ZYRYANOV, T.P.; KOLOGOD, G.A.; MIL'CHENKO, A.V.; [illegible] KOV, V.V.

Selecting the structure and parameters of [illegible]olling at the Maslyanskiy Mine. Bezop.truda v prom. 5 no.1:12-[illegible] Ja '61. (MIRA 14:2)
(Altai Territory--Mine [illegible] Pillars)

YERGALIYEV, Aodesh Yergaliyevich; YURKOV, Viktor Nazarovich; OSIPOV, Aleksandr Vasil'yevich; ZYRYANOV, Timofey Pavlovich; KUZNETSOV, Yu.N., red.; ROROKINA, Z.P., tekhn. red.

[Systems of working ore deposits of minor and average thickness] Sistemy razrabotki rudnykh mestorozhdenii maloi i srednei moshchnosti. Alma-Ata, Izd-vo Akad. nauk Kazakhskoi SSR, 1961. 205 p. (MIRA 14:7)

(Mining engineering)

ZYRYANOV, T.P.; KOROGOD, G.A.; MIL'CHENKO, D.V.; YURKOV, V.N.

Selecting the structure and parameters of bolting at the Maslyanskiy Mine. Bezop.truda v prom. 5 no.1:12-13 Ja '61. (MIRA 14:2)
(Altai Territory—Mine roof bolting)

VARAKSIN, Vadim Nikolayevich; SHILKIN, Petr Ivanovich; ZYRYANOV, Timofey Pavlovich; KOROGOD, Grigoriy Alekseyevich; MIL'CHENKO, Dmitriy Vladimirovich; POLYAKH, V.A., otv. red.; VUROS, R.F., red.; UTEPOV, Zh.K., tekhn. red.

[Rod bolting in the Rudnyy Altai]Shtangovaia krep' na Rudnom Altae. Alma-Ata, TSentr. in-t nauchn.-tekhn. informatsii, 1960. 19 p. (MIRA 17:2)

ARAYEV, V., podpolkovnik; ZYRYANOV, V., podpolkovnik; LEBEDEV, D., polkovnik; SHASHKOV, A., podpolkovnik

Solution of tactical problems numbers 1-3, published in number 3 of the periodical. Voen. vest. 38 no.7:22-24 Jl '58. (MIRA 11:6) (Tactics) (Infantry drill and tactics) (Tank warfare)

ZYRYANOV, V., starshiy inspektor spasatel'noy sluzhby (g.Khabarovsk)

Among divers of the Soviet Far East. Voen. znan. 38 no.7:32 Jl '62. (MIRA 15:6)
(Amur River—Lifesaving) (Diving, Submarine)

S/0048/64/028/005/0823/0824

ACCESSION NR: AP4038770

AUTHOR: Shuvayev, A.T.; Zy*ryanov, V.G.; Gorskiy, V.V.

TITLE: Investigation of the K fluorescence spectrum of calcium in several compounds /Report, Seventh Conference on X-Ray Spectroscopy held in Yerevan 23 Sep to 1 Oct 1963/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.5, 1964, 823-824

TOPIC TAGS: x-ray spectrum, calcium compound, line shift, line shape

ABSTRACT: The calcium $K\alpha_{1,2}$, $K\beta_1$, and $K\beta_5$ lines in the spectra of CaC_2, CaO and CaF_2 were recorded in order to detect the influence of the calcium ion charge and the surrounding atoms on the spectra. The spectra were excited by the radiation from a 30 kV copper anode x-ray tube and were recorded photographically in the second order using a best quartz crystal vacuum spectrometer with a resolution of 10 000. Relative intensity measurements of the $K\beta_1$ and $K\beta_5$ lines were facilitated by employing two films, one behind the other; this resulted in a $K\beta_1$ image on the second film comparable in density with the $K\beta_5$ image on the first. No difference in the $K\alpha$ spectra of the three compounds could be discerned. This is in agreement with pre-

Card 1/2

ACCESSION NR: AP4036770

vious calculations (A.T.Shuvayev, Izv.AN SSSR,Ser.fiz.25,986,1961; M.A.Blokhin and A.T.Shuvayev, Ibid.26,429,1962), according to which the s and p valence electrons should not be able appreciably to affect the Kα lines. The $K\beta_1$ line in CaF_2 was shifted by 0.4 eV toward the shorter wavelengths compared with its position in CaC_2 and CaO. The presence of this shift is in accord with previous conclusions (loc.cit) but the observed agreement between the positions of $K\beta_1$ in CaC_2 and CaO is not understood. A large shift (2.5 eV) and gross changes in line shape were observed in $K\beta_5$, indicating that the influence on this line of the valence electrons is considerable. Orig.art.has: 1 figures and 2 tables.

ASSOCIATION: Rostovskiy-na-Donu gosudarstvenny*y universitet (Rostov-on-the-Don State University)

SUBMITTED: 00 DATE ACQ: 12Jun64 ENCL: 00

SUB CODE: OP NR REF SOV: 002 OTHER: 000

Card 2/2

ZYRYANOV, V.N.; PUTALOVA, R.V.

Metasomatic facies and accessory minerals of the Arsalan Massif. Izv. AN Kazakh. SSR Ser. geol. 22 no. 6:26-34 N-D '65 (MIRA 19:1)

1. Institut geologicheskikh nauk imeni K.I. Satpayeva, Alma-Ata.

ZYRYANOV, V.N.

Age of plagiogranite intrusions in the Chingiz-Tau. Izv.AN Kazakh. SSR.Ser.geol. no.4:78-82 '62. (MIRA 15:7)
(Chingiz-Tau--Granite) (Geological time)

DERTSAKYAN, A.K., inzh.; ZYRYANOV, V.P., inzh.

Laying a gas pipeline at ground level. Stroi. truboprov. 7 no.12:5-7 D '62. (MIRA 16:1)

1. Giprospetsgaz, Leningrad.
(Gas, Natural—Pipelines)

ZYRYANOV, V.N.

Alkali granitoid formation in the Chingiz zone. Trudy Inst. geol. nauk AN Kazakh. SSR 12:113-128 '65. (MIRA 18:9)

MILOVANOV, A.F., kand.tekhn.nauk; ZYRYANOV, V.S., inzh.

Functioning of fire-resistant reinforced concrete elements under axial compression and uneven heating. Bet. i zhel.-bet. 8 no.7:331-333 Jl '62. (MIRA 15:7)
(Precast concrete--Testing)
(Beams and girders)

85387

S/032/60/026/010/022/035
B016/B054

18 8200

AUTHORS: Milovanov, A. F. and Zyryanov, V. S.

TITLE: Measurement of Deformations in Structures at High Temperatures

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 10, p. 1151

TEXT: The authors developed a method of measuring radial and vertical deformations of the hot interior of hollow cylinders. For this purpose, they used rods (tyaga) of quartz glass with a low temperature coefficient of elongation ($0.4 \cdot 10^{-6}$) as compared with concrete and steel. Rods, 15 mm in diameter, were attached to the hot surface of the structure to be tested. The quartz glass used was tube- or rod-like, 4-20 mm in diameter, and of different lengths depending on the size of the structure. The radial deformations were measured with the aid of four rods which lay in two diameters perpendicular to each other. The inner ends of the quartz rods were curved like hooks. These hooks were attached to nichrome-band anchors. Pairs of differently long quartz tubes were used to measure

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85387

Measurement of Deformations in Structures at High Temperatures

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B016/B054

longitudinal deformations. The difference in length of quartz rods was used as a basis for deformation measurements. Deformations at temperatures of up to 1200°C were measured in this way. The method suggested can be used both in experiments and at the beginning of operation of heat generators working at high temperatures.

ASSOCIATION: Institut betona i zhelezobetona Akademii stroitel'stva i arkhitektury SSSR
(Institute of Concrete and Reinforced Concrete of the Academy of Building and Architecture, USSR)

Card 2/2

ZYRYANOV, V.S., kand.tekhn.nauk

Computing the crack resistance of prestressed concrete smokestack shafts. Bet.i zhel-bet. 9 no.5:229-233 My '63. (MIRA 16:6)

(Smokestacks) (Prestressed concrete)

MILOVANOV, A.F., kand.tekhn.nauk; ZYRYANOV, V.S., inzh.

Tensile strength and compression of heat resistant reinforced concrete construction elements subjected to nonuniform heating. Bet.i zhel.-bet. no.7:310-316 Jl '60. (MIRA 13:7)
(Girders--Testing) (Electric heating)

82070

S/097/60/000/07/01/003

15.3200

AUTHORS: Milovanov, A.F., Candidate of Technical Sciences, Zhuyanov, V.S. Engineer

TITLE: Effect of Compression and Tension on Heat-Resistant Reinforced Concrete Elements Subject to Non-Uniform Heating

PERIODICAL: Beton i Zhelezo-Beton, 1960, No. 7, pp. 310 - 316

TEXT: The laboratory of heat-resistant and chemically stable constructions of NIIZhB ASiA has conducted experimental investigations pertaining to compression and tension of structural elements under non-uniform heating. The object of the investigation was to test the method of calculation developed by Professor V.I. Murashev, to determine rigidity and strength of heat-resistant reinforced concrete elements, as well as width of cracks, developing in the elements subject to simultaneous action of load and temperature. The article describes test beams and methods by which the tests were performed at temperatures of 150, 300, 500 and 700°C. Compression and tensile forces were raised up to 50% of breaking point. The article explains the method of measuring deflections and taking temperatures, and gives a number of formulae for determining deflection, relative height of compressed zone, coefficient of tensile force, coefficient of effect of tension on

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3/097/60/000/07/01/003

82070

Effect of Compression and Tension on Heat-Resistant Reinforced Concrete Elements Subject to Non-Uniform Heating

extended concrete, and residual temperature moment; the theoretic value of carrying capacity of beams is determined by formula NiTU 123-55 for central tension. The article mentions the names of V.M. Milonov and B.A. Al'tshuler Candidates of Technical Sciences. The average theoretical deflection of the reinforcement corresponds to the experimental values at all stages of temperature and loads. Experiments have established that the tensile force causes a lowering of the temperature moment brought about by non-uniform heating. The carrying capacity of the reinforced concrete elements was characterized by the attainment of the yield point of the reinforcement, while the drop of temperature did not interfere with the tensile strength. Experimental values of carrying capacity were determined by the extent of deflection corresponding to attaining the yield point of the reinforcement. The mean arithmetical value of deviation of experimental values from theoretical ones was +5%, while maximum values were +25 and -15%. From Graph 5 it can be seen that the theoretical width of cracks corresponds to experimental values. Table 1 gives the carrying capacities of beam under tension and Table 2 those of beams under compression. In calculating the carrying capacities it is

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Effect of Compression and Tension on Heat-Resistant Reinforced Concrete Elements Subject to Non-Uniform Heating

necessary to make allowance for a decrease in strength of concrete and reinforcement at rising temperature. There are 1 diagram, 2 tables, 6 graphs, 1 Soviet reference and 10 formulae.

MILOVANOV, A.F.; ZYRYANOV, V.S.

Abrasion-resistance of heat-resistant concrete at high temperatures.
Ogneupory 25 no.5:234-237 '60. (MIRA 14:5)

1. Nauchno-issledovatel'skiy institut betona i zhelezobetona Akademii stroitel'stva i arkhitektury SSSR.
(Concrete) (Mechanical wear)

ZYRYANOV, Ye.G.; KOLEVATOV, P.A.; OSIPOV, Yu.A.; KOZHEVNIKOV, V.N.

