 German.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskij institut Akademii nauk SSSR (Leningrad Institute of Physics and Technology, Academy of Sciences USSR)

SUBMITTED: July 30, 1960

X

Card 3/3

NIKITIN, Yu.P.; POMERANCHUK, I.Ya.; SHMUSHKEVICH, I.M.

Formation of high-energy π -meson beams. Zhur. eksp. i teor. fiz.
41 no.3:963-968 S '61. (MIRA 14:10)
(Mesons)

31788
S/056/61/041/006/036/054
B125/B102

24.6200

AUTHORS:

Bukhvostov, A. P., Shmushkevich, I. M.

TITLE:

Depolarization of negative muons in the production of muonic atoms on spin-1/2 nuclei

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 6(12), 1961, 1895-1906

TEXT: The hyperfine structure of slightly excited levels in mesic atoms is assumed to be greater or equal to the level width. In the initial state where the hyperfine splitting is much smaller than the level width, the polarization remains constant. Subsequently, the muon falls to a level with a fine splitting that is great relative to the width. This applies also to all other levels traversed by the muon. At the end of this second stage, the muon polarization is about 1/3 in every fine-structural state. In the F=0 state, the muon is not polarized, and the mean spin of the meson on the K shell amounts to 3/4 of the mean spin in the F=1 state (F = total moment). The table contains the calculated values of the ratios denoted by β (polarization of the muon on the K shell

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Depolarization of negative ...

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B125/B102

to the polarization at the end of the second stage). The last column summarizes the values of

$\beta = \frac{1}{2l+1} \beta_{l-1/2} + \frac{l+1}{2l+1} \beta_{l+1/2}$. The density matrices $\rho^{(f)}$ and ρ in the final and initial state, respectively, are interrelated by

$$\rho_{\nu\nu'}^{(f)} = \exp\{-i\omega_{\nu\nu'} t\} \sum_{\mu\mu'} S_{\mu\mu'} \rho_{\nu\nu'}^{(i)} \quad (1) \text{ and}$$

$$\rho^{(f)} = N_n \sum_{\mu\mu'} \frac{H_{\nu\mu} H_{\mu\nu}^*}{1+i(\omega_{\mu\mu'} - \omega_{\nu\nu'}) \tau_M} \sum_{\alpha\alpha'} \frac{H_{\mu\alpha} H_{\alpha\mu}^*}{1+i(\omega_{\alpha\alpha'} - \omega_{\nu\nu'}) \tau_L} \dots \quad (2),$$

$$\dots \sum_{\alpha\alpha'} \frac{H_{\beta\alpha} H_{\alpha\beta}^*}{1+i(\omega_{\alpha\alpha'} - \omega_{\nu\nu'}) \tau_A} \rho_{\alpha\alpha'}$$

respectively. Here, $H_{\alpha\beta}$ etc. denote the matrix element for the transition of the system from state α to state β with emission of a quantum or an Auger electron; τ_A and τ_B are the lifetimes of the levels A, B, ...;

$\omega_{\beta,\beta'} = (E_\beta - E_{\beta'})/\hbar$; E_β and $E_{\beta'}$ are the energies of the sublevels β and β'

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B125/B102

$$N = (2j + 1)^{-1} (2I + 1)^{-1} \cdot \text{In}$$

$$\rho^{(F)} = \frac{1}{4} (1 + a_1^F j I + a_3^F n F) = \frac{1}{4} [(1 + \frac{1}{4} a_1^F + a_3^F n F) P_+ + (1 - \frac{3}{4} a_1^F + a_3^F n F) P_-] = \frac{1}{3} \rho_+ (1 + \frac{3}{2} \lambda^F n F) P_+ + \rho_- P_- \quad (19),$$

