KRAVTSOV, R.Ya.

New method for shaping a stepping sawtooth voltage form. Trudy MEI 52:155-163 '63.

(MIRA 18:9)

KRAPIVIN, A.F. (Sverdlovsk); MUKHAMEDOV, G.A., kand.tekhn.nauk (Sverdlovsk); KRAVTSOV, S.D. (Sverdlovsk)

New developments in the classification station. Zhel.dor.-transp. 44 no.11:77-78 N '62. (MIRA 15:11)

1. Glavnyy inzh. stantsii Sverdlovsk-Sortirovochnyy (for Krapivin). 2. Nachal'nik mekhanizirovannoy gorki stantsii Sverdlovsk-Sortirovochnyy (for Kravtsov).

(Railroads--Hump yards)

KRAVISOV, S.D.

Mechanization of [illegible] in the [illegible] industry. Vyp. [illegible] org. tekh. v stroi. [illegible] no.[illegible] [illegible].

(MIRA 18:10)

1. Spetsial'noye konstruktorskoye byuro [illegible] po gosudarstvennogo stroitel'no-montazhnogo [illegible].

KRAVTSOV, S. F.

KRAVTSOV, S. F. -- "Investigation of the Heat Exchange in Electrical Resistance Parts Made on a Cylindrical Core." Min Higher Education Ukrainian SSR. Kiev Order of Lenin Polytechnic Inst. Kiev, 1955. (Dissertation for the Degree of Candidate of Technical Sciences.)

SO: Knizhnaya letopis', No. 4, Moscow, 1956

SOV/110-59-4-12/23

AUTHOR: Kravtsov, S.F. (Candidate of Technical Sciences)

TITLE: An Investigation of the Operation of Wire Resistance Elements under Steady Thermal Conditions (Issledovaniye raboty provolochnykh elementov soprotivleniya pri statsionarnom teplovom rezhime)

PERIODICAL: Vestnik Elektropromyshlennosti, 1959, Nr 4, pp 42-46 (USSR)

ABSTRACT: In designing wire-wound resistance elements used in electrical control apparatus it is assumed that the power consumption under continuous operating conditions does not depend on the wire diameter or the winding pitch or upon the way in which the resistance elements are arranged. In fact, of course, these factors greatly influence the conditions of heat emission from the resistance wire. The usual formula for the heat balance of a resistance element operating under steady conditions is given and its weaknesses are explained. Expression (9) is derived to express the relationship between the variables that govern the steady-state thermal conditions of resistance wires. This formula was used in working out the experimental result. The test specimens were wire-wound resistors type NS-414. All the variables that enter into expression (9) were determined. The main

Card 1/3

dimensions of the resistance elements are given in Table 1 and Fig 1 which also shows the positions of the thermocouples used. The elements used were made of constantan wire. A number of different arrangements were tested, horizontal, vertical, various arrangements of bundles and boxes, and the test results are given in Fig 2. An empirical relationship between the variables for horizontally arranged elements is given in formula (10), and for vertically arranged elements in formula (11). These formulae give results that differ from experimental values by not more than 3%. A correction factor is given that must be used if the resistance wire is of some material other than constantan. Equations (10) and (11), which are based on many experimental results, can be used either directly for thermal calculations on wire-wound resistances or for the formulation of tables. Expression (12) is then given for the power consumption of the resistance element and by substituting this into equation (10), expression (13) is obtained from which it follows that the temperature of the wire depends not only

SOV/110-59-4-12/23

An Investigation of the Operation of Wire Resistance Elements Under Steady Thermal Conditions

on the power but also on the wire diameter, the winding pitch and particularly on the design of the entire resistánce element. The formulae derived are then used for consideration of the most economical design of resistance elements. It is shown that if the elements are arranged vertically much more active material is required than if they are arranged horizontally. Table 2 gives values of resistance and permissible currents for standard elements and for elements with revised pitch. In both cases the permissible currents are calculated for single row open boxes using expression (10). The results show that the pitch of the elements should be increased. There are 2 figures, 2 tables, no references.

Card 3/3

SUBMITTED: September 2, 1958

SOV/110-59-5-8/25

AUTHOR: Kravtsov, S.F., Candidate of Technical Sciences

TITLE: Steady-State Thermal Conditions of Flat Wire-Wound Resistance Elements Arranged in Two Tiers in a Box (Statsionarnyy teplovoy rezhim provolochnykh elementov soprotivleniya, rabotayushchikh v dvukhetazhnykh yashchikakh)

PERIODICAL: Vestnik elektropromyshlennosti, 1959, Nr 5, pp 30-34 (USSR)

ABSTRACT: Available experimental data for temperatures in wire-wound resistances arranged in a single layer are not valid when the layers are two deep. An experimental investigation was accordingly made of the operation of pairs of resistance elements of the flat construction illustrated in Fig 1, arranged in two horizontal planes one above the other in a box. Actually, seven elements were used in each tier to avoid end-effects in determining the temperature of the wire in the central element. The horizontal distance between element centre lines was 36 mm and the vertical distance between centre lines 200 mm. Several variants of winding pitch and wire diameter were tried. In the first series of tests, wire temperatures

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Steady-State Thermal Conditions of Flat Wire-Wound Resistance Elements Arranged in Two Tiers in a Box

were determined as functions of wire diameter, current and winding pitch for elements in both tiers. In the second series, an investigation was made of the influence of the ratio of the powers in the two tiers on the conditions of heat-exchange between the upper and lower elements. Each box was tested in both open and closed states and at various loadings. Wire temperatures were in the range 120 to 320°C. The maximum temperature was measured in the middle turns of the central element at points 15 mm from the lower edge of the upper porcelain spacer, as indicated in Fig 1. The results of the first series of tests, which are plotted in Fig 2, show that: the relationship between the temperature rise of the wire, the current per turn of the element, the wire diameter and pitch is given by formula (1). This is valid for elements in either tier with any ratio of powers between the latter. The load on the upper tier has practically no influence on elements beneath. In this case the constant [illegible] in Eq (1) is [illegible] and 46.6 for