Industrial testing and introduction of dry PermNIUI-4 dust collectors at the Lenin Mine of the Kizelugol' Combine. Nauch. trudy PermNIUI no.6:215-223 '64.

(MIRA 18:2)

OSIPOV, Yu.A.; KOLEVATOV, P.A.; SYSUYEV, V.A.; ZYRYANOV, Ye.G.; KUCHERSKIY, L.V.

Preventing bumps in coal mines by pressing water into the seam. Biul. tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekh.inform. 17 no.7: 12-13 Jl '64. (MIRA 17:10)

ZYRYANOV, Ye.G.; OSIPOV, Yu.A.; P'YANKOV, A.P.; UTKIN, S.A.

Dust collecting equipment for use in rock drilling in the Kizel Basin. Nauch. trudy Perm NIUI no. 4:146-155 '62. (MIRA 17:6)

ZYRYANOV, Ye.G.; KOLEVATOV, P.A.; OSIPOV, Yu.A.

Introduction of the PERMMIUI-4 dust collector. Biul. tekh.-ekon. inform. Gos. nauch.-issl. inst. nauch. i tekh. inform. 17 no.6: 26-27 Je '64. (MIRA 17:11)

ZYRYANOVA, A. N.

"Dynamics of the Accumulation of Copper and Cobalt in the Fruit of Feed Melon Plantings Under Conditions in the Gissar Valley." Cand Agr Sci, Inst of Animal Husbandry, Acad Sci Tadzhikistan SSR, Stalinabad, 1954. (KL, No 5, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (13)
SO: Sum. No. 598, 29 Jul 55

8 (6)

SOV/91-59-11-2/27

AUTHOR: Melent'yev, V.A., and Zyryanov, V.P., Engineers

TITLE: Operational Adjustments of MP-VTI Wet Ash Traps

PERIODICAL: Energetik, 1959, Nr 11, pp 3-6 (USSR)

ABSTRACT: The authors report on the operational adjustments required for achieving a proper functioning of the MP-VTI scrubbers which replaced the cyclones on a TKP-3 boiler at the Chelyabinsk TETs. The boiler was fired with pulverized (R_{88} = 18 - 20%) hard coal from Ekibastuz. Its output was 160/200 tons/h. The ash content of the coal was 38-42%. The wet ash traps (scrubbers) MP-VTI have a number of advantages over other systems, for example the TsS-VTI centrifugal ash traps. However, the MP-VTI scrubbers show a number of deficiencies which were eliminated partially at the Chelyabinsk TETs. A number of problems remained unsolved, especially in selecting the proper material. For example, the wooden lining used is not suitable. Other materials are not corrosion resistant enough and are

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Operational Adjustments of MP-VTI Wet Ash Traps

corroded by the acid content of the ash sludge. The spray nozzles of the cylindrical part of the scrubber are not efficiently designed. Problems of material corrosion by the acid content of the sludge must still be solved. There are 4 diagrams and 1 table.

MILOVANOV, A.F., kand.tekhn.nauk; ZYRYANOV, V.S., inzh.

Heatproof reinforced concrete chimneys. Prom. stroi. 38 no. 12:32-35 '60. (MIRA 13:12)

1. Nauchno-issledovatel'skiy institut betona i zhelezobetona Akademii stroitel'stva i arkhitektury SSSR.
(Chimneys)

MILOVANOV, A.F.; ZYRYANOV, V.S.

Measurement of deformations in parts at high temperatures. Zav.lab 26 no.10:1151 '60. (MIRA 13:10)

1. Institut betona i zhelezobetona Akademii stroitel'stva i arkhitektury SSSR.
(Strength of materials) (Deformations (Mechanics))

ZYRYANOV, V.S., inzh.

Experimental investigations of the performance of heat-resistant reinforced concrete chimney shafts. Prom.stroi. 8 no.7: 45-50 '60. (MIRA 13:7)

1. Nauchno-issledovatel'skiy institut betona i zhelezobetona Akademii stroitel'stva i arkhitektury SSSR.
(Chimneys)

MUSTAFAYEV, I.A.; GERTSEN, P.P., kand.tekhn.nauk; ZYR'YANOV, Ye.G.

Controlling dust during the drilling of boreholes in thin stopes. Bor'ba s sil. 5:129-131 '62. (MIRA 16:5)

1. Permiskiy nauchno-issledovatel'skiy ugol'nyy institut. (Mine dusts—Prevention)(Boring machinery—Equipment and supplies)

ZYRYZNOVA, A.N.

USSR / Cultivated Plants. Plants for Technical Use. M
Oil Plants. Sugar Plants.

Abs Jour : Ref Zhur - Biol., No 8., 1958, No 34724

Author : Zyryznova, A. N.
Inst : AS TadzhSSR
Title : Content of Boron in the Organs of Soviet Thin-Fibrous Cotton Plants.

Orig Pub : Izv. Otd. iestestv. nauk AN TadzSSR, 1957, No 18, 163-167

Abstract : Cited are the results of the analysis of various organs of the cotton plant varieties 504-V and 5904-I for ascertaining their boron content (gross content of air-dry matter), as determined by the Quializarin method. The cotton plant of the variety 504-V, with a cotton wool yield of 25 hwt/h, contained in its above soil mass

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ZYRYANOVA, A.N.

Total manganese content of the principal soils of southern Tajikistan. Dokl. AN Tadzh. SSR 3 no.1:27-30 '60. (MIRA 13:12)

1. Institut pochvovedeniya AN Tadzhikskoy SSR. Predstavleno akademikom AN Tadzhikskoy SSR I.N.Antipovym-Karatayevym.
(Tajikistan--Soils--Manganese content)

ZYRYANOVA, A.N.

Total and water-soluble boron in the principal soils of southern Tajikistan. Dokl.AN Tadzh.SSR 1 no.4:33-36 '58. (MIRA 13:4)

1. Institut pochvovedeniya AN Tadzhikskoy SSR. Predstavleno akademikom AN Tadzhikskoy SSR I.N. Antipovym-Karatayevym.
(Tajikistan--Minerals in soil)
(Boron)

ZYRYANOVA, A.N.

Boron content of plant parts of Soviet fine-stapled cotton. Izv.Otd. est. nauk AN Tadzh.SSR no. 18:163-166 '57. (MIRA 11:8)

1. Institut pochvovedeniya, melioratsii i irrigatsii AN Tadzhikskoy SSR.

(Boron)
(Cotton)

OKUNTSOV, M.M.; ZYRYANOVA, G.D.

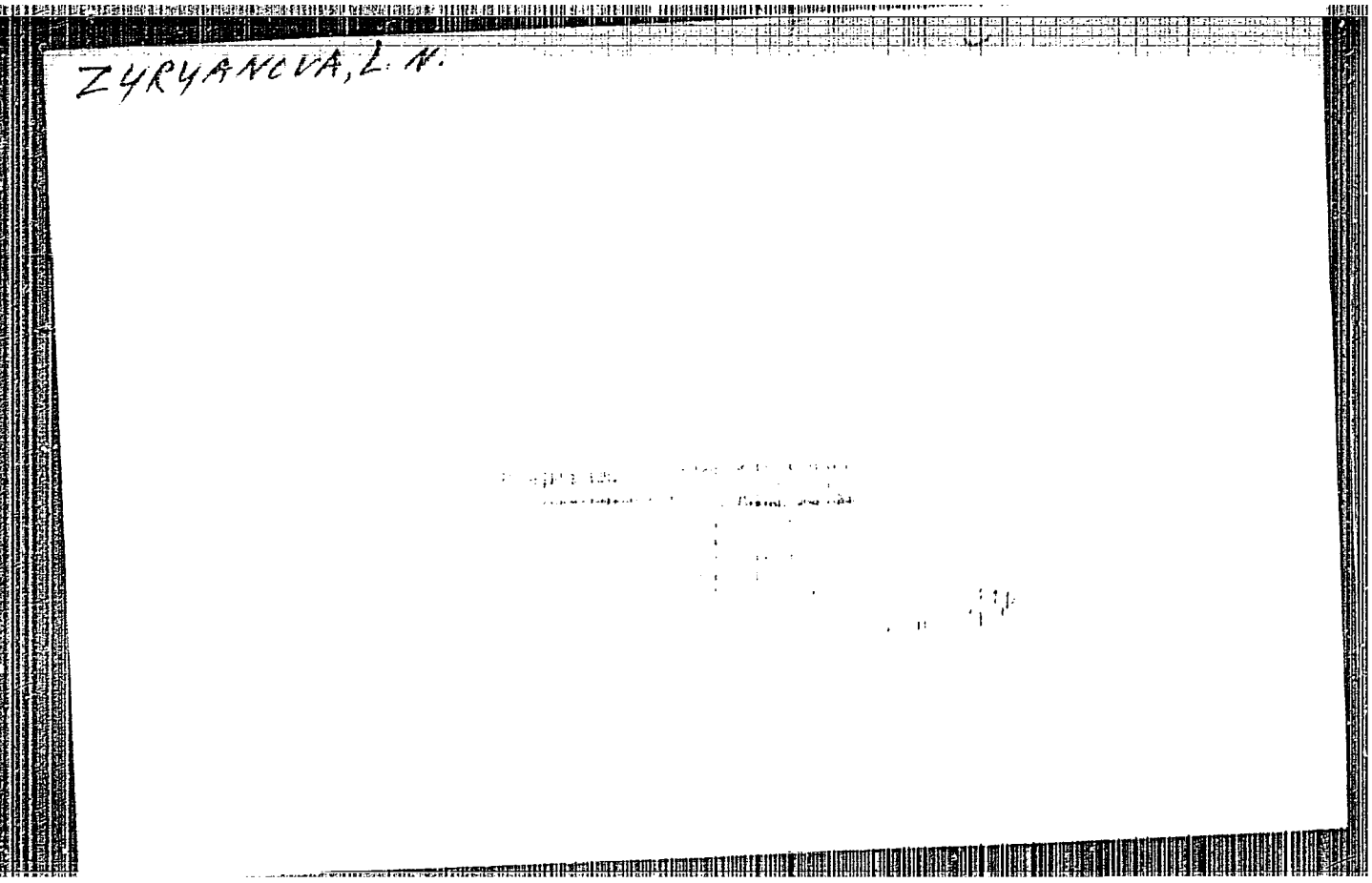
Effect of herbicides on metabolism in plants. Izv. Tomsk. otd. VBO 4:87-90 '59. (MIRA 14:6)

1. Kafedra fiziologii i biokhimii rasteniy Tomskogo gosudarstvennogo universiteta imeni V. V. Kuybysheva.
(Plants—Metabolism)
(Plants, Effect of chemicals on)

ZYRYANOVA, G.P.

Role of exercise therapy in a compound treatment of traumatological patients. Vop. travm. i ortop. no.13:95-99 '63. (MIRA 18:2)

1. Glavnyy vrach Sakhalinskogo oblastnogo vrachebno-fizkul'turnogo dispansera.



ZYRYANOVA, L. N.