$P_+ = (3 + 4jI)/4$ and $P_- = (1 - 4jI)/4$ are the operators of the projection on the $F=1$ and $F=0$ states, and

$$\rho_+ = \frac{3}{4} (1 + \frac{1}{4} a_1^F), \quad \rho_- = \frac{1}{4} (1 - \frac{3}{4} a_1^F). \quad (20)$$

are the probabilities of the corresponding states. The parameter $\lambda^F = (2/3) a_3^F / (1 + (1/4) a_1^F)$ is equal to the polarization of the muon in the triplet state of the K shell. The depolarization coefficient $\beta_K = \langle \vec{s}_K \vec{n} \rangle / \langle \vec{s} \vec{n} \rangle$ reads

$$\beta_K = \frac{a_3^F}{2\lambda} \frac{j+1}{j(j+1) - 1(1+1) + 3/4} = \frac{a_3^F}{2\lambda} \times \begin{cases} 1 & \text{if } j = 1 + 1/2 \\ -(j+1)/j & \text{if } j = 1 - 1/2 \end{cases}$$

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with $\beta_K = \sum_n w_n \beta_n$. In this sum, which goes over all cascades starting from the initial level, β_n denotes the depolarization coefficient for a definite cascade. For the transition of a muon from the initial state to the K shell,

$$a_3^P = a_3 + \frac{4}{3} \sum_{i=0}^l \frac{j_i}{2j_i+1} \text{Re} A^{(i)} (1 - x_i), \quad A^{(i+1)} = A^{(i)} x_i + \frac{2\gamma}{4j_i^2-1} \quad (29)$$

is valid in the final state. Here the sum has to be taken over all intermediate levels in the respective cascade transition, and $i = 0$, ($j_i = j$). Two limiting cases are considered: (1) If the hyperfine splitting (except the K shell) is everywhere small compared to the level width, then

$$A^{(1)} = \frac{6\lambda}{2j+1} + \frac{12\lambda}{4j^2-1} = \frac{6\lambda}{2j-1}, \quad A^{(2)} = \frac{6\lambda}{2j-3} \text{ и т. д.} \quad (31).$$

$$A^{(i)} = \frac{6\lambda}{2j_i+1}, \quad A^{(l)} = 3\lambda,$$

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B125/B102

(2) If the hyperfine splitting is greater than the level width, then the depolarization on transition from a state with $j = 1 + 1/2$ is about $4/3$ less than in the first case. In the presence of a hyperfine structure, the muon consequently polarizes the nucleus during transitions between excited levels. Existing experimental data on the depolarization of muons on nuclei with $I = 1/2$ (at present, only for P^{31}) confirm the theoretical considerations discussed here. There are 1 table and 11 references: 4 Soviet and 7 non-Soviet. The four most recent references to English-language publications read as follows: H. Überall, Phys. Rev. 114, 1640, 1959; M. E. Rose, Bull. Am. Phys., 4, 80, 1959; R. A. Mann, M. E. Rose. Phys. Rev., 121, 293, 1961; E. Lubkin, Phys. Rev., 119, 315, 1960.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskii institut Akademii nauk SSSR (Leningrad Physicotechnical Institute of the Academy of Sciences USSR)

SUBMITTED: July 6, 1961

Card 6/6

SHIRSHAKOV, I. M.
SHIRSHAKOV, I. M., POMERANCHUK, I. Ya., SIRSHIKOVICH, I. M.

"The Formation of High Energy π^- - Meson Beams"

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

Inst. of Theoretical and Experimental Physics, Moscow, USSR

SEMUSHKIN, I.I., inzhener.

Basic parameters and other requirements to be included in the projected standards for press forging machinery. Standartizatsiia no.1:19-24
Ja-Fe '56. (MLRA 9:2)

1.Komitet standartov, mer i izmeritel'nykh priborov.
(Forging machinery--Standards)

SHMUSHKIN, I.I.

In the International Standards Organization, Technical Committee
No.19 "Preferred Numbers." Standartizatsiia 25 no.9:54-56 S '61.

(MIRA 14:9)

(Preferred numbers)

BARATOV, Georgiy Fedorovich; SHMUSHKO, L.G., obshchiy red.; POLTAVETS,
I.M., red.; POTOPSKAYA, L.A., tekhn.red.