Steady-State Thermal Conditions of Flat Wire-Wound Resistance Elements Arranged in Two Tiers in a Box

closed and open boxes respectively. Heating conditions in the upper elements, however, are affected by the loading beneath: as it rises the value of the constant c for the upper element increases. The ratio of the load on the upper to that on the lower tier affects the heat-exchange conditions of the former in the manner plotted in Fig 3, where the abscissa gives the power ratio and the ordinate the wire-temperature ratio. The wire temperatures become equal in the upper and lower elements when the power ratio is 0.6 for open boxes and 0.42 for closed. The ratio of the weight of resistance wire to the power dissipated was used as a criterion of economical design. This specific consumption of resistance wire may be determined from expression (2), where β is the ratio of the current in the upper to that in the lower tier. Graphs of the change in the specific consumption in two-tier designs, calculated from formulae (3) and (4), are plotted in Fig 4 for various values of β. From the data it is concluded that if the

SOV/110-59-5-8/25

Steady-State Thermal Conditions of Flat Wire-Wound Resistance Elements Arranged in Two Tiers in a Box

two tiers are connected in series the specific material consumption is practically independent of the load ratio. The resistance element can therefore be individually designed to ensure the same wire temperatures in the two tiers or the same load on each. For parallel connection of tiers the elements must be designed for equal wire temperatures in each tier as better use can be made of the material in this case. A procedure for selecting resistance elements for two-tier boxes is then described. In series designs, expression (1) is used to determine the wire diameter in the lower tier which should have the maximum permissible temperature rise. A formula is given that can then be used to determine the wire diameter in the upper tier. When designing for parallel connection the most favourable load distribution between tiers is chosen and determines the current in the lower level. Then the wire diameters for the two tiers are easily calculated. The important advantage of the procedure is that it is possible, by altering the ratio

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SOV/110-59-5-8/25

Steady-State Thermal Conditions of Flat Wire-Wound Resistance Elements Arranged in Two Tiers in a Box

of the loads on the two tiers, to make the best use of wires of standard diameters. A worked numerical example is appended. There are 4 figures.

SUBMITTED: 18th December 1958

Card 5/5

8(6) 24.2700

67859

SOV/143-59-12-14/21

AUTHOR: Kravtsov, S.F., Candidate of Technical Sciences

TITLE: An Investigation into the Heat Exchange of Elements of Electrical Resistance During the Heating Process

PERIODICAL: Izvestiya vysshik uchebnykh zavedeniy: Energetika, 1959, Nr 12, pp 99-107 (USSR)

ABSTRACT: The author establishes that the coefficient of heat exchange for thermal resistors varies greatly during heating. Therefore the use of equations containing a time constant may lead to large errors. A calculating method without the time constant is established on the basis of the connection of the coefficient for heat exchange with the strength of the current under stationary conditions. An equation is established for calculating the short-time characteristics of a wire resistor element. The process of heating conductors by electric current may be put as follows:

Card 1/3

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000826310014-6"

67559

SOV/143-59-12-14/21

An Investigation Into the Heat Exchange of Elements of Electrical Resistance During t Heating Process

$$\frac{c\gamma}{q} \cdot \frac{dt}{d\tau} + \frac{\alpha t}{ql} = 1 \qquad (1)$$

where c is the specific heat capacity of the conductor material, kcal/kg ^{0}C; γ - specific gravity, kg/m^{3}; q - density of the sources of heat, kcal/m^{3} hour; t - temperature, reckoned from that of the medium, ^{0}C; τ - time, hours; α - general coefficient of heat exchange, kcal/m^{2} . hours. ^{0}C; l - characteristic size of the conductor, m, equal to the quotient of the area of the cross section divided by the perimeter. The following equation is for the temperature of the conductor:

$$t = t_y \left(1 - e^{-\frac{\tau}{\varepsilon}}\right) \qquad (10)$$

where t_y is the temperature established; $\varepsilon = \frac{c\gamma l}{\alpha}$ - the

Card 2/3

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SOV/143-59-12-14/21

An Investigation Into the Heat Exchange of Elements of Electrical Resistance During the Heating Process

constant for the time of heating, found experimentally as the time taken by the temperature to reach 63.2% of that established. There are 4 graphs and 4 Soviet references.

ASSOCIATION: Khar'kovskiy politekhnicheskiy institut imeni V.I. Lenina (Khar'kov Polytechnical Institute imeni V.I. Lenin)

SUBMITTED: July 20, 1959, by the Kafedra teplotekhniki (Chair of Heat Technology)

Card 3/3

KRAVTSOV, S.F., kand.tekhn.nauk; POLNITSKIY, K.A., kand.tekhn.nauk

Heat exchange of a horizontal cylinder with free air flow. Izv. vys. ucheb. zav.; energ. 6 no.7:69-74 Jl '63. (MIRA 16:8)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina. Predstavlena turbinnoy sektsiyey nauchno-tekhnicheskogo soveta TSentral'nogo nauchno-issledovatel'skogo kotloturbinnogo instituta imeni Polzunova.