USSR/Nuclear Physics - Beta-Decay Theory May/Jun 52

"Tensor Variant of Interaction in Beta-Decay Theory and Spectra of Second-Order Prohibited Transitions," L. N. Zyryanova, L. A. Sliv, Leningrad Phys-Tech Inst, Acad Sci USSR

"Iz Ak Nauk SSSR, Ser Fiz" Vol 16, No 3, pp 310-313

Report heard 5 Feb 52 in Acad Sci USSR. Presents arguments for the tensor variant of interaction in the theory of beta-decay. In this connection the authors study the beta-spectrum of RaE and its Fermi graph.

232T94

ZYRYANOVA, L. N.

Chemical Abst.
Vol. 48 No. 6
Mar. 25, 1954
Nuclear Phenomena

9-22-54

Masses of light nuclei. B. S. Dzhelepov and L. N. Zyryanova. *Uspekhi Fiz. Nauk* 48, 466-530(1952). The values of nuclear masses are computed for $Z \leq 20$; all the expt. data available before Mar. 1, 1952 are taken into consideration. The relevant data are listed, and the method of least squares is used in evaluating them. Primarily, mass values obtained from nuclear reaction energies and from mass-spectroscopic doublets are used. The results of microwave methods of detg. mass differences are taken into consideration, but it is pointed out that these methods are not yet as reliable as others. The results for mass defects and at. masses are tabulated for all the known nuclides up to Ca^{48}. For the more important nuclides the mass values are compared with the tabulated values of Mattauch and Flammersfeld (*C.A.* 43, 6902g), Li, *et al.* (*C.A.* 45, 8906b), Ewald (*C.A.* 46, 2903d), and Collins, *et al.* (*C.A.* 46, 2920f). On the av., the probable error is about 1/10 of the probable error in these previous tabulations. These mass values are: $n = 1.0080849 \pm 0.0000016$, $H^1 = 1.00814100 \pm 0.0000013$, $H^2 = 2.01474 11 \pm 0.0000024$, $H^3 = 3.017003 \pm 0.000005$, $He^4 = 4.0038773 \pm 0.0000027$, $Li^6 = 6.017038 \pm 0.000006$, $Li^7 = 7.018[illegible] \pm 0.000007$, $Be^7 = 9.015012 \pm 0.000000$, $B^{10} = 10.0161[illegible] \pm 0.000008$, $B^{11} = 11.012706 \pm 0.000006$, $C^{12} = 12.003817 \pm 0.000005$, $C^{13} = 13.007488 \pm 0.000005$, $N^{14} = 14.007531 \pm 0.000005$, $N^{15} = 15.004877 \pm 0.000007$, $O^{17} = 17.004536 \pm 0.000007$, $F^{19} = 19.004434 \pm 0.000005$, $Ne^{20} = 19.998708 \pm 0.000005$, $Na^{23} = 23.997094 \pm 0.000006$, $Mg^{24} = 23.992646 \pm 0.000034$, $Al^{27} = 26.990088 \pm 0.000024$, $Si^{28} = 27.985800 \pm 0.000026$, $P^{31} = 30.983198 \pm 0.000027$, $S^{32} = 31.982223 \pm 0.000011$, $Cl^{35} = 34.99102 \pm 0.00003$, $Cl^{37} = 36.97756 \pm 0.00004$, $A^{40} = 39.975073 \pm 0.000022$, $K^{39} = 38.97600 \pm 0.00004$, $Ca^{48} = 39.97530 \pm 0.00005$. E. Gora.

DZHELEPOV, B.S.; ZYRYANOVA, L.N.; ZERDEL', M.Ye., tekhnicheskiy redaktor

[Influence of the electric field of the atom on beta decay] Vliianie elektricheskogo polia atoma na beta-raspad. Moskva, Izd-vo Akademii nauk SSSR, 1956. 312 p. (MLRA 9:10)
(Beta rays)

Zyryanova, L.N.

B-2

USSR/ Physical Chemistry - Atomic Nucleus

Abs Jour : Referat Zhur - Khimiya, No 3, 1957, 7125

Author : Zyryanova, L.N. and Krutov V.A.
Inst : Academy of Sciences USSR
Title : Calculation of the Probability of Pair Conversion During 0-0 Nuclear Transitions

Orig Pub : Azv. AN SSSR, Physical Series, 1956, Vol 20, No 3, 312-317

Abstract : The form of the positronic conversion spectra produced by 0-0 transitions in O^{16}, Ge^{72}, and RaC' nuclei has been investigated, and a formula has been derived for calculating the probability of the transitions. In the calculation it is assumed that the potential for the 0-0 transition has spherical symmetry. The potential Q is assumed to be non-zero only within the boundaries of the nucleus. The calculation is carried out on the basis of the relativistic approximation. The ψ-function for the

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- 1 -

ZYRYANOVA, L. N.; MIKHAYLOV, V. M.

"New Tables of the Fermi Function $f_o(E_oZ)$."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

LGU (Leningrad State Univ)

ZYRYANOVA, L. N.

"The Dependence of the Wave Function of the Beat-minus on the Value of the Nuclear Radius in the Case of Forbidden Transitions."

"New Tables of the Function F(E,Z)."

reports submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

LGU (Leningrad State Univ)

S/048/63/027/002/0.2/023
B104/B180

AUTHORS: Zyryanova, L. N., and Mikhaylov, V. M.

TITLE: An analysis of the β-decay of the nuclei Bi^{210}(RaE), Pb^{210}(RaD), and Pb^{209} and the wave function of RaE

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 27, no. 2, 1963, 235 - 245

TEXT: The first forbidden β-transitions near the double-magic shell [illegible] N = 126 have been studied to find the spectra of the decaying nuclei. The wave function ψ(RaE) = $a(h_{9/2}i_{13/2}) + b(h_{9/2}f_{5/2})$ is used where a and b are the amplitudes of the impurities (N. Newby, Jr. E. T. Konopinski, Phys. Rev., [illegible]; P. Banerjee, E.-E. Zeh, Z. Phys., [illegible]). Data are analyzed on the spectrum, polarisation, the [illegible] of the neighboring Pt^{209} and Pb^{210} nuclei and assessments of the ratio b/a in the RaE wave function are made. First it is shown that ft is nearly proportional to x^2: $ft \approx (9.7x^2 + 0.19)\cdot 10^6$, where

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$$x = \frac{C_V}{C_A} \frac{i\langle \vec{r} \rangle}{\langle \vec{\sigma} \times \vec{r} \rangle}; \quad y = \frac{C_V}{C_A} \frac{\langle \vec{\alpha} \rangle}{\langle \vec{\sigma} \times \vec{r} \rangle}$$

x and y values are given in the table. With these parameters the wave function of RaE is analyzed. First the relation of x and y with the wave function is studied (Fig. 2). Then the radial integrals

$$F(1h \to 1i) = \frac{\delta^{3/2}}{\left(\frac{1+\delta^2}{2}\right)^{3/2}} \sqrt{\frac{13}{5}} P, \tag{15a}$$

$$F(1h \to 2g) = -\frac{15\delta^2 - 11}{4} \cdot \frac{\delta^{3/2}}{\left(\frac{1+\delta^2}{2}\right)^{3/2}} \frac{P}{2}, \tag{15b}$$

$$\lambda = -\sqrt{\frac{5}{13}} \frac{15\delta^2 - 11}{4\delta^2}. \tag{16}$$

$$\delta = \frac{p(h)}{p(g)} \approx 1.2.$$

Card 2/5

An analysis of the 3-term

Fig. 2. b/a as a function of x.
Legend: (1) λ = -0.4; (2) λ = -0.7; (3) λ = -1.0;
(4) λ = -1.3; (5) λ = -1.6.

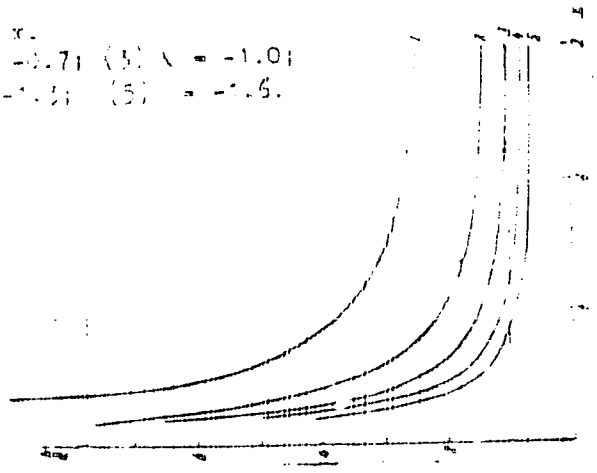

Fig. 2

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S/048/63/027/002/012/023
B104/B180

An analysis of the β-decay...

Fig. 3. ft of RaE as a function of x.
Legend: (1) λ = -0.4; (2) λ = -0.55; (3) λ = -0.7; (4) λ = -1.0; (5) λ = -1.3.
Table. Results of an analysis of the spectrum of RaE.
Legend: (1) taking no account of the third forbidden transition; (2) taking account of the third forbidden transition.

Table

Без учета III запрещения (1)		С учетом III запрещения (2)		
x	ν	x	ν	[illegible]
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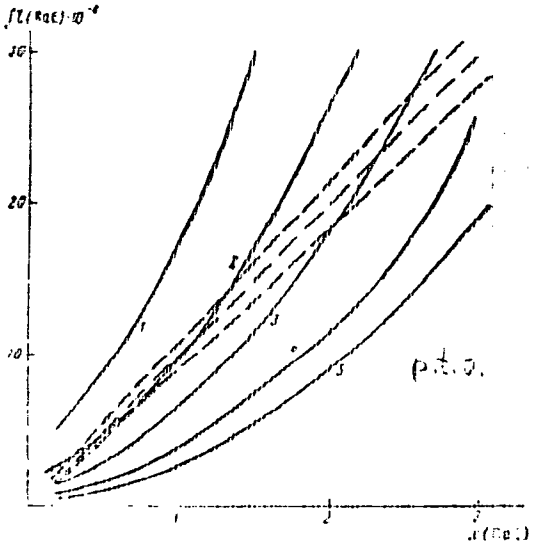
An analysis of the β^--decay...

Fig. 3



Card 5/5

ZYRYANOVA, L.N.

Shielding effect for forbidden β^--spectra. Izv. AN SSSR. Ser. fiz. 26 no.1:148-149 Ja '62. (MIRA 15:2)

1. Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova.
(Nuclear models)
(Beta rays—Spectra)

ZYRYANOVA, L.N.; PANTYUSHIN, A.A.

Correction to the form of allowed β^--spectra, which is accounted for by matrix elements of the relativistic operators α and γ_5. Izv. AN SSSR Ser. fiz. 26 no.1:150-152 Ja '62. (MIRA 15:2)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova.
(Beta rays—Spectra)
(Nuclear reactions)
(Operators(Mathematics))

ZYRYANOVA, L.N.

[Unique beta-transitions] Unikal'nye beta-perekhody. Leningrad, Izd-vo Akad. nauk SSSR, 1959. 96 p. (MIRA 15:2)
(Nuclear reactions)

S/048/62/026/001/016/018
B125/B104

AUTHOR: Zyryanova, L. N.