[Local civil antiaircraft defense during a gas, nuclear, and
bacteriological attack] Mestnaya protivovozdushnaya oborona
naseleniya v usloviakh khimicheskogo, atomnogo i bakteriolo-
gicheskogo napadeniya. Pod obshchei red. L.G.Shmushko. Kiev,
Gos.med.izd-vo USSR, 1959. 300 p. (MIRA 12:12)
(Civil defenses)

SPAFORUKOTSKIY, Yu.A.; CHERNIGOROVA, Z.L.; GRINCHENKO, A.N.; YEL'YASHKEVICH,
E.S.; GITIS, Ye.I.; SEMUSHKO, R.Ya.; SARNITSKIY, I.F.

Effect of the BK-8 protein blood substitute on the process of blood
coagulation in dogs during a stomach resection. Trudy Kiev. nauch.-issl.
inst. perel. krovi i neotlozh. khir. 3:120-128 '61.

(MIRA 17:10)

YEL'YASHKEVICH, E.S.; VAKAR, A.A.; SHMUSHKO, R.Ya.

Changes in the oxygen content of the blood in chronic leukemia. Trudy
Kiev. nauch.-issl. inst. perel. krovi i neotlozh. khir. 3:248-251 '61.
(MIRA 17:10)

1. Kiyevskiy institut perelivaniya krovi.

YEL'YASHKEVICH, E.S.; VAKAR, A.A.; SHMUSHKO, R.Ya.

Protein and protein fractions of the blood serum in chronic leukemia.
Trudy Kiev. nauch.-issl. inst. perel. krovi i naetlozh. khir. 3:258-
261 '61. (MIRA 17:10)

1. Kiyevskiy institut perelivaniya krovi.

SHMUSHKO, R.Ye. (Shmushko, R.Ya.)

Effect of intravenous introduction of 10% sodium lactate on some blood
coagulation indices in dogs. Fiziol. zhur. [Ukr.] 10,no.3:400-402 My-
Ja '64. (MIRA 18:9)

1. Kiyevskiy nauchno-issledovatel'skiy institut perelivaniya krovi i
neotlozhnoy khirurgii.

SMUSHKO, R.Ya.

Biological characteristics of the preparation "Fibrinogen" for
intravenous introduction. Gemat. i paral. krovi 1918-22 '65.

(MIRA 18:10)

1. Mysvskiy institut terelivaniya krovi.

MAZUROVA, T.M.; POPOVA, T.I.; ~~SHMUSHKOVICH, A.Ya.~~; SHEVELEVA, A.A.;
GUMER, I.I.; LAVRENOVA, V.A.

Letter to the editors. Stomatologiya 38 no.3:72 My-Je '59.
(MIRA 12:8)

(PLASTICS)

SHMUSHKOVICH, N.M.

Readers' conference on this periodical in a hospital. Med.sestra
21 no.8:57-58 Ag '62. (MIRA 15:9)
(NURSES AND NURSING--PERIODICALS)

С. И. ИВАНОВИЧ X4

SHIMSHAKOV ICH, Ye. A.

Wider use of the method of grouping marine engine repair jobs.
Rech. transp. 16 no. 7: 17-18 J1 '57. (MLRA 10:9)

1. Bazhal'nik Moskovskoy remontno-ekspluatatsionnoy bazy.
(Ships--Maintenance and repair) (Marine engines)

SHMUSHKOVICH, Ye., inzh.; KUSHLIN, V., inzh.

Turn out items meeting higher standards. Rech. transp. 24 no.8:26-28
'65. (MIRA 18:9)

1. Moskovskiy sudostroitel'no-sudoremontnyy zavod.

PRONIN, Mikhail Vasil'yevich; SHMUSHKOVICH, Ye.A., retsenzent; OSIPOV, L.L.,
red.; VINGRADOVA, N.M., red.izd-va; YERMAKOVA, T.T., -tekh.red.