(Heat--Transmission)

KRAVTSOV, S.F., kand. tekhn. nauk

Calculation of resistors operating in repeated short term duration mode. Izv. vys. ucheb. zav.; energ. 6 no.9:45-50 S '63. (MIRA 16:12)

1. Khar'kovskiy politekhnicheskiy institut imeni Lenina. Predstavlena kafedroy obshchey elektrotekhniki.

KRAVTSOV, S.F., kand. tekhn. nauk; POLNITSKIY, K.A., kand. tekhn. nauk

Determination of maximum permissible current of resistances in a repeated short-term mode of operation. Elektrotekhnika 35 no.7: 55-57 '64. (MIRA 17:11)

L 48824-65 EWT(1)/EEC(b)-2/EWA(h) Peb/Pl-4

ACCESSION NR: AP5007537 S/0292/65/000/003/0047/0049

AUTHOR: Kravtsov, S. F. (Candidate of technical sciences); Polnitskiy, K. A. (Candidate of technical sciences)

TITLE: Thermal design of resistors intended for short-time operation

SOURCE: Elektrotekhnika, no. 3, 1965, 47-49

TOPIC TAGS: resistor, thermal design

ABSTRACT: A method is set forth of the thermal design of resistors which permits taking into account the effect of both the temperature and the time-period required for attaining a specified temperature rise upon the heat-exchange factor. This formula is proposed for thermal calculations: $k = 1 - \varphi(mt, \tau)$, where $k = \frac{c\gamma\tau}{qt} = \frac{c\gamma\sigma f^2\tau}{I^2 t}$; $m = \frac{a_{ct}}{c\gamma l} = \frac{I^2_{ct}}{c\gamma\sigma f^2\tau}$, $c\gamma$ is the volume specific heat in w-sec/cm³ C; σ is the conductivity in m/ohm-mm²; f is the conductor cross-section in mm².

Card 1/2

L 48826-65

ACCESSION NR: AP5007537

The stationary heat-exchange factor differs considerably from that existing during the heating-up process; the latter increases with the temperature and decreases with the time required for reaching this temperature. The above formula agrees within 5% with the results experimentally obtained for constantan, cast-iron, and "fechral" (ferrochromium-aluminum alloy) resistors of various forms. Orig. art. has: 3 figures and 18 formulas.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: EE

NO REF SOV: 005 OTHER: 000

Card 2/2

VASILEVSKIY, M.N., kand.tekhn.nauk; TRAUBE, Ye.S., inzh.; LEVCHENKO, Yu.T. inzh.; KRAVTSOV, S.I., inzh.

Automation of skip hoists by means of mechanical brakes with hydraulic drive. Ugol'.prom. no.4:51-55 Jl-Ag '62. (MIRA 15:8)

1. Giproniselektroshakht.
(Mine hoisting) (Automatic control)

KRAVTSOV, S. L.

Distr 4E2j

27 5/1

Recovery of waste and spent aluminum silicate catalyst. S. L. Kravtsov, D. V. Mushenko, M. V. Velistova, and L. A. Boyarinova. U.S.S.R. 108,698, Nov. 25, 1957. Waste and spent Al silicate catalyst spheres are dissolved in NaOH having a concn. of 150-200 g./l. at about 40°. The resulting colloidal suspension is allowed to settle out and then filtered off for re-use. M. Hosch

1/1

KRAVTSOV, Sh.L., inzh.

Analyzing skeleton diagram of rubber-tired sectional rollers. Stroi. i dor.mashinostr. 4 no.2:17-19 F '59. (MIRA 12:2)
(Road rollers)

KRAVTSOV, Sh.L., inzh.

Improving the construction of the agitators for periodic operation of asphalt mixers. Stroi. i dor. mash. 10 no.2:9-10 F '65.
(MIRA 18:3)

GUREVICH, M.G.; KRAVTSOV, S.S.; OVCHINNIKOV, I.M.; SURKOV, V.N.

Recent data on the concentration of some trace elements in natural gases and waters of the Northern Caucasus. Trudy IGEM no.46:92-97 '60. (MIRA 14:1)

(Caucasus, Northern—Mineral waters)
(Caucasus, Northern—Gas, Natural) (Trace elements)

KRAVTSOV, T.G., inzh.

New method of testing ship metal structures for tightness.
Sudostroenie 29 no.5:52 My '63. (MIRA 16:9)
(Shipfitting) (Metalwork--Testing)

VASILEVSKIY, M.N., kand.tekhn.nauk; TRAUBE, Ye.S., inzh.; KRAVTSOV, V.A., inzh.

Effect of the conveying type, engine and network parameters on the rated operating efficiency of the cutter-loader. Ugol' Ukr. 5 no.12:27-28 D '61. (MIRA 14:12)

1. Giproniselektroshakht.
(Coal mining machinery)

PROCESSES AND PROPERTIES INDEX

2A

A-53

4368. Height of the Potential Boundary of the Atomic Nucleus. V. Kravcov, *Comptes Rendus de l'Acad. des Sciences, U.R.S.S.* 3, *pp.* 235–237, *Aug.* 1, 1934. *In German.*—By extrapolation from data got by Pollard's method of measurement for the light elements the height of the potential boundary for high atomic numbers can be obtained with an accuracy of about 10 %. The results obtained by recent investigators for the radioactive elements are mentioned. The value of the effective radius of the atomic nucleus varies very little over the whole periodic system. Thus its value for the light nuclei is according to Pollard $5 \cdot 9 \times 10^{-13}$, and for Th it is $9 \cdot 5 \times 10^{-13}$. J. J. S.

METALLURGICAL LITERATURE CLASSIFICATION

5

C. A.

KRAVTSOV, V. A.

The formula for the mass spectrometer of Alikhanov and Alikhanyan. V. A. Kravtsov (Leningrad Polytech. Inst.). *Zhur. Eksptl. Teoret. Fiz.* 20, 1064-5(1950); cf. Alikhanov, *et al.*, *Zhur. Eksptl. Teoret. Fiz.* 18, 673(1948); *C.A.* 45, 10089c; following abstr.—K. points out that in the two articles which have been cited, the formula, $p = eH/c \times [l^2 + (x_1 - x_2)^2]/2\delta \times l_1/L$, for the calcn. of the impulse of particles has been given without its derivation. This formula contains an error, i.e., l_1/L should be L/l_1. Since in the first article $L = l_1$, approx., this error makes no difference; however, in the 2nd article the use of the incorrect formula can lead to large errors. The correct equation is derived.

J. Rovtar Leach

KRAVTSOV, V.A.

S.A.