TITLE: Screening effect for forbidden β^--spectra

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 1, 1962, 148 - 149

TEXT: The method of L. A. Sliv (Zh. eksperim. i teor. fiz., 17, 1049 (1947)) has been used to calculate the coefficients of the electron wave functions L, M, N, P, Q, and R, contained in the expressions for the forbidden β-decay probability, allowing for the Coulomb field, the finite de Broglie wavelength for a uniformly charged spherical nucleus of radius $R = 1.2\ A^{1/3} \cdot 10^{-13}$ cm. The calculation technique has been described in detail by L. N. Zyryanova and B. S. Dzhelepov (Vliyaniye elektricheskogo polya atoma na beta-raspad - Effect of an electric field on the β-decay - Izd. AN SSSR, M.-L., 1956). The corrections for screening have been determined using tables of I. M. Band, V. I. Guman, and G. A. Sogomonova (Tablitsy radial'nykh funktsiy i faz elektronov - Tables of radial functions

Card 1/2

and electron phases - Izd. AN SSSR, M.-L., 1959) and the statistical model of Thomas-Fermi-Dirac, and allowing for the atomic electron and nuclear fields. The screening correction for M_0, for example, is equal to the ratio of M_0 (with allowance for the screening and the finite nuclear dimensions) to M_0 (with allowance for the finite nuclear dimensions only). If the screening effect for the allowed transitions in the function $F(E,Z)$ is taken into account, the screening corrections for M_0 and N_0 will remain below 0.5%. For the functions P_0, Q_0, and R_0, these corrections amount to 6% at most. There are 1 table and 8 references: 3 Soviet and 5 non-Soviet. The four references to English-language publications read as follows: Reitz J. R., Phys. Rev., 77, 10 (1950); Good R. H. Phys. Rev., 94, 931 (1954); Zweifel, P. F., Phys. Rev., 96, 1572 (1954); Konopinski E. J., Uhlenbeck G., Phys. Rev., 60, 308 (1941).

ASSOCIATION: Leningradskiy gos. universitet im. A. A. Zhdanova (Leningrad State University imeni A. A. Zhdanov)

S/048/62/026/001/017/018
B125/B104

AUTHORS: Zyryanova, L. N., and Pantyushin, A. A.

TITLE: The correction to the shape of allowed β^--spectra, obtained by allowing for the matrix elements of the relativistic operators $\vec{\alpha}$ and γ_5

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 1, 1962, 150 - 152

TEXT: In an approximate study of beta transitions it is possible to represent the leptons either by plane waves $\sim\exp(-i(\vec{k},\vec{x}))$ with $\vec{k} = \vec{p}_e + \vec{p}_\nu$ and with the exponent unity, or by neglecting the matrix elements corresponding to the operators $\vec{\alpha}$ and γ_5. VA interaction is assumed for the beta transition. The term

$$\frac{i}{2} G\bar{\psi}_p(x)\gamma_\mu\gamma_\nu\left[\frac{(\mu_p-1)-\mu_n}{e}\right]\psi_n(x)\left[\frac{\partial}{\partial x_\nu}\Lambda_\mu(x)-\frac{\partial}{\partial x_\mu}\Lambda_\nu(x)\right], \quad (2),$$

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The correction to the shape of...

which is due to a direct weak transition of the type $\pi^- \to \pi^0 + e^- + \bar{\nu}$, is to be added to the Hamiltonian

$$H = -iG(\psi_p^+(x)\psi_n(x))\Lambda_4(x) - G(\psi_p^+(x)\vec{\alpha}\psi_n(x))\vec{\Lambda}(x) - \\ - i\lambda G(\psi_p^+(x)\gamma_5\psi_n(x))\Lambda_4(x) + \lambda G(\psi_p^+(x)\vec{\sigma}\psi_n(x))\vec{\Lambda}(x), \qquad (1)$$

of beta interaction with $\Delta\mu(x) = \bar{\psi}_e(x)i\chi_\mu(1+\gamma_5)\psi_\nu(x)$, $G = (1.00 \pm 0.01)\cdot 10^{-49}$ erg·cm^2, when using the representation $\gamma_i = \begin{pmatrix} 0 & -i\sigma_i \\ i\sigma_i & 0 \end{pmatrix}$ $(i = 1,2,3)$, $\gamma_4 = \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}$, $\gamma_5 = \begin{pmatrix} 0 & -1 \\ -1 & 0 \end{pmatrix}$ and allowing for the renormalizability of the vectorial portion, in analogy to the electromagnetic interaction. Here, μ_p and μ_n denote the total anomalous moments of proton and nucleon magnetons (e/2M). The effective Hamiltonian

$$H = G(\psi_p^+\psi_n)\, u_e^+\left[1 - \frac{(k\vec{\sigma})}{2M}\right](1+\gamma_5)\, u_\nu - \qquad (6),$$
$$- \lambda G(\psi_p^+\vec{\sigma}\psi_n)\, u_e^+\left[\vec{\sigma} + ia\,(k\vec{\sigma}) + \frac{k}{2M}\right](1+\gamma_5)\, u_\nu.$$

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The correction to the shape of...

where $-i\nabla = \vec{k}$ and $a = (\mu_p - \mu_n)/\lambda_e$, is derived from the Hamiltonian following from the equation of motion $\left(\frac{\partial}{\partial x_\mu}\gamma_\mu + M\right)\psi(x) = 0$ for the nucleons if only the matrix elements are allowed, which obey the selection rules for allowed transitions. Using the customary method, the correction factor $S_1 = \left[1 + \frac{1}{M}\left(\frac{1}{W} - W_0\right)\right]$ is obtained for the $0 \to 0^-$ transition spectrum, and $S_2 = 1 \mp \frac{8}{3} a\left(W - \frac{1}{2} W_0 - \frac{1}{2}\frac{1}{W}\right) - \frac{1}{3M}\left(W_0 - \frac{1}{W}\right)$ (8) for the $\Delta J = 1$ transitions. Here, W is the total electron energy in terms of mc^2, and W_0 is its maximum energy. The upper sign denotes β^--decays and the lower sign stands for β^+ decays. The last expression is consistent with M. Gell-Mann's correction (Phys. Rev., 111, 362 (1958)) if the constant, which the latter did not determine exactly, amounts to -1/2M. The correction is of the order of $0.25 \cdot 10^{-2}(1/mc^2)$, and cannot explain the experimentally observed deviations of the P^{32} and Na^{22} spectra from the statistical form. This correction has the same value for the B^{12}, N^{12}, and In^{114} spectra.

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Using a Hamiltonian similar to the one presented here, J. F. Dreitlein (Phys. Rev., 116, 1604 (1959)) calculated the correction to the shape of the beta spectra of unique transitions which are forbidden in first order. For the transition $Y^{90} \rightarrow Zr^{90}$ $(2^- \rightarrow 0^+)$, this correction is of the order of $(0.2 - 0.3) \cdot 10^{-2} (1/mc^2)$, and cannot explain the experimentally observed deviation either. Nor can they be explained by allowing for both the correction discussed above and correction (8). There are 1 figure and 5 non-Soviet references. The four most recent references to English-language publications read as follows: Gell-Mann M., Phys. Rev., 111, 362 (1958); Daniel H., Nucl. Phys., 8, 191 (1958); Hamilton J. H., Langer L. M., Smith W. G., Phys. Rev., 112, 2012 (1958); Johnson O. E., Johnson R. G., Langer L. M., Phys. Rev., 116, 1604 (1959); Morita M., Nucl. Phys., 14, 106 (1959).

ASSOCIATION: Leningradskiy gos. universitet im. A. A. Zhdanova (Leningrad State University imeni A. A. Zhdanov)

ZYRYANOV, V.N.

Nepheline syenite in the cis-Chingiztau region. Izv. AN Kazakh. SSr. Ser. geol. 21 no.5:57-67 S-O '64. (MIRA 18:5)

1. Institut geologicheskikh nauk im. K.I.Satpayeva AN KazSSR, Alma-Ata.

89243

S/048/61/025/001/009/031
B029/B067

24.6700 (1482, 1385, 1138)

AUTHORS: Vinduška, M., Zyryanova, L. N.

TITLE: Analysis of β-spectra forbidden in second order

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25, no. 1 1961, 51-55

TEXT: The most important previous papers on the analysis of the shape of β-spectra forbidden in second order (Refs.1-6) are based on the ST variety of the theory of β-decay. In the present paper, the non-unique β-spectra forbidden in second order ($\Delta I = 2$, no) are investigated on the basis of the A-V interaction. The values of the nuclear parameters found in these calculations give a satisfactory explanation to the shape of the β-spectra. Four diagrams illustrate the experimental shapes of the form factors of Cl^{36}, Fe^{59}, Cs^{135}, and Cs^{137} β-spectra. The following relation holds for the theoretical shape of β-spectra forbidden in second order if $\Delta I = 2$:

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Analysis of β -spectra...

$$C_2 = |g_V|^2 \left\{ |R_{ij}|^2 \left[\frac{1}{30} K^4 L_0 - \frac{2}{15} K^3 N_0 + \frac{1}{3} K^3 (2L_1 + M_0) - \right.\right.$$
$$\left. - 2KN_1 + \frac{9}{2} L_2 + 3M_1 \right] + |A_{ij}|^2 \left[\frac{1}{12} K^2 L_0 + \frac{3}{4} L_1 \right] -$$
$$\left. - i (R_{ij} A_{ij}^* - \text{к. с.}) \left[\frac{1}{30} K^3 L_0 - \frac{1}{6} K^2 N_0 + \frac{1}{2} K L_1 - \frac{3}{2} N_1 \right] \right\} +$$
$$+ |g_A|^2 \left\{ |S_{ijk}|^2 \frac{1}{72} \left[\frac{1}{15} K^4 L_0 + 2K^2 L_1 + 15 L_2 \right] + \right.$$
$$\left. + |T_{ij}|^2 \frac{1}{12} \left[\frac{1}{15} K^4 L_0 + \frac{2}{5} K^3 N_0 + K^2 (L_1 + M_0) + 6KN_1 + 6L_2 + 9M_1 \right] \right\} +$$
$$+ g_A g_V \left\{ i (R_{ij}^* T_{ij} - \text{к. с.}) \left[\frac{1}{6} K^2 (L_1 - M_0) + \frac{3}{2} (L_2 - M_1) \right] + \right.$$
$$\left. + \frac{1}{4} (A_{ij}^* T_{ij} + \text{к. с.}) \left[\frac{1}{15} K^3 L_0 + \frac{1}{3} K^2 N_0 + K L_1 + 3N_1 \right] \right\}.$$

R_{ij}, A_{ij}, T_{ij}, and S_{ijk} denote the nuclear matrix elements; L_i, M_i, N_i

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are the combinations of wave functions of electrons as tabulated by B. S. Dzhelepov and L. N. Zyryanova (Ref. 10); K denotes the energy of the neutrino. If T-invariance is assumed for β-decay, then the relations

$$\frac{R_{ij}}{A_{ij}} = ix, \quad \frac{T_{ij}}{A_{ij}} = 2y, \quad \frac{S_{ijk}}{A_{ij}} = iz$$

will exist between the matrix elements, with x, y, z being real numbers. With $g_A/g_V = 1.2$ an equation is obtained for the theoretical form factor C_2 which depends on the three independent nuclear parameters x, y, z. A comparison of these equations with the experimental form factor of β-spectra yields the values for x, y, z which are in best agreement with the experiment. Table 1 shows the values of the nuclear parameters, which explain the experimental shape of the β-spectra, viz., those values of the nuclear parameters x, y, z, at which the quadratic divation of the experimental values from the theoretical ones is the least.

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Analysis of β-spectra...