[Repair of the 3D6 engines; experience of the Kiev Shipyard] Remont
dvigatelei 3D6; opyt raboty Kievskogo SSRZ imeni Stalina. Moskva,
Izd-vo "Rechnoi transport," 1959. 85 p. (MIRA 13:2)
(Marine diesel engines--Maintenance and repair)
(Kiev--Shipyards)

LIKHTENSHEYN, Khaim Geselevich; OZOL', Yevgeniy Georgiyevich;
SEMUSHKOVICH, Yefim Abramovich; MAKRUSHINA, A.N., red.izd-va;
POKHLEBKINA, M.I., tekhn.red.

[Floating plant for the manufacture of "silicalcite."] Plavuchii
silikal'tsitnyi zavod. Moskva, Izd-vo "Rachnoi transport," 1960.
61 p. (MIRA 14:3)

(Building materials)
(Factories--Design and construction)

SHMUSKOVICH, A.M.

Apparatus for automatic defoaming. Khleb. i kond. prom. 1 no.9:44-46
S '57. (MIRA 10:11)

1. Moskovskiy drozhzhevoy zavod.
(Foam) (Yeast) (Automatic control)

L 20697-66 EWT(m)
ACC NR: AP6007768

SOURCE CODE: UR/0205/66/006/001/0149/0150

AUTHOR: Arbuzov, S. Ya.; Novoselova, G. S.; Frolov, S. F.; Shmuskovich, N. N. ³⁰_B

ORG: Military Medical Academy im. S. M. Kirov, Leningrad (Voyenno-meditsinskaya akademiya)

TITLE: The radiation protection ¹⁹ effect of apilac in an experiment on animals

SOURCE: Radiobiologiya, v. 6, no. 1, 1966, 149-150

TOPIC TAGS: irradiation resistance, irradiation damage, x ray irradiation, radiation protection, cystamine, apilac

ABSTRACT: The radiation protection effect of apilac (a substance secreted by bees) was studied in experiments on white mice, white rats, and rabbits. The animals were subjected to x rays in lethal and sublethal doses (700-800 rad). Apilac was injected intraperitoneally in the mice and subcutaneously in the rats and rabbits in doses described as nontoxic for animals and humans alike. The effectiveness of apilac was measured in terms of survival, weight, mean longevity, clinical course of radiation sickness, quantitative changes in peripheral blood, and the relative

UDC: 628.58; 577.391 ²

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L 20697-66

ACC NR: AP6007768

weight of the animals surviving the irradiation. It was found that a single injection of apilac had no protective effect. When apilac was injected prior to and seven days after irradiation, the number of survivors was higher. On the 30th day after irradiation, 40% of the mice treated with apilac were still alive while the untreated control group had all perished. Sixty percent of the mice treated with cystamine were still alive during the same time span. A combination of cystamine and apilac was found to be less effective than apilac alone. Complete data on the effect of apilac, cystamine, and a combination of the two on mice, rats, and rabbits are presented in tabular form. It is concluded that apilac has a pronounced protective effect on mice, rats, and rabbits that have been exposed to lethal and sub-lethal x-ray dosages. Orig. art. has: 1 table. [14]

SUB CODE: 06/ SUBM DATE: none/ ATD PRESS: 4223

Card 2/2 BK

SHMUTER, L.M.

Action of antibiotics on the dehydrogenase activity of *Clostridium perfringens*. Antibiotiki 5 no.1:69-70 Ja-F '60. (MIRA 13:7)

1. Luganskaya gorodskaya sanitarno-epidemiologicheskaya stantsiya
(glavnyy vrach L.S. Perederiy). (ANTIBIOTICS) (CLOSTRIDIUM PERFRINGENS)
(DEHYDROGENASES)

SHMUTER, L.M.