Sect. A

Electricity

537.212

3961. **Polarization of a dielectric prism of square section placed in a uniform external field.** V. A. KRAVTSOV.—*Zh. Tekh. Fiz.*, 21, 1402–11 (*No.* 11, 1951) *In Russian.*

Mathematical considerations show the field stress in a square prism to be approximately the same as in a cylinder.

J. LUKASIEWICZ

KRAVTSOV, V. A.

USSR/Nuclear Physics - Binding Energy of Nucleons 11 May 51

"The Shells of Light Nuclei and the Binding Energy of Nucleons," V. A. Kravtsov, Leningrad Polytech Inst imeni Kalinin

"Dok Ak Nauk SSSR" Vol. LXXVII, No 2, pp 239-242

Concludes that all implications of current and preceding works positively show that the existing representation concerning nuclear shells requires re-examn as contradicting exptl data. Submitted by Acad L. D. Landau 2 Mar 51.

222T60

KRAVTSOV, V. A.

CA

3A

Shells of heavy nuclei and the energies of the nucleonic bond. V. A. Kravtsov (M. I. Kalinin Polytech. Inst., Leningrad). *Doklady Akad. Nauk S.S.S.R.* **78**, 43-6(1951). —From the exptl. data, 3 rules were established for heavy nuclei. (1) In heavy nuclei, a single, particularly stable shell of 82 protons and 126 neutrons is established. (2) The binding energy of the nucleons of one type, even or odd, which are added to the nucleus in addn. to the shell, increase with an increase in the no. of nucleons of the other type in the nucleus. Such an increase continues only up to U. In the region of the trans-U elements, the increase in the energy of the nucleons of one type decreases with an increase in the no. of nucleons of the other type. (3) The binding energy of the nucleons decreases with the no. of nucleons of the same kind in the nucleus. J. R. Leach

Chemical Abst.
Vol. 48 No. 8
Apr. 25, 1954
Nuclear Phenomena

Shells of light nuclei and binding energies of the nucleons. V. A. Kravtsov. *Doklady Akad. Nauk S.S.S.R.* 78, 239-42 (1951); cf. *C.A.* 46, 4370b.—The binding energies of the light nuclei $E(Z,N)$ are calcd. partly from the mass defects measured on the mass spectrometer and partly from the measured energies of nuclear reactions. The binding energies of neutrons (ϵ_n) and protons (ϵ_p) for nuclei of $Z \leq 20$ are evaluated. The first most stable light nucleus is He^4 (α-particle), (2,2). The next comparatively stable groups are (6,6), (8,8), (10,10), (12,12), (14,14), etc. The stability of a group decreases with the no. of nucleons present. An especially stable shell (20,20) is formed by the nucleus Ca^{40}. Especially stable groups or shells of a given no. (Z_s) of protons and (N_s) of neutrons are formed in heavy and light nuclei. The change of the no. of neutrons only or protons only (for light nuclei 1 unit, for heavy nuclei a few units) weakens the binding of nucleons and decreases the stability of the system. The binding energy of the pairs of neutrons increases with the no. of protons in the nucleus and decreases with the no. of neutrons. The binding energy of the pairs of protons increases with the no. of neutrons and decreases with the no. of protons.

B. A.

KRAVTSOV, V. [A.]

Atoms

Masses of light atoms, calculated from energies of nuclear reactions. Usp. fiz. nauk 46 No. 4, 1952.

Monthly List of Russian Accessions, Library of Congress, November 1952, UNCLASSIFIED

KRAVTSOV, V.A.

Tables of bond energies and the energetic surface of heavy nuclei. V. A. Kravtsov. *Uspekhi Fiz. Nauk* 47, 341-97 (1952).—Simple math. formulas are derived and applied to literature data in order to det. some properties of numerous isotopic nuclei of elements of at. no. 78 to 98. Results are tabulated and graphed as follows: the binding energy of the last neutron, detd. from (γ,n), (n,γ), (d,p), and (d,t) reactions, is given for the nuclei Pt[illegible], Au[illegible], Hg[illegible], Tl[illegible], Pb[illegible], Bi[illegible], Th[illegible], and U[illegible]; av. values are 0.5, 6.1, 8.1, 8.1, 6.4, 6.4, 6.53, 7.48, 6.20, 8.12, 6.71, 7.38, 3.87, 7.44, 4.22, 6.35, 4.9, 5.9, and 4.6 m.e.v., resp. The type of radioactivity, at. wt., and binding energy (E_b) in m.e.v. of nucleons are given for the following elements and mass nos.: Pt[illegible], Au[illegible], Hg[illegible], Tl[illegible], Pb[illegible], Bi[illegible], Po[illegible], At[illegible], Rn[illegible], Fr[illegible], Ra[illegible], Ac[illegible], Th[illegible], Pa[illegible], U[illegible], Np[illegible], Pu[illegible], Am[illegible], Cm[illegible], Bk[illegible], Bk[illegible], Cf[illegible], and Cf[illegible]. Values of E_b for the last neutron, last proton, last neutron pair, and last proton pair, the energy of radioactive transformation (E_t) in m.e.v., and the half life for electron capture are also given for some of these isotopes. E_b, E_t, isomeric transition energy, and the type of radioactivity are given for the isomeric heavy nuclei Bi[illegible], Bi[illegible], and Pa[illegible]. The energetic surface of E_b for heavy nuclei is plotted. This is a graph resembling a contour map in which the coördinates indicate at. wt. and at. no., while the third dimension represents E_b. 86 references. I. W. Lowcberg, Jr.

Kravtsov, V. A.

386

COMPARISON OF STABILITY OF NUCLEAR SHELLS AND SUBSHELLS. V. A. Kravtsov (M. I. Kalinin Leningrad Polytechnical Inst.). Soviet Phys. JETP 3, 397-400(1956) Sept. (In English). Zhur. Eksptl. i Teoret. Fiz. 30, 468-11 (1956) Feb. (In Russian)

In an attempt to compare the stability of various nuclear shells and subshells a study was made of the jumps in curves of the separation energy of α particles in light and medium nuclei. Results are shown in tabular form. (B.J.H.)