Nucleus	x	y	z	Nucleus	x	y	z
Cl^{36}	-0.40	-0.80		I^{129}	-0.05	-0.2	10
Sc^{46}	0.5	0.5	10 ± 5	Cs^{135}	-0.05	-0.2	10
Fe^{59}	-0.9	-0.3	0	Cs^{137}	-0.05	-0.04	0.5
Tc^{99}	0.35	-0.45	5.5				

Table 1

The A-V variety of β-decay renders agreement with the experiment possible as far as the shape of the spectrum of transitions forbidden in second order is concerned. In the case of Tc^{99}, I^{129}, and Cs^{135}, the slight deviations of the form factors in the soft range of the β-spectrum ($E < 100$ kev) could not be removed even by a proper choice of the parameters. According to estimates by M. Jamada the following holds:

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Analysis of β-spectra...

$$\frac{A_{ij}}{R} = i\,\frac{\lambda\alpha Z}{2R}\,;\quad \frac{2A_{ij}}{T} = \frac{\lambda\alpha Z}{2R}\quad \text{with } 1 + \frac{E_i - E_f}{m_o c^2}\,\frac{A^{1/3}}{2}\,,\ E_i - E_f = E_o - 2.5\,.$$

R denotes the radius of the nucleus. The experimental values of A_{ij}/R_{ij} are in fair agreement with the theoretical ones. However, the equation $A_{ij}/R_{ij} \sim 2A_{ij}/T_{ij}$ does not hold for I^{129} and Cs^{135}. Obviously, concrete assumptions on the properties of the nucleus are necessary for an estimate of these matrix elements. The theoretical and experimental form factors are compared with one another in Table 2:

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Analysis of β-spectra...

Table 2

Nucleus	$\left(\frac{A_{ij}}{R_{ij}}\right)_{theor} = \left(\frac{2A_{ij}}{T_{ij}}\right)_{theor}$	$\left(\frac{A_{ij}}{R_{ij}}\right)_{exp}$	$\left(\frac{2A_{ij}}{T_{ij}}\right)_{exp}$	Nucleus	$\left(\frac{A_{ij}}{R_{ij}}\right)_{theor} = \left(\frac{2A_{ij}}{T_{ij}}\right)_{theor}$	$\left(\frac{A_{ij}}{R_{ij}}\right)_{exp}$	$\left(\frac{2A_{ij}}{T_{ij}}\right)_{exp}$
Cl^{36}	4.05	2.5 ± 0.05	1.25 ± 0.03	J^{129}	10.3	20^{+10}_{-5}	5^{+4}_{-3}
Sc^{46}	6.27	≥ 2	≥ 2	Cs^{135}	10.7	20^{+10}_{-5}	5^{+4}_{-3}
Fe^{59}	7.38	$3 \div 5$	$3 \div 5$	Cs^{137}	12.5	20^{+10}_{-5}	25^{+12}_{-10}
Tc^{99}	8.07	2.9 ± 0.5	2.2 ± 0.4				

The values of the matrix elements $|A_{ij}|^2$ and of the form factor averaged

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Analysis of β-spectra...

over the β-spectrum are compiled in Table 3. This is the reproduction of a lecture read at the Tenth All-Union Conference on Nuclear Spectroscopy, Moscow, January 19-27, 1960. There are 4 figures, 3 tables, and 12 references: 3 Soviet-bloc and 9 non-Soviet-bloc.

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S/048/61/025/001/010/031
B029/B067

24.6510

AUTHORS: Zyryanova, L. N., and Mikhaylov, V. M.

TITLE: Scheme of the reduced lifetime of β-transitions forbidden in various orders

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25, no. 1, 1961, 56-60

TEXT: The ft-values for all β-transitions of nuclei have been calculated. The reduced lifetime of a β-transition which is directly related to the nuclear matrix elements, frequently helps to detect details in the nuclear structure. The experimental results of synoptic papers by B. S. Dzhelepov and L. K. Peker (Ref. 1), and D. Strominger et al. (Ref. 2), and data from papers published up to the beginning of 1960 served as a starting material. The 1100 most reliable cases of the 2400 β-transitions known so far were selected for a systematic determination of ft. For most of the β-transitions, ft was calculated from the formulas for allowed β-transitions. The function $f = \int_1^{E_0} F(E,Z)Ep(E_0 - E)^2 dE$ was represented by tabulated values

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Scheme of the reduced ...

(Ref. 3) calculated in consideration of the Coulomb field, the screening effects, and the finite dimensions of the nucleus. For the case of transitions caused by capture of an orbital electron, the f_K and f_L values as determined by I. M. Band et al. (Refs. 4, 5) in consideration of the above-mentioned effects were used. The integral function of a forbidden decay $f_n = \int_1^{E_0} C_n F(E,Z) p (E_0-E)^2 dE$ contains the known form factor C_n. The exact values of this function are considered here. Fig. 1 shows a histogram for log ft of β-transitions separated according to the usual selection rules: allowed transitions (1), and transitions forbidden in first (2) and second (3) order. The distributions for allowed and first-order forbidden transitions overlap at log ft. Therefore, the change in parity during the transition must be known for the determination of the spin. The known group of "over-allowed" transitions (log ft $<$ 3.8) is particularly conspicuous in the histogram for allowed transitions (Fig. 2). This group also comprises transitions between mirror nuclei and 0-0 transitions.

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Scheme of the reduced ...

The curve drops quite slowly toward high values of log ft. Fig. 3 shows histograms of first-order forbidden transitions for the spin variations $\Delta J = 0, 1, 2$. In the case of unique groups, the values of log f_1t elucidate the connection with the nuclear structure much better than the values of log ft. A considerable group of "favorable" forbidden transitions (log ft<6) which, in essential, contains the β-transitions of nuclei whose Z and N are near the doubly occupied shells: $Z = 82$, $N = 126$. The group of "favorable" transitions is less distinct in $\Delta J = 1$ transitions. Fig. 4 illustrates the distribution of log ft for second-order forbidden transitions. The distributions for allowed and second-order forbidden transitions contain a central group with a noticeable maximum, making it possible to calculate the mean value of log ft for every group (see Table). The figures in parentheses are the numbers of β-transitions into the group that is forbidden in the respective order. Besides, log ft does not directly depend on the number of particles in the nucleus. In some first-order forbidden transitions, log ft decreases considerably with increasing number of particles in the nucleus. Fig. 6 illustrates the character of the function $\log(ftZ^2)$ for $\Delta J = 0$ transitions. The authors thank B. S. Dzhelepov for his interest in the present study, and F. I. Langelen for his assistance in calculations.

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Scheme of the reduced ...

This is the reproduction of a lecture read at the Tenth All-Union Conference on Nuclear Spectroscopy, Moscow, January 19-27, 1960. There are 6 figures, 1 table and 13 references: 8 Soviet-bloc and 5 non-Soviet-bloc.

Legend to Table: Mean values of log ft; in parentheses the numbers of events; 1) order of forbiddenness; 2) total mean values; 3) mean values for nuclei - 4) with even A, 5) with odd A; 6) allowed, 7) over-allowed, 8) unfavorable, 9) first-order forbidden, 10) second-order forbidden, 11) favorable, 12) unfavorable, 13) unique.

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ZYRYANOVA, L.N.; DZHELEPOV, B.S., otv.red.; TSVETKOV, N.V., red.izd-va; BOCHEVER, V.T., tekhn.red.

[Unique beta-transitions] Unikal'nye beta-perekhody. Moskva, Izd-vo Akad.nauk SSSR, 1960. 96 p. (Svoistva atomnykh iader, no.2). (MIRA 13:9)

1.Chlen-korrespondent AN SSSR (for Dzhelepov).
(Nuclei, Atomic--Spectra)

PHASE I BOOK EXPLOITATION SOV/4902

Zyryanova, L. N.

Unikal'nyye beta-perekhody (Unique β-Transitions) Leningrad, Izd-vo AN SSSR, 1960. 96 p. Errata slip inserted. (Series: Svoystva atomnykh yader, vyp.2)

Sponsoring Agency: Akademiya nauk SSSR. Radiyevyy institut imeni V. G. Khlopina.

Resp. Ed.: B. S. Dzhelepov, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: N. V. Tsvetkov; Tech. Ed.: V. T. Bochever.

PURPOSE: This book is intended for those working in nuclear spectroscopy.

COVERAGE: The book reviews the existing theoretical and experimental results on beta-transitions of nuclei which are related to the group of unique forbidden. The form of beta-spectra, the total probability of transition by beta-decay, and K- and L-capture for transitions to and including the third forbiddenness are discussed. No personalities are mentioned. There are 99 references: 15 Soviet, 79 English, 4 French,

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and 1 German.

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JA/dfk/os
4/14/61

AKIM, L.Ye., kand.tekhn.nauk; ZYRYANOVA, L.V., inzh.; GORSKIY, P.I., assistent

Use of surface active substances in the refining of viscose pulp. Bum.prom. 34 no.9:5-7 S '59. (MIRA 13:2)

1. Leningradskiy tekhnologicheskiy institut tsellyulozno-bumazhnoy promyshlennosti.
(Woodpulp) (Surface active agents)

21(7)
AUTHOR: Zyryanova, L. N. SOV/48-23-7-19/31

TITLE: On the Calculation of the Reduced Life ft of the Nuclei for Unique β-Transitions (K vychisleniyu privedennogo vremeni zhizni yader ft dlya unikal'nykh β-perekhodov)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 7, pp 875-879 (USSR)

ABSTRACT: In the introduction, the formula for calculating the probability of a β-decay of a nucleus is first indicated, and then the formula for the life of a nucleus is derived by means of the Fermi integral for permissible β-transitions. Subsequently, the formula for the life of the nuclei is indicated for forbidden β-transitions, and the determination of values of the Fermi integral for transitions of the first and second prohibition is outlined as the object of this paper. From the form factors for the transitions of the first and second prohibition developed in a previous paper (Ref 1), the values of the ratio between the values of the Fermi integral for forbidden transitions and the values for permissible transitions are calculated. Tables 1 and 2 indicate these values for the electron emission in the first and second prohibition as well as for the positron

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On the Calculation of the Reduced Life ft of the Nuclei for Unique β-Transitions

SOV/48-23-7-19/31

emission in the first and second prohibition. The probability of the decay of a nucleus by capture of an orbital K-electron is also investigated, and the corresponding values for the first and second prohibition are compiled in tables 5 and 6. The product ft is calculated with the values thus obtained, and table 7 brings some examples. Finally, the authoress thanks B. S. Dzhelepov for his attention paid to the work, and F. I. Langelen for his help in the calculations. There are 7 tables and 7 references, 3 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy fizicheskiy institut Leningradskogo gos. universiteta imeni A. A. Zhdanova (Scientific Research Institute of Physics of the Leningrad State University imeni A. A. Zhdanov)

Card 2/2

AUTHORS: Band, I. M., Zyryanova, L. N., Suslov, Yu. P. SOV/48-22-8-10/20

TITLE: Table of Functions Required for the Determination of the Probability of Allowed and of Forbidden L-Captures of Nuclei (Tablitsy funktsiy, neobkhodimykh dlya opredeleniya veroyatnosti razreshennogo i zapreshchennogo L-zakhvata yader)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958, Vol. 22, Nr 8, pp. 952 - 967 (USSR)

ABSTRACT: In this paper the authors calculated the functions required in the theory of nuclear transitions caused by the capture of an orbital L-electron. An analysis of the nuclear electron capture branch is necessary in all cases of positron radioactivity. In recent years the interest for capture processes has greatly increased in connection with the intensive investigation of neutron-deficient isotopes. In 1956 detailed tables were published (Ref 1) which permit an analysis of the K-capture branch. For the L-capture, however, numerical computations are known only for a few values of Z, although they are of great importance in the experimental study of

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decay schemes. This proves to be very inconvenient in practical work. In order to be able to compute the probabilities of nuclear transitions caused by an L-capture a number of coefficients which depend upon the wave functions of the L-electrons must be known. In the compilation of these coefficients in tables the effects of the shielding effect and of the final dimensions of the nucleus were taken into account. The compilation was based upon the data concerning the L_I, L_{II} and L_{III} electrons (Table 1,2). When these coefficients are known it is possible to perform an analysis of the forbidden nucleus transitions caused by an L-capture. Thus a number of basic data can be obtained on the modification of the nuclear state in β-transitions, if the analysis of the positron decay branch and the K-capture is also taken into consideration. There are 4 figures, 10 tables, and 9 references, 1 of which is Soviet.