Sensitivity of animals to infection by culture and toxin of
Cl. perfringens and the effectiveness of immunization with
anatoxin in radiation sickness. Med.rad. 5 no.7:63-66 '60.
(MIRA 13:12)

(RADIATION SICKNESS) (CLOSTRIDIUM PERFRINGENS)

ACC NR: AP6024439 SOURCE CODE: UR/0016/66/900/007/0054/0057

AUTHOR: Shmuter, L. M.

ORG: 12th Hospital, ^{Khar'ko} (12-aya bol'nitsa)TITLE: ~~Use of the indirect hemagglutination~~ reaction in dysenterySOURCE: Zhurnal mikrobiologii, epidemiologii, i immunobiologii,
no. 7, 1966, 54-57TOPIC TAGS: dysentery, ~~indirect hemagglutination~~, hemagglutination,
diagnostic test, ~~diagnostic method~~, ~~hemagglutination test~~, ~~hemagglu-~~
~~tination method~~, ~~intestinal disease~~, Shigella sonnei, Shigella flexneri, *diagnostic medicine*

ABSTRACT:

A study was made of the indirect hemagglutination reaction as a method for serological diagnosis of dysentery. Indirect and direct hemagglutination tests were conducted on 515 serum specimens from 280 patients with chronic and acute dysentery and from dysentery carriers. A total of 283 sera from 200 patients with enterocolitis and chronic colitis was also tested. The direct hemagglutination reaction is unreliable and inconsistent, giving negative results for *Shigella sonnei* and positive results at high titers for

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UDC: 616.935-078.73

ACC NR: AP6024439

Shigella flexneri. Comparison of results of tests of bacteriologically confirmed dysentery cases with control tests on healthy subjects and nondysenteric patients showed a titer of 1:60 to be diagnostically positive. Reliability was 93% for positive reaction in bacteriologically confirmed cases; 77.9% in cases with clinical symptoms; 75.6% in carriers; and 17% in acute and chronic colitis cases. In 69% of the positive reactions, the antibody titer increased at least fourfold. The indirect hemagglutination test is specific, highly sensitive, and is preferred to direct hemagglutination as a dysentery diagnostic tool. [WA-50; CBE No.11]

SUB CODE: 06/ SUBM DATE: 05Jun66/ ORIG REF: 002/ OTH REF: 012/
[WA-50; CBE No. 11]

Card 2/2

SHMUTER, M. F.

"Concerning the Effectiveness of Anti-Tularemia Vaccine," p. 70

"Dependence of Immunological Effectiveness of Vaccine Strains of Tularemia on Their Residual Virulence for White Mice," p. 112

"Concerning Revaccination Against Tularemia," p. 151

from the monograph Effect of Vaccination Against Tularemia, 1953

Translation D 568409

Head of Observation Station, IEM im. Mechnikov

POKROVSKAYA, Magdalena Petrovna; SEMUTER, M.F.; MIROSHNICHENKO, M.A.

[Tularemia] Tuliaremia. Moskva, Medgiz, 1957. 107 p.
(TULAREMIA) (MIRA 12:3)

SHMUTER, M.F., LAVRENKO, Ye.M.

Role of Aedes mosquitoes encountered in Khar'kov Province in
the transmission of tularemia. M.F. Shmuter, E.M. Lavrenko.
Med. paraz. i paraz. bol. 27 no.2:220 Mr-Apr '58 (MIRA 11:5)

1. Iz Ukrainского nauchno-issledovatel'skogo instituta malyarii
i meditsinskoy parazitologii.
(MOSQUITOES AS CARRIERS OF DISEASE)
(KHAR'KHOV PROVINCE--TULAREMIA)

SIBIR, P. F., AMIRKANT, H. A., NA AB, T. H.

"Types of *Yersinia* *pestis* in Kazakhstan, the conditions of their existence and the factors contributing to the incidence of tularaemia in these foci." p. 206.

Desyatye sovetskoi nauki parazitologicheskii problem i prirodnoochagovaya bloznavani. 22-29 Oktvabriga 1959 g. (Tenth Conference on Parasitological Problems and Diseases with Natural Foci 22-29 October 1959), Moscow-Leningrad, 1959, Academy of Medical Sciences USSR and Academy of Sciences USSR, No. 1 254pp.