KRAVTSOV, V.A.

Comparison of the stability of nuclear shells and subshells. V. A. Kravtsov (M. I. Kalinin Polytech. Inst., Leningrad). Zhur. Eksptl. i Teoret. Fiz. 30, 408-10(1956). The av. stability is calcd. for shells and subshells of nuclei, where the neutron or proton nos., resp., are 8, 14, 20, 24, 28, 32, 34, 38, 40, 46, 50, 58, 64, 70, 82, 88, 92, 96, 126, and 152.

Werner Jacobson

[illegible]

KRAVTSOV, V. A.

USSR/Nuclear - Heavy nuclei

Card 1/1 : Pub. 146-15/18 FD-498

Author : Kravtsov, V. A.

Title : Surface energy and stability of heavy nuclei

Periodical : Zhur. eksp. i teor. fiz., 24, 242-244, Feb 1953

Abstract : Letter to the editor. Attempts to find the relation E = f(Z,A) between the bond energy E of a nucleon and its atomic number Z and mass A. Plots "iso-energy" levels of heavy nucleon shells. 7 references, including 2 foreign.

Institution : Leningrad Polytechnic Institute

Submitted : January 31, 1952

KRAVTSOV, V.A.

USSR.

Nuclear shells. V. A. Kravtsov (Leningrad Polytech.
Inst.). Zhur. Eksptl. i Teoret. Fiz. 24, 244-6(1953); cf.
C.A. 48, 12504b.—In a 3-dimensional plot of $E - E_0 =$
$f(Z,A)$, where E = total nuclear bonding energy, Z = at.
no., A = mass no. and E_0 = 1600.0 − 8.5(A − 200) (in
m.e.v.), particularly stable isotopes occur at intersections of
valleys; e.g., Si[illegible], Ni[illegible], Sr[illegible], Sn[illegible], Ce[illegible], and Pb[illegible]. The
energy of formation of a pair tends to decrease with increas-
ing nuclear mass, and is not a function of orbital spin.
Cyrus Feldman

KRAVTSOV, V.A.

4

2097. On the masses of scandium-48 and vanadium-48. V. A. KRAVTSOV AND I. KH. LEMBERG. Letter in Zh. [redacted], No. 5(11), 628-30 (1953) In Russian.

The difficulties associated with the absence of the β-decay $Ca^{48} \rightarrow Sc^{48}$, and the allowed character of the $Sc^{48} \rightarrow Ti^{48}$ decay [Abstr. 4555, 9014 (1952)] can both be removed by assuming that the latter proceeds to the 3rd (not 2nd) excited state of Ti^{48} and is followed by a cascade $\gamma_1 = 1{\cdot}33$, $\gamma_2 = 0{\cdot}98$, $\gamma_3 = 0{\cdot}98$ 0·05 MeV. The deduced mass of Sc^{48} is 47·96741 0·00009 which then fits smoothly the mass surface for even-even nuclei.

W. J. SWIATECKI

KRAVTSOV, V. A.

USSR.

ON THE MASSES OF CHLORINE-39 AND ARGON-39. V. A. Kravtsov. Zhur. Eksptl'. i Teoret. Fiz. 25, No. 5, 630-2 (1953). (In Russian) 6a

Mutually contradictory values of the $Cl^{39}-A^{39}$ mass difference have been obtained. The criterion that the resulting masses of Cl^{39} and A^{39} should lie on smooth mass surfaces through neighboring nuclides is used to reject some values. The result is $M(Cl^{39}) = 38.96016 \pm 0.00007$; $M(A^{39}) = 38.97660 \pm 0.00004$. A small but definite difference in the surfaces for even-odd and odd-even nuclei is noted. (Science Abstr.)

KRAVTSEV, V.A.

USSR.

539.152.1

3743. **Regularities in the change of binding energy of nucleons in nuclei.** V. A. KRAVTSOV. *Dokl. Akad. Nauk SSSR*, 90, No. 5, 749-52 (1953) *In Russian*. English translation, *U.S. National Sci. Found. NSF-tr-115.*

The experimental changes in the binding energy of a proton or neutron associated with the addition of a proton or neutron are plotted against N or Z. The results can be represented (in MeV) by $\sim 20/(N$ or $Z)$.

W. J. SWIATECKI

USSR/Nuclear Physics

Card 1/1 Pub. 43 - 1/11

Authors : Kravtsov, V. A.

Title : Bond energies and nuclear shells

Periodical : Izv. AN SSSR. ser. fiz. 18/1, 5-42, Jan-Feb 1954

Abstract : The general laws governing the changes in bond energy in atomic nuclie were established by measuring the mass of various atoms, the energies of nuclear reactions and by measuring the energies of radioactive conversions of atoms. The bond energies of nucleons of heavy nuclei of all known isotopes, ranging from Pt to Cf, were determined on the basis of experimental data. It is shown that the energy, liberated during the addition of an odd neutron, is always lower than the energy liberated by the addition of an even neutron. The same applies to odd and even protons. The nature and structure of nuclear shells were determined on the basis of the energy levels. Indications regarding the filling of nuclear shells are explained. Sixty-nine references: 30-USSR, 36-USA; 1-French; 1-German and 1-Swiss (1932-1952). Tables; graphs.

Institution : The M. I. Kalinin Polytechnicum, Leningrad

Submitted : January 5, 1954

KRAVTSOV, V.A.

USSR/ Nuclear Physics

Card 1/2 : Pub. 118 - 1/2

Authors : Kravtsov, V. A.