Table of Functions Required for the Determination of the Probability of Allowed and of Forbidden L-Captures of Nuclei

SOV/48-22-8-1o/2o

ASSOCIATION: Leningradskiy gos. universitet im.A.A.Zhdanova (Leningrad State University imeni A.A.Zhdanov)

Card 3/3

ZYRYANOVA. L. N. Cand Phys-Math Sci -- (diss) "Theoretical form of beta-spectrums with calculation of the electric atom field." Len, 1957. 16 pp 20cm. (Len Order of Lenin State Univ im A. A. Zhdanov), 100 copies. (KL, 15-57, 104)

ZYRYANOVA, L.N., inzhener.

Adjustment and operation of floating regulators used in pulp concentration. Bum. prom. 28 no.6:19-21 Je '53. (MLRA 6:6)

1. Kondopozhskiy tsellyulozno-bumazhnyy kombinat. (Paper-making machinery)

INOPIN, Ye. V.

AUTHOR: Varshalovich, D. SOV/53-65-4-7/13

TITLE: The VIII Annual Congress of Nuclear Spectroscopy (VIII yezhegodnoye soveshchaniye po yadernoy spektroskopii). I

PERIODICAL: Uspekhi fizicheskikh nauk, 1958, Vol. 65, Nr 4, pp. 721 - 722 (USSR)

ABSTRACT: The 8th Congress of Nuclear Spectroscopy took place in Leningrad from January 27 to February 3, 1958. It was attended by 300 scientists from the USSR, further by scientists from China, France, Poland, Czechoslovakia, Hungary, Eastern Germany, Yugoslavia, and the Mongol Democratic Republic. 4 main lectures and about 90 reports were heard. The main lectures dealt with problems concerning nuclear models, the α- and β-decay, γ-radiation, internal conversion, and nuclear isomerism. B.S.Dzhelepov, Corresponding Member, Academy of Sciences, USSR, opened the conference. Lectures were held by: V.Yu. Gonchar, Ye. V. Inopin, S.P.Tsytko (FTI,AS UkrSSR) on light nuclei and generalized nuclei models; L.K. Peker (BAN SSSR-Library AS USSR); Yu.M.Shirokov (MGU-Moscow State University), L.A.Sliv (LPTI-Leningrad Physical-Technical Institute) et al. on levels in Mg^{24}, Mg^{25} and Al^{25}; D.G.

Alkhazov, A.P.Grinberg, G.M.Gusinskiy, K.I.Yerokhina and I.Kh.Lemberg (LPTI) on having found no rotational levels at E<1 MeV in Cr, In, and Mn nuclei. The same research workers also reported on the discovery of vibrational γ-levels in W^{182}, W^{184}, W^{186}- nuclei by means of the method of the Coulomb (Kulon) excitation at $E_{exc} \sim 1$ MeV. L.K.Peker

(BAN SSSR) gave a survey report: "Concerning Some Particulars in Vibrational Levels of Deformed Nuclei". Lectures were held also by: D.P.Zaretskiy (AN SSSR - AS USSR) on radiation transitions in deformed nuclei with the spin = 1/2; V.S. Shpinel' 2 NIIFI MGU (2nd Scientific Research Institute of Physics, Moscow State University) on the level displacement and the probability of corresponding β - and γ - transitions in odd nuclei; D.P.Zaretskiy (AN SSSR - AS USSR) on the influence of the spin-orbital coupling upon the magnetic moments of the nuclei, A.I.Baz' (AN SSSR - AS USSR) on the existence of light nuclei with high neutron or proton excess; V.A.Kravtsov (LPI-Leningrad Polytechnic Institute) on the formation of nucleon pairs in nuclei; L.L. Gol'din, A. D. Piliye, G.N.Novikova, K.A.Ter-Martirosyan (TTL AN SSSR)

on alpha decay on rotational levels of odd nuclei; V.G. Nosov (AN SSSR - AS USSR) on alpha decay of nonspherical nuclei (survey); A.I.Alikhanov, G.P.Yeliseyev, V.A.Lyubimov, V.V.Erahler (TTL AN SSSR) on polarisation measurements at electrons emitted in the β-decay of Tm^{170}, Lu^{177}, Ag^{198}, Sm^{153}, Re^{186} (ΔI= 0,1, ≠ x= -1) as well as in that of Sr^{90} and Y^{90} (ΔI= 2, ≠ x= -1); V.P.Kudakov (AN SSSR - AS USSR) on measurements of the (β-γ) angular correlations in Ba^{139}-decay; N.A.Burgov and Yu.V.Terekhov (TTL AN SSSR) on investigations of the electron-neutron correlations and the resonance scattering of γ-radiation; B.K.Kerimov and I.M.Nadzhafov (MGU-Moscow State University) on the bremsstrahlung of longitudinally polarized electrons; A.I.Mukhtarov and Yu.S. Perov (MGU) on the effective cross section of the scattering of polarized electrons and positrons at polarized electrons; Ya.E.Chudara and I.Ya.Taurs (Riga) on the determination of the intensity of the components of the complex β-spectrum according to the Fermi diagram; I.M.Band, L.N.Zyryanova, and Yu.P.Suslov, LGU (Leningrad State University) on the computation of the probability of the permitted and of the forbidden capture of electrons by a nucleus.

BAND, I.M.; ZYRYANOVA, L.N.; SUSLOV, Yu.P.

Table of the necessary function for probability determination of allowed and forbidden L-capture by a nucleus. Izv. AN SSSR. Ser. fiz. nauk 22 no.8:952-967 Ag '58. (MIRA 11:10)

1. Leningradskiy gosudarstvennyy universitet imeni A.A. Zhdanova.
(Electrons--Capture)

AUTHOR INDEX

METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

Koshurnikov, M. N., and Zyryanov, A. E. KAZAKHSTAN ANDALUSITE. *Ogneupory*, 10 [4-5] 21-26 (1945).—Of all the Soviet Union, Kazakhstan is particularly rich in deposits of andalusite. Many of these deposits are far removed from railroads, and their exploitation is not considered at present. Fourteen deposits, either presently exploited or suitable for immediate exploitation, are described. The Semiz-Bugu deposit located 140 km. east of Karaganda is estimated to contain 100,000 tons of ore. The andalusite content is 30 to 81%, and there is 12 to 51% pyrophyllite. The rich ores contain 52% Al_2O_3, less than 2% Fe_2O_3, and less than 6% $K_2O + Na_2O$. The medium-grade ores of this deposit contain 40% Al_2O_3; the low-grade ores contain 15 to 20% andalusite. The Kounrad deposit is estimated at several million tons. The northern part of this deposit comprises an area of 150,000 sq. m. and its southern part is approximately 200,000 sq. m. The ore of the northern deposit contains over 30% andalusite. The Yuzhnye Borly deposit is located 27 km. northwest of Kounrad. It consists of quartzites containing 10 to 60% andalusite and stretches over an area of 205,000 sq. m. In one of the better surveyed parts of this area the corundum content is 60 to 78%. The Bes-Beku deposits are located 150 km. southeast of Karkaralinsk and comprise 23.5 sq. km. In some of its parts were found pockets containing 20 to 60% andalusite. The Ak-Sugan deposit is located 150 km. south of Karkaralinsk in the foothills of the Kyzyl-Rai Mountains. The secondary quartzites containing 10 to 70% andalusite stretch over an area of 3 sq. km. In addition, four outcrops and numerous small veins of almost pure andalusite were found. The Kara-Chekii deposit, 35 km. south of the Bes-Beku deposit, consists of loose quartzy-micaceous minerals containing 60 to 70% andalusite and approximately 15% kaolinite. The Kurpetai deposit, 150 km. southwest of Karkaralinsk, comprises 10 sq. km. of secondary quartzites. Within it are three areas containing andalusite. The northeastern area, 200 × 400 m., contains 30 to 80% andalusite. South of it is an area 1000 × 250 m. containing 30 to 60% andalusite and 10 to 30% pyrophyllite. The third area, to the northwest, contains 40 to 80% andalusite. Several kilometers north of Kurpetai is the Chok Parta deposit, comprising 120,000 sq. m. and consisting of secondary quartzites containing 10 to 60% andalusite, with a maximum of 85%. Forty kilometers southeast of the Mointy Karaganda Railroad north of Kounrad is the Sheshen'-Kara deposit. It consists of three areas, containing 15 to 35%, 40 to 50%, and 60 to 70% andalusite. This area is only partly surveyed and probably contains more than is presently estimated. The Altai deposit is located 17 km. from Ust'-Kamenogorsk. The minerals found there are quartz, disthene, andalusite, sericite, and, as accompanying minerals, rutile, leucoxene, pyrophyllite, and ferruginous compounds. The combined content of andalusite and disthene is 20 to 55%. The reserve of these minerals is estimated at several million tons. The

AKIM, L.Ye.; ZYRYANOVA, L.V.; GORSKIY, P.I.

Chlorine dioxide bleaching of reed pulp. Bum.prom. 36 no.2:10-11 F '61. (MIRA 14:2)

1. Leningradskiy tekhnologicheskiy institut tsellyulozno-bumazhnoy promyshlennosti.
(Woodpulp) (Chlorine oxide)

2036. **Determination of small amounts of tin in ores.** I. A. Blyum and N. G. Zyryanova (Lab. of the [illegible]. 1950 [illegible]) [illegible] determine [illegible] 0·005 to 0·1 per cent. of Sn in ores [illegible] 2 g [illegible] ore first heated [illegible] 600° and 550° [illegible] sulphide ores are fused in an iron crucible with 5 to 10 g of Na_2O_2, and the melt is extracted with water. The solution is diluted to a vol. of 200 to 250 ml, and treated first with HCl to dissolve hydroxides, then with aq. NH_3. The ppt. is filtered off and dissolved in 40 to 50 ml of a mixture (4 : 1) of dil. H_2SO_4 (1 + 1) and conc. HCl or, for germanium ores, in 50 to 60 ml of dil. HCl (3 + 1) followed by boiling with 1 to 2 ml of H_3PO_4 for 30 to 60 min. to reduce the vol. to 15 to 20 ml, and then mixing with 40 to 50 ml of dil. H_2SO_4 (1 + 1). The solution is treated with 10 ml of HBr and distilled in a stream of CO_2. When the temp. reaches 180° C, 15 to 20 ml of HBr are introduced dropwise at 2 to 3-sec. intervals from a dropping-funnel. The final temp. is 215° to 220° C. The distillate (150 to 200 ml) is mixed with 50 mg of $FeCl_3$ or $Fe_2(SO_4)_3$ and pptd. at 70° to 80° C with aq. NH_3. The ppt. is filtered off, washed with 2 per cent. NH_4Cl solution and dissolved in hot dil. HCl (1 + 1), and the solution is made up to 20 ml with dil. HCl (1 + 1). To 10 ml of the solution is added 0·2 g of iron powder reduced in H and, after 10 min., 10 ml are filtered and the tin content is determined polarographically after addition of four drops of 0·5 per cent. gelatin solution and passage of H for 2 to 3 min.