Central Asiatic Anti-plague Institutes/Alma Ata

SHUMBER, M. F., BIRIKOVA, V. A., BONDARI, E. P., BUDZIOV, A. S.,
CHURAYLEVA, V. I., KALUZHENKOVA, Z. P., MARTINEVSKIY, I. I.,
KOTLOVA, I. V., PEYSAKHIS, L. A., ROSSINSKAYA, G. B., SVIRIDOV, G. G.

"Certain laws governing the plague epizootic in the south
Balkhash area (Ili-Karatal interfluve)." p. 277

Deputatnye Soveshchaniye po parazitologicheskim problemam i
prirodnoochagovym boleznyam. 22-29 Oktyabrya 1959 g. (Tenth Conference
on Parasitological Problems and Diseases with Natural Foci 22-29
October 1959), Moscow-Leningrad, 1959, Academy of Medical Sciences
USSR and Academy of Sciences USSR, No. 1 254pp.

Central Asiatic Antiplague Inst./Alma Ata

SEMTER, M. E., BRONOVA, R. P., VOLCHKOVA, V. A., BIBIKOVA, V. A.,
ANISIMOVA, I. I.

"The pathogenesis of the plague infection among various types of
sand-rats." p. 280

Despytoye Soveshchaniye po parazitologicheskim problemam i
prirodnoochegovym boleznyam. 22-29 Oktyabrya 1959 g. (Tenth Conference
on Parasitological Problems and Diseases with Natural Foci 22-29
October 1959), Moscow-Leningrad, 1959, Academy of Medical Sciences
USSR, and Academy of Sciences USSR, No. 1 254pp.

Central Antiplague Inst.(Asiatic)/Alama-Ata

SHMUTER, H.F.

Tularemia infections in sugar mills. Zhur.mikrobiol.epid. 1
immun. 30 no.3:46-52 Mr '59. (MIRA 12:5)

1. Iz Sredneaziatskogo protivochumnogo instituta.
(TULAREMIA, epidemiol.
in sugar mill workers (Rus))

17 (2, 6)

SOV/16-60-4-13/47

AUTHOR: Shmuter, M.F., Lopatukhina, L.G., Sosunova, A.N. and Yastrebova, Ye.N.

TITLE: The Effects of ^uBrucellosis Vaccination on the Course of the Infectious Process in Guinea Pigs Infected With Brucella Melitensis

PERIODICAL: Zhurnal mikrobiologii, epidemiologii i immunobiologii, 1960, Nr 4, pp 58 - 60 (USSR)

ABSTRACT: Experiments were performed to determine the effects of brucellosis vaccination on persons infected with brucellosis by extrapolating the results of vaccination of guinea pigs, experimentally infected with Br. melitensis. Vaccination of the infected animals 2 - 3 months after infection with Br. melitensis did not provoke chronic infection. No increase in the multiplication or spread of brucella could be noted in the animal's organs. The vaccinal strain probably reacted by stimulating the body's defensive mechanism, clearing the body more rapidly of Br. melitensis. It thus reacted similarly to vaccine therapy with killed brucella. It was difficult to achieve superinfection in animals infected with Br. melitensis by the administration of a vaccinal culture of low virulence; the vaccinal strain either refused to take or

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SOV/16-60-4-13/47

The Effects of Brucellosis Vaccination on the Course of the Infectious Process in Guinea Pigs Infected With Brucella Melitensis

else was preserved in the body for only a very brief period of time.
There are 2 tables.

ASSOCIATION: Sredneaziatskiy protivochumnyy institut (Central Asian Anti-Plague Institute)

SUBMITTED: July 11, 1959

Card 2/2

S/016/60/000/06/03/051

AUTHORS: Shmuter, M.F., Lopatukhina, L.G., Sosunova, A.N. and Yastrebova, Ye.N.