Title : Masses of average atoms and bond energies of their nuclei

Periodical : Usp. fiz. nauk 54/1, 3-181, Sep 1954

Abstract : The four basic methods for the determination of isotope mass and bond energies of nucleons, which are considered the most important characteristics of atomic nuclei, are described. The basic experimental data, necessary for the obtainment of masses of average atoms and bond energies of their nuclei, are given in tables. Equilibration, in accordance with the method of least squares, is considered the most reliable method of finding probable values of mass. The Ti-isotope

Usp. fiz. nauk 54/1, 3-161, Sep 1954 (Additional card)

Card 2/2 Pub. 118 - 1/2

Abstract : group is the most suitable group among average atoms to which the method of least squares is most applicable. Six hundred twenty-six references: 562-USA; 22-USSR; 2-Japanese; 5-German; 22-Swiss; 6-French; 1-English; 4-Italian; 2-Danish. Tables; graphs.

Institution : ...

Submitted : ...

KRAVTSOV, VA

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NEW DATA ON COMPARISON OF BINDING ENERGIES IN THE MIDDLE Z NUCLEI. V. A. Kravtsov, Izvest. Akad. Nauk S.S.S.R. Ser. Fiz. 19, 311-14(1955) May–June. (In Russian)

Measurement corrections for energy of reactions of $Kr^{85}(d,p)Kr^{86}$ and $Sr^{86}(\gamma,n)Sr^{85}$ are given. Tables of atomic mass and nucleonic binding energies for nuclei from zinc to cadmium are presented based on recent mass spectrometric data. (R.V.J.)

RML
MGT

KRAVTSOV, V. A.

Category : USSR/Nuclear Physics - Structure and Properties of Nuclei C-4

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3172

Author : Kravtsov, V.A.
Inst : Leningrad Polytechnic Institute
Title : Comparison of the Stability of Nuclear Shells and Subshells

Orig Pub : Zh. eksperim. i teor. fiziki, 1956, 30, No 2, 408-411

Abstract : The experimental data used to study the dependence of the separation energy ℓ_α of α particles in light and medium nuclei. If ℓ_α is considered as a function of the number of neutrons N at Z = constant, then a jump $\Delta\ell_\alpha$ in the separation energy is observed in the interval from N_m to $N_m + 2$ (N_m is the number of neutrons in the shell or subshell). This jump corresponds to the sum of the depressions on the energy surface for nuclei (Z, N_m) and (Z -2, N_m), caused by their increased stability (Perlman, I, Ghiorso, A., Seaborg, G., Uspekhi Fiz. nauk, 1950, 42, 220). Analogous jumps are experienced by the functions ℓ_α (Z, N = const) in the interval from Z_m to $Z_m + 2$. The average values of $\Delta\ell_\alpha$ calculated from the experimental data were taken as the measure of the stability of the corresponding shells and subshells. The most stable in the above sense were shells consisting of 8, 50, and 82 neutrons or protons and 126 neutrons. The subshells

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APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000826310014-6"

Category : USSR/Nuclear Physics - Structure and Properties of Nuclei C-4

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3172

$Z_m = 24$, $Z_m = 46$, and $N_m = 58$, the stabilities of which are relatively high, were discovered first, and also $N_m = Z_m = 16$ and $N_m = 66$; many previously known subshells were confirmed; the shells $Z_m = 24$ and $N_m = 58$, and also $N_m = Z_m = 16$ are confirmed by other data and the existence of $Z_m = 46$ is still in doubt. The existence of shells and subshells is explained satisfactorily by the level scheme for nucleons in the nucleus in the case of a strong spin-orbit coupling; $Z_m = 24$ is explained by the filling of the level $4f_{7/2}$ instead of the nearby $3d_{3/2}$; $N_m = 58$ is explained by the filling of the level $5g_{7/2}$ after $5g_{9/2}$. In the case of neutrons and protons, the subshells do not agree fully, and this indicates a different sequence in the filling of the levels in the case of neutrons and protons: in the case of neutrons $4f_{7/2}$ is followed by $3p_{3/2}$, $3p_{1/2}$, $4f_{5/2}$, and $5g_{9/2}$, and in the case of protons $4f_{7/2}$ is followed by $3p_{3/2}$, $4f_{5/2}$, $3p_{1/2}$, $5g_{9/2}$.

Card : 2/2

KRAVTSOV, V.A.

56-6-30/47

AUTHOR: Kravtsov, V. A.

TITLE: Tabular Mass Differences (Tablichnyye raznosti mass)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1957, Vol. 33, Nr 6 (12), pp. 1508 - 1509 (USSR)

ABSTRACT: The paper by K. Quisenberry et al. (reference 1) contains results of very accurate mass-spectroscopic measurements of the masses of the stable isotopes from iron to zinc and also of radioactive isotopes. The masses of radioactive isotopes were computed from the masses of the stable isotopes in consideration of the energies of ß-decay acts (tables by R. King,(reference 2))and the reaction energies (tables by D. van Patter and W. Whaling (reference 3)). By checking these computations the author discovered that King's tables were not complete, and he made a more accurate computation of the masses of the isotopes Mn^{55}, Mn^{56} and Fe^{55} possible. The respective numerical values were given. Today experimental data are very numerous and for the best values of atomic masses all these data should, if possible, be taken into account. After a comparison and evaluation of their accuracy all reliable values must be selected and used for computation. The incomplete use of

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The Tabulated Mass Differences

all reliable experimental data often leads to doubtful values of mass differences. There are 1 table and 11 non-Slavic references.