G. S. Smith

BLYUM, I.A.; ZYRYANOVA, N.G.

Determining small amounts of tin in ores. Zav.lab. 22 no.1: 46-47 '56. (MLRA 9:5)

1. Laboratoriya tresta "Uraltsvetmetrazvedka".
(Tin) (Ores--Analysis)

ZYRYANOVA, N.I.

Changes with age in some morphological characteristics of roach.
Vop. ikht. no.13:134-138 '59. (MIRA 13:3)

1.Kirovskiy gosudarstvennyy pedagogicheskiy institut im. V.I. Lenina.
(Roach (Fish))

ZYRYANOVA, T. A.

"Benzanthronyl-Sulphanic Acid," Zhur. Obshch. Khim., 14, Nos. 9-10, 1944. Mbr., Chair Dyestuffs, Leningrad Chemico-Technol. Inst., -1944-.

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

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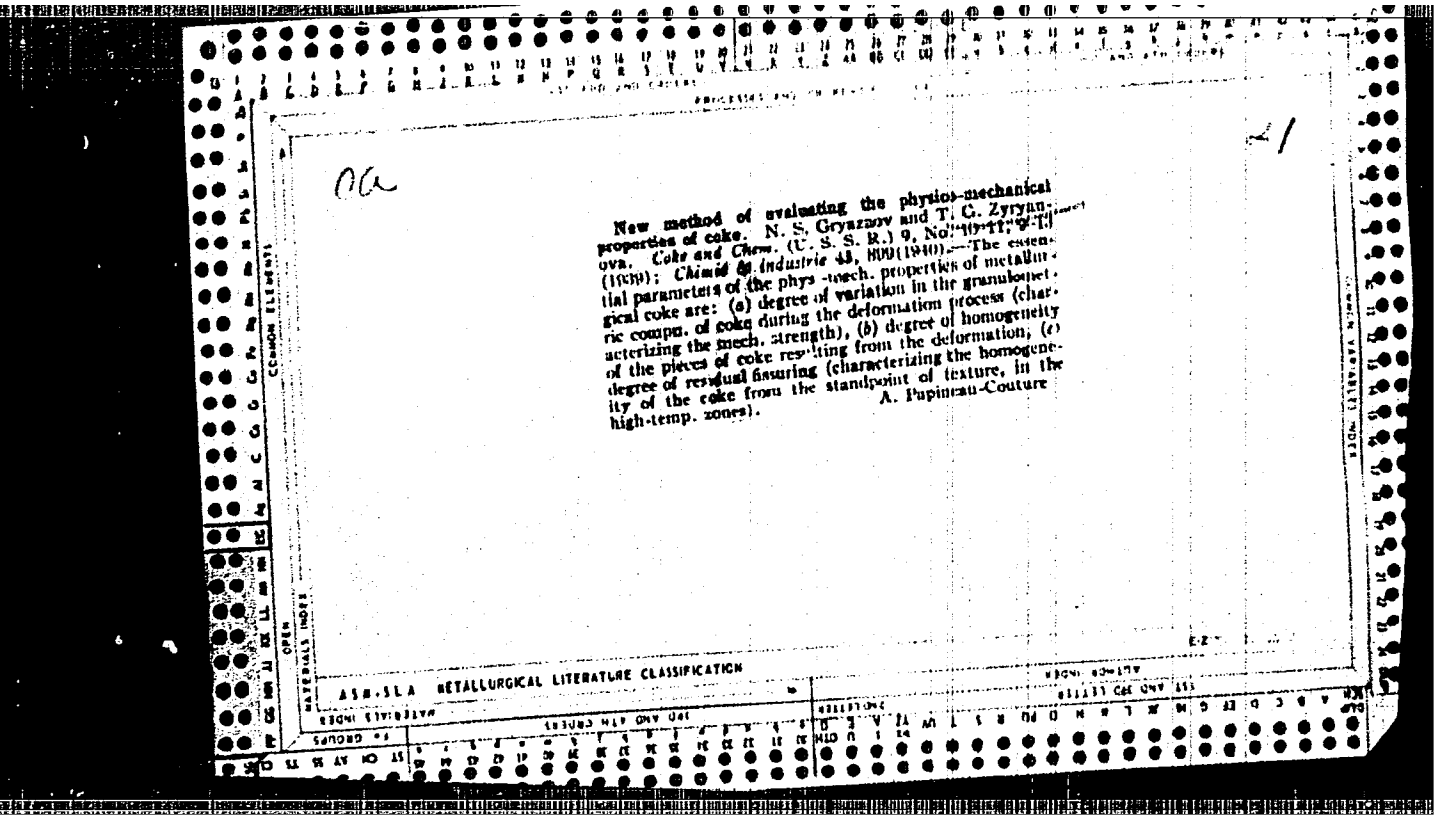
Benzanthronylsulfamic acid. I. S. Ioffe, T. A. Zyryanova, and V. R. Sosfavin. *J. Gen. Chem.* (U.S.S.R.) 16, 965-7(1946)(English summary).—On reduction of 1'-nitrobenzanthrone with hydrosulfite in alk. soln. there is formed, besides the main product (1'-aminobenzanthrone), a small amt. of *1'-benzanthronylsulfamic acid*, which has indicator properties (yellow changing to blue in strong alkali). The acid is best isolated as follows: the alk. filtrate from the aminobenzanthrone is satd. with CO_2, and the yellow soln. is concd. to a small vol. and cooled to yield a yellow ppt. of the above acid, which is purified by crystn. from aq. EtOH. The blue (alk.) color of the acid reverts to yellow at pH 11.3. The color changes are explained by suitable tautomeric changes. The acid is poorly stable on heating in solns., esp. in acid media.

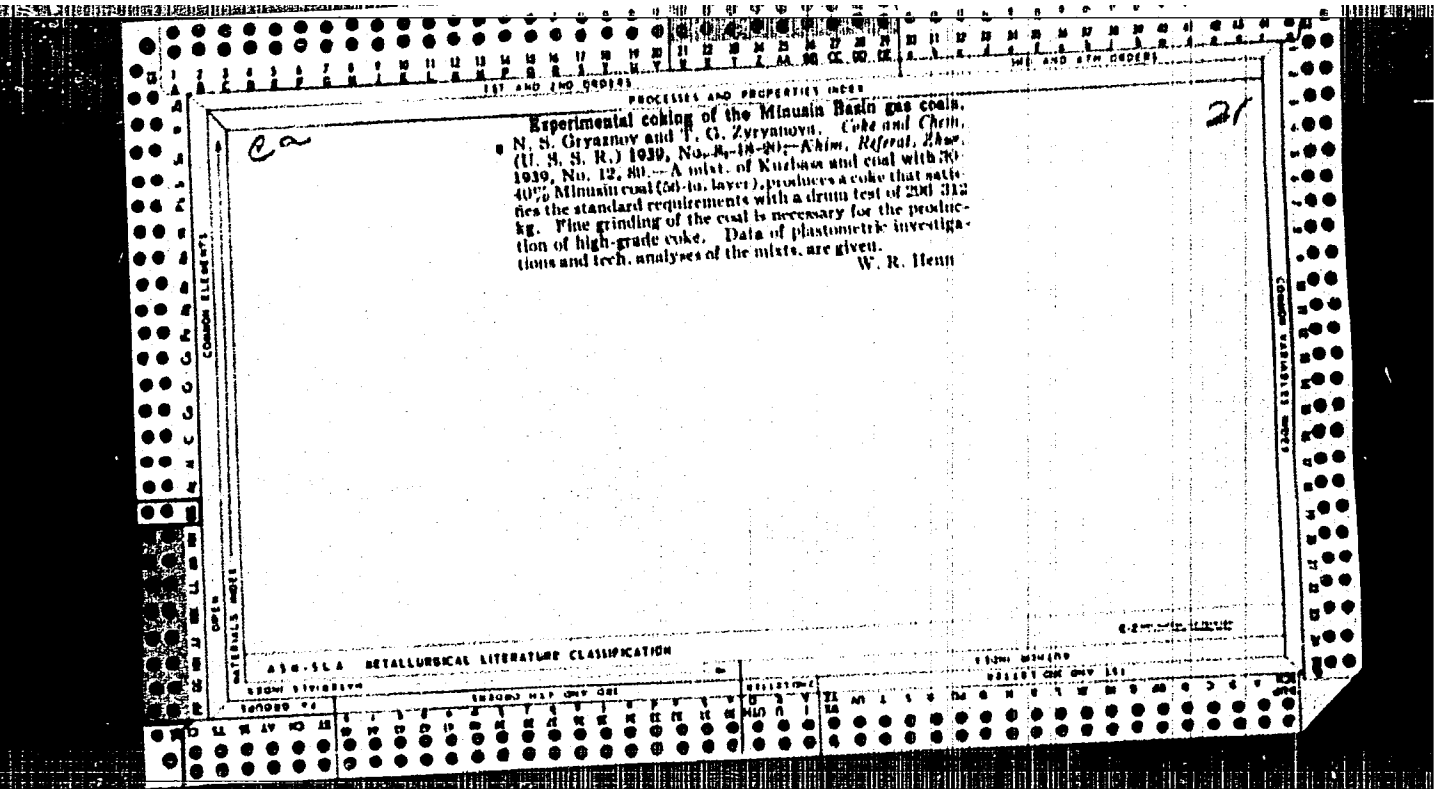
G. M. Kosolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



New method of evaluating the physico-mechanical properties of coke. N. S. Gryazanov and T. G. Zyryanova. *Coke and Chem.* (U. S. S. R.) 9, No. 10-11, 9-11 (1939); *Chimie & industrie* 43, 1000(1940).—The essential parameters of the phys.-mech. properties of metallurgical coke are: (a) degree of variation in the granulometric compn. of coke during the deformation process (characterizing the mech. strength), (b) degree of homogeneity of the pieces of coke resulting from the deformation, (c) degree of residual fissuring (characterizing the homogeneity of the coke from the standpoint of texture, in the high-temp. zones).
A. Pupinteau-Couture