TITLE: The Comparative Characteristics of Three Vaccinal Strains of Brucella⁶
(19-BA, 19 and M) in Experimental Subcutaneous and Skin Administration

PERIODICAL: Zhurnal mikrobiologii, epidemiologii i immunobiologii, 1960, No. 6,
pp. 12 - 16

TEXT: At the proposal of the Ministerstvo zdavookhraneniya SSSR (Ministry of Health of the USSR), the authors studied the characteristics of the three vaccinal strains of Brucellus abortus (19-BA, 19 and M) used in the USSR for immunizing people against brucellosis. Guinea pigs were immunized subcutaneously or dermally with the strains, killed off after 1, 5, 15, 30, 45, 60, 90 or 180 days and studied for pathological lesions, the isolation of brucellae from various organs and for their immune response. Strain M had greater residual virulence than strains 19-BA and 19, caused more extensive pathological lesions and led to a greater spread of brucella through the organs and tissues. No essential difference was noted in the residual virulence of strains 19-BA and 19, since both caused identical lesions in the internal organs, affected the same tissues and caused the same immune

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S/016/60/000/06/03/051

The Comparative Characteristics of Three Vaccinal Strains of Brucella (19-BA, 19 and M) in Experimental Subcutaneous and Skin Administration

response. The immune response from the M strain lasted longer and was more intense than that caused by strains 19-BA and 19. All three strains were highly immunogenic. Dermal vaccination caused slightly less lesions and the same depth of immunity as subcutaneous immunization. Strain 19 is therefore to be recommended for vaccination purposes. If strain M is used, care must be taken in selecting the correct dosage in view of its greater residual virulence. There are 2 tables and 6 Soviet references.

ASSOCIATION: Sredneaziatskiy protivochumnyy institut (Central Asian Anti-plague Institute)

SUBMITTED: July 11, 1959

Card 2/2

SHMUTER, M.F.; LOPATUKHINA, L.G.; SOSUNOVA, A.N.; YASTREBOVA, Ye.N.

Effect of brucellosis vaccination on the course of infection in guinea pigs infected with Br. melitensis. Zhur. mikrobiol. epid. i immun. 31 no. 4:58-60 Ap '60. (MIRA 13:10)

1. Iz Sredneaziatskogo protivochumnogo instituta.
(BRUCELLOSIS)

SHMUTER, M.F.; LCPATUKHINA, L.G.; SOSUNOVA, A.N.; YASTREBOVA, Ye.N.

Comparative characteristics of 3 vaccinal strains of Brucella (19-BA, 19 and M) in experimental subcutaneous and epicutaneous administration. Zhur. mikrobiol. epid i immun. 31 no.6:12-16 Je '60. (MIRA 13:8)

1. Iz Sredneaziatskogo protivochumogo instituta.
(BRUCELLA) (VACCINATION)

UZBEKOVA, B.R.; SHMUTER, M.F.; BARAK, TS.M.; BOLTUNOV, P.I.

Influence of preventive inoculations on the incidence of brucellosis
in the Kazakh S.S.R. Zdrav. Kazakh. 21 no. 3:66-70 '61.

(MIRA 14:4)

1. Iz Sredne-Asiatskogo protivochumnogo instituta (direktor -
kandidat meditsinskikh nauk M.K. Tleugabylov) i Kazakhskoy
respublikanskoy sanitarno-epidemiologicheskoy stantsii.

(KAZAKHSTAN--BRUCELLOSIS)

UZBEKOVA, B.R.; SHMUTER, M.F.; ABDULLINA, G.A.

Simultaneous vaccination by the epicutaneous method against plague, brucellosis and tularemia. Zdrav.Kazakh. 22 no.7:63-68 '62. (MIRA 16:1)

1. Iz Sredne-Aziatskogo protivochumnogo instituta Ministerstva zdravookhraneniya SSSR.

(PLAGUE--PREVENTIVE INOCULATION)
(BRUCELLOSIS--PREVENTIVE INOCULATION)
(TULAREMIA--PREVENTIVE INOCULATION)