ASSOCIATION: Leningrad Polytechnic Institute (Leningradiskiy politekhnicheskiy institut)

SUBMITTED: June 19, 1957

AVAILABLE: Library of Congress

Card 2/2

21(1)

AUTHOR: Kravtsov, V. A. SOV/76-32-11-31/32

TITLE: On V. V. Ponomarev's System of Natural Isotopes (O sisteme yestestvennykh izotopov V. V. Ponomareva)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 11, pp 2648-2649 (USSR)

ABSTRACT: The article by V. V. Ponomarev in Zhurnal fizicheskoy khimii, 1957, Vol 31, Nr 11, pp 2591, where he wrote that the systematization of natural isotopes with respect to the rules of the periodicity of the properties of atom nuclei is still unclear is not correct. Besides the publications mentioned by Ponomarev there are many other papers on a systematization of atom nuclei (Refs 1-19). Of late, ranges of deformed nuclei were found (Refs 20-24). Although Ponomarev did not subject the generally acknowledged references to any criticism he arrived at the conclusion that the compilation of a table of atom nuclei had hitherto not been positively solved. Table (I) as compiled by Ponomarev on the basis of the old list of isotopes by Dzhelepov and Petrovich (1950 publ.) contains three mistakes: helium does not have one but two natural

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SOV/76-32-11-31/32

On V. V. Ponomarev's System of Natural Isotopes

isotopes, technetium has no isotope, and tin does not have 9 but 10 isotopes. Moreover, in 1951 an isotope table was published by Selinov (Ref 3), and in 1956 one by Siborg, Perlman and Hollender (Ref 25) in the Russian language; they were not taken into account by Ponomarev.
There are 25 references, 13 of which are Soviet.

SUBMITTED: March 4, 1958

Card 2/2

AUTHOR: Kravtsov, V. A. SOV/53-65-3-5/11

TITLE: New Measurements of Atomic Masses (Novyye izmereniya mass atomov)

PERIODICAL: Uspekhi fizicheskikh nauk, 1958, Vol. 65, Nr 3, pp. 451-488 (USSR)

ABSTRACT: The determinations of the mass of isotopes are of great importance for the development of conceptions on the nuclear structure as also for the analysis of nuclear reactions; this fact makes it necessary to publish surveys and tables concerning the latest measuring results. Surveys of works concerning mass determination were published by Russian authors during the last few years, i. e.: Heavy atoms (Ref 1), light atoms (Ref 2) and medium-weight atoms (Refs 3,4). The tables of the present paper take into account the latest results up to 1.1.1958; this paper is divided into 4 sections: the existing surveys and tables (1955-1958) are discussed in short and compared in the first section. Mass-spectroscopical measurements (1955-1957 are dealt with in the second part; special attention is paid to increased accuracy, which makes it possible to correct older measuring results. In the third part the author deals with the possibilities of explaining errors and inaccuracies of former measurements and to obtain new data which are of greater

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accuracy. In part four, finally, examples are discussed for the application of the latest knowledge concerning atomic masses to the solution of certain tasks of nuclear physics. The tables attached to this paper, which partly extend over several pages (table X - 7 pages), are very valuable. There are 8 figures, 13 tables, and 92 references, 16 of which are Soviet.

1. Isotopes--Masses 2. Nuclear reactions--Analysis 3. Atoms--Properties 4. Mass spectroscopy

AUTHOR: Kravtsov, V. A. SOV/53-65-3-9/11

TITLE: A New Mass Spectrometer With High Accuracy (Novyy mass-spektrometr vysokoy tochnosti)

PERIODICAL: Uspekhi fizicheskikh nauk, 1958, Vol. 65, Nr 3, pp. 541-543 (USSR)

ABSTRACT: The author describes the large mass spectrometer developed by Nier (Nir) et al. in 1956 at Minnesota University. Such devices are being installed also at the Max Planck Institute of Chemistry at Mainz (German Federal Republic), Osaka University (Japan), Harvard University (USA) as well as in Canada. There are 2 figures and 3 references, 2 of which are Soviet.

1. Mass spectrum analyzers--Design 2. Mass spectrum analyzers --Applications 3. Universities--Equipment

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KRAVTSOV, V.A.

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 (LFTI-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 (LFTI) 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 NIFI 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.Krahler (TTL AN SSSR) on polarisation measurements at electrons emitted in the β-decay of Tm^{170}, Lu^{177}, Au^{198}, Sm^{153}, Re^{186} (ΔI= 0,1, ... = -1) as well as in that of Sr^{90} and Y^{90} (ΔI= 2, ... = -1); V.P.Rudakov (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. [illegible]tarov and Yu.S. Perov (MGU) on the effective cross se[illegible] of the scattering of polarized electrons and positrons [illegible] [illegible]zed electrons; Ya.K.Chudars and I.Ya.Taurs (Riga) [illegible] determination of the intensity of the components of [illegible] β-spectrum according to the Fermi diagram; I.M.B[illegible], [illegible].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.

21(1), 21(7)
AUTHOR: Kravtsov, V. A. SOV/56-36-4-38/70

TITLE: Empirical Rules of Nucleon Pairing Energies in Nuclei (Empiricheskiye zakonomernosti energiy obrazovaniya par nuklonov v yadrakh)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 4, pp 1224-1232 (USSR)

ABSTRACT: On the basis of the latest experimental results, the problems of pairing energy of nucleons, of the energy of the residual (np)- interaction of odd nucleons, and of the connection between pairing energy and (np)-interaction are investigated. Mass-spectroscopic measurements as well as measurements of the energy of reactions and decays lead to the following conclusions: 1) in general, pairing energy is higher for nucleons with greater total angular momenta j The pairing energy increases slowly, as (2j+1), with increasing j. Only nuclei with nucleon numbers deviating essentially from the magic numbers deviate from this rule 2) Pairing energy increases with the deviation of the number of pairing nucleons from the magic numbers 3) The pairing energy of neutrons depends only weakly on the number of pairing protons in the nucleus. A similar rule for protons

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cannot be so sharply precised. 4) The course of the variation of pairing energy and j verifies the hypothesis by Mayer (Refs 1, 2) that in even-odd nuclei the odd nucleons occasionally take near levels of small j, whereas in even-even nuclei transition to levels of greater j takes place. 5) The pairing energy has a high maximum at the beginning of the range of deformed nuclei after which it decreases to a minimum in the middle range of the deformed nuclei, and eventually it rises again up to the end of the region. 6) The energy of residual (np)-interaction for odd nucleons is different from zero; it decreases with growing mass number A and is always smaller than the pairing energy. 7) The decrease of pairing energy with increasing A develops slowly, like 1/A. In nuclei which are similar to those with closed shell, the pairing energy of nucleons with $j = 1/2$ decreases inversely proportional to $A^{1/2}$. It was found that pairing energy decreases more slowly with growing A than is predicted by theory. It hardly varies at all if two heterogeneous nuclei are added to the nucleus. The author finally thanks B. L. Birbrair and L. A. Sliv for discussing the results of this paper. There are

Empirical Rules of Nucleon Pairing Energies in Nuclei SOV/56-36-4-38/70

7 figures and 21 references, 7 of which are Soviet.