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

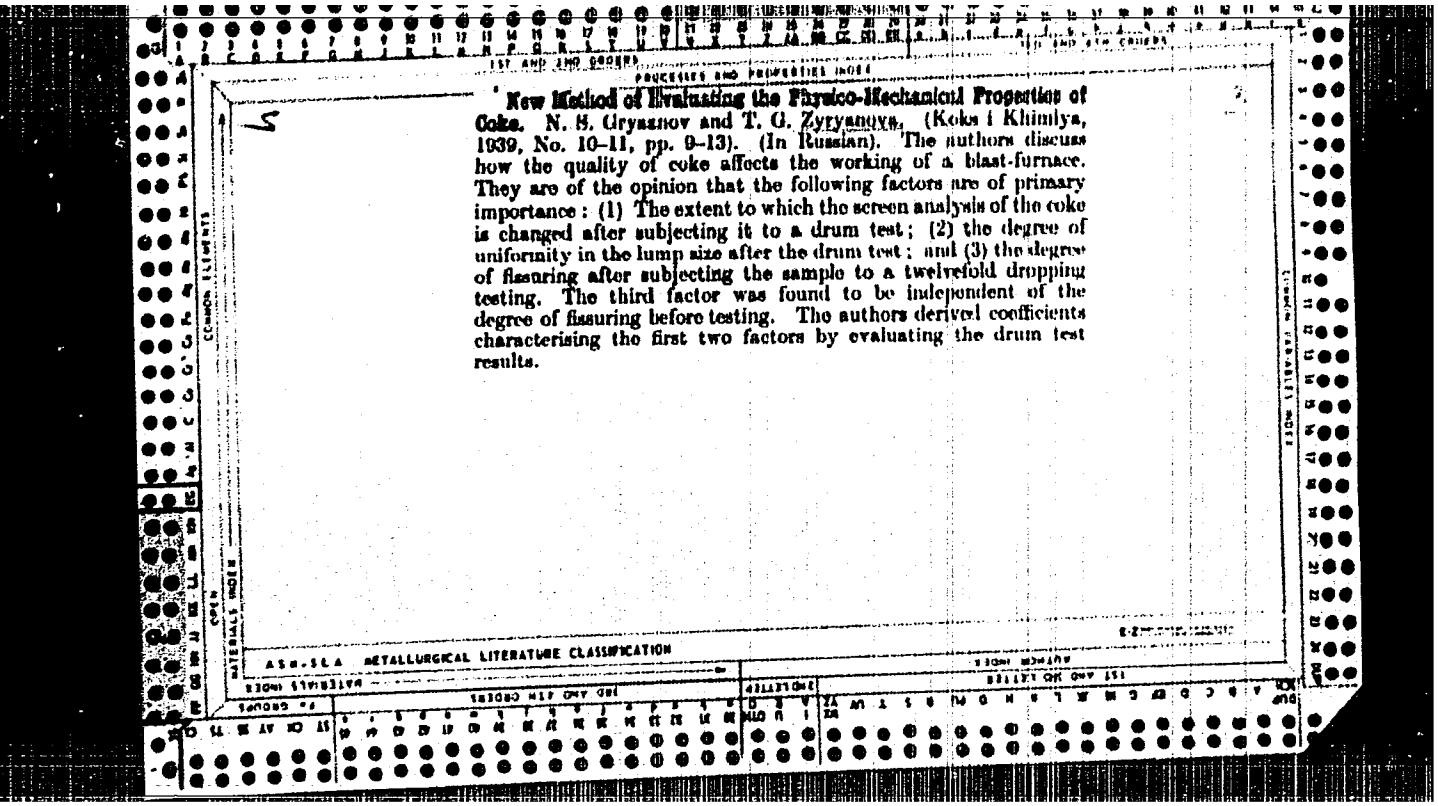


PROCESSES AND PROPERTIES INDEX

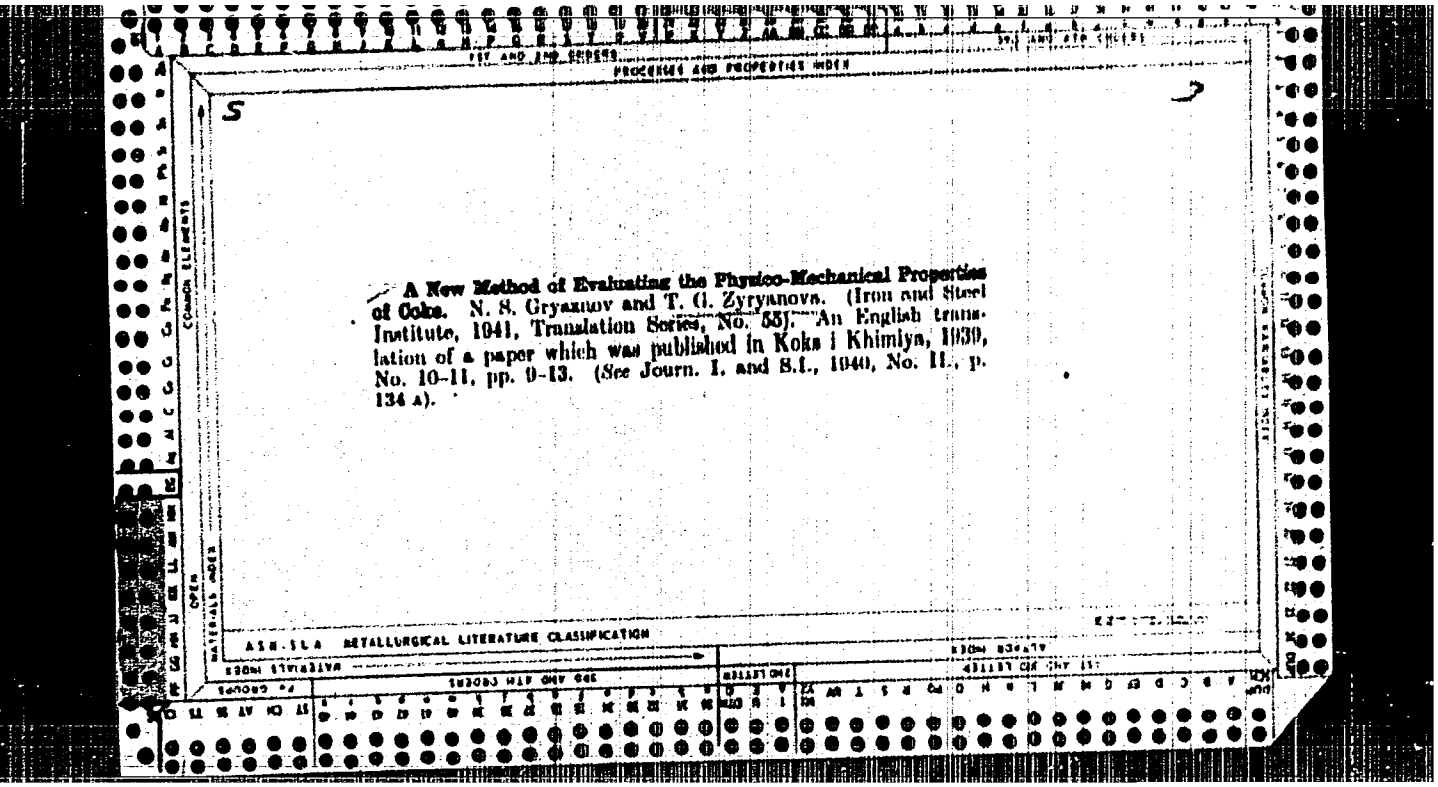
Experimental coking of the Minusin Basin gas coals. N. S. Gryaznov and T. G. Zyryanova. *Coke and Chem. (U. S. S. R.)* 1939, No. 8, 18-20; *Khim. Referat. Zhur.* 1939, No. 12, 80.—A mixt. of Kuzbass and coal with 30-40% Minusin coal (50-lb. layer) produces a coke that satisfies the standard requirements with a drum test of 200 312 kg. Fine grinding of the coal is necessary for the production of high-grade coke. Data of plastometric investigations and tech. analyses of the mixts. are given.

W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



New Method of Evaluating the Physico-Mechanical Properties of Coke. N. S. Gryaznov and T. G. Zyryanova. (Koks i Khimiya, 1939, No. 10–11, pp. 9–13). (In Russian). The authors discuss how the quality of coke affects the working of a blast-furnace. They are of the opinion that the following factors are of primary importance: (1) The extent to which the screen analysis of the coke is changed after subjecting it to a drum test; (2) the degree of uniformity in the lump size after the drum test; and (3) the degree of fissuring after subjecting the sample to a twelvefold dropping testing. The third factor was found to be independent of the degree of fissuring before testing. The authors derived coefficients characterising the first two factors by evaluating the drum test results.



A New Method of Evaluating the Physico-Mechanical Properties of Coke. N. S. Gryaznov and T. G. Zyryanova. (Iron and Steel Institute, 1941, Translation Series, No. 55). An English translation of a paper which was published in Koks i Khimiya, 1939, No. 10–11, pp. 9–13. (*See* Journ. I. and S.I., 1940, No. II., p. 134 A).

Zyryanova, T.A.

USSR/Organic Chemistry. Synthetic Organic Chemistry. E-2

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26691.

Author : Zyryanova, T.A., Petrov, A.A.
Inst :
Title : Research in Region of Conjugate Systems. LXIII. Action of Benzenesulfodichloroamide on Piperylene Solutions in Alcohols.

Orig Pub : Zh. obshch. himii, 1956, No. 6, 1593 - 1601.

Abstract : The action of benzenesulfodichloroamide (I) on solutions of piperylene (II) in CH_3OH and C_2H_5OH was studied. It is shown that the addition takes place in the 3,4 and 1,4 positions of the diene system of II and produces a mixture of 55 to 60% of $CH_3CH{=}CHCH(OR)CH_2Cl$ (III) and 45 to 40% of $CH_3CH(OR)CH{=}CHCH_2Cl$ (IV), where $R = CH_3$ (IIIa and IVa respectively), or $R = C_2H_5$ (IIIb and IVb). It is established,

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Leningrad Tech. Inst. im Lensoviet.

that the increase of the polarization of the diene system in II compared with divinyl (under the influence of the CH_3 radical in the position 1) results in the facilitation of the addition into the 1,4 positions. The structure of IIIa and IVa is proved: a/ by the ozonization of the received reaction mixture with following oxidation of the products of dissociation of ozonides by $KMnO_4$ and formation of CH_3COOH and $CH_2ClCOOH$; b/ by the formation of the mixture of $CH_3CH(OCH_3)C_3H_7$ (Va) and $CH_3CH(OCH_3)CH=CHCH_3$ (VI) and of the mixture $C_3H_7CH(OCH_3)CH_2Cl$ (VIIa) and IIIa in the molar ratio of mixtures 2 : 3 at the hydrogenation of the mixture of IIIa with IVa; at the hydrogenation on colloid Pt, the mixture of Va with VI (received in the result of the reduction of IVa) produces Va, the

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26691.

OCH_3 group (at $C_{(3)}$ of the diene system) in III is proved; c/ at the action of alcohol alkali on the received mixture of IIIa and IVa, $CH_3CHC(OCH_3)=CH_2$ (IXa) and $CH_3CH(OCH_3)-CH=CHCH_2OCH_3$ (Xa) was obtained in the molar ratio of 4 : 3; the structure of IXa (obtained from IIIa) is proved by its transformation into methylpropenylketone (by the action of 5% H_2SO_4 in the cold), and the structure of Xa (obtained from IVa) is proved by the formation of $CH_3CH(OCH_3)CH_2CH_2CH_2OCH_3$ at the hydrogenation of Xa on colloid Pt. It was established that together with the reaction of addition at the action of I on alcohol solutions of II, an insignificant chlorination of II with the replacement of hydrogen took place (compare with RZhKhim, 1955, 37172). 135 g of