ASSOCIATION: Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic Institute)

SUBMITTED: October 15, 1958

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S/048/61/025/001/024/031
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24.6200

AUTHOR: Kravtsov, V. A.

TITLE: Systematic compilation of the binding energies of heavy nuclei from hafnium to francium

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25, no. 1, 1961, 130-138

TEXT: A comparison between the above-mentioned binding energies and several methods published by the authors in Refs. 5 and 6 is made on the strength of closed cycles, experimental data, and the cross sections for energy surfaces. This has been done because mass-spectroscopic measurements of the nuclide masses from tungsten to bismuth, published in 1958 and 1959, have made it possible to compare and check all experimental data on nuclide masses and nuclear energies from hafnium to francium. The author availed himself of mass-spectroscopic data from several previous papers (Refs. 1-4), of the reaction energies Q, the energies of beta decays , and of other material from recent publications. Tables of masses and binding energies of nuclides from hafnium to francium, compiled in

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this manner, have now been sent to the press. Table 1 contains all reaction energies Q which have been corrected or more thoroughly determined by the author. All corrections and determinations of the reaction energies were checked according to the curves for the cross sections of the energy surfaces. The points calculated from these cross sections fit the curve very well. In addition, the energy surfaces with the slightest inclination have been studied. The relation $E_o - E_B = 400 + 6A - E_{binding}(Z,N)$ Mev fits this range best, viz., from the mass number A = N + Z or from N onward. Table 2 shows the β-transition energies corrected or more precisely determined on the cross-section curve. The β-decay energy of the 140-min isotope Ir^{140} is 2.1 Mev. If A is even, the intersection of the energy surfaces with the plane A = const has a parabolic branch with a vertex at $Z = Z_y$ which corresponds to the beta-stable isotope. For A = 195, the isotope Pt^{195} ($Z_y = 78$) is beta-stable. The isotopes Ir^{195} and Ir^{196} have not yet been detected, and their decay energies can be determined only from the systematics. These energies are also given in Table 2. The energy of the positron decay

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of Bi^{203} (11.5 hr) may have the values $Q_I = 3.45 \pm 0.05$ or $Q_{II} = 3.20 \pm 0.05$.
Systematics of the binding energies: Not until the masses of the mercury and lead isotopes and several decay series had been exactly measured it was possible to determine the intersections of the energy surfaces of heavy nuclei without extrapolations, with a few ranges of interpolation only. Figs. 2 and 3 show curves of isotopic intersections of the energy surfaces with the slightest inclination for even and odd Z, respectively. All these surfaces are cut by "furrows" along the line N = 126. In the case of isoneutron sections, the "furrows" run along the line Z = 82 on energy surfaces with a decreased inclination. In the case of even-even and odd-odd surfaces (Fig. 5), the "banks" are steepest at N = 126. The latest experimental data confirm the concept on the effect of nuclear shells upon the shape of the energy surfaces of heavy nuclei. According to the latest data, the curved sections of the energy surfaces are flatter. Fig. 6 illustrates the neutron ejection energy B_n as a function of the number, N, of all neutrons in the nucleus and of the number, Z, of all protons in the nucleus. Figs. 8 and 9 show the dependence of the neutron pairing energies P_n upon N and of the proton pairing energies P_p upon

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Systematic compilation of the binding ... S/048/61/025/001/024/031
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Z. The author thanks R. I. Demirkhanov, T. I. Gutkin, and V. V. Dorokhov for communicating the masses of heavy nuclei before publication, and also L. K. Peker and G. F. Dranitsyna for estimating doubtful decay energies. This is the reproduction of a lecture read at the Tenth All-Union Conference on Nuclear Spectroscopy, Moscow, January 19-27, 1960. There are 9 figures, 2 tables, and 34 references: 12 Soviet-bloc and 20 non-Soviet-bloc.

ASSOCIATION: Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic Institute)

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Legend to Fig. 2:
a) Curve obtained by interpolation;
b) doubtful values; 1) points for even-odd nuclei; 2) points for even-even nuclei; 3) points calculated from doubtful decay energies;

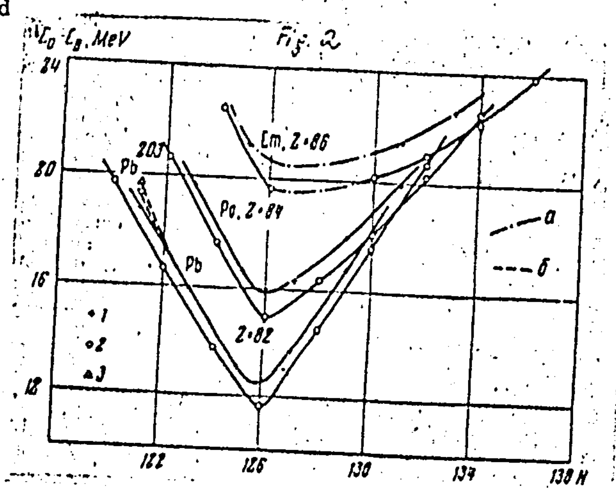

Fig. 2

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Legend to Fig. 3:
a) interpolated; b) doubtful;
1) points for odd-odd nuclei;
2) for odd-even nuclei;
3) for doubtful decay energies;

Fig. 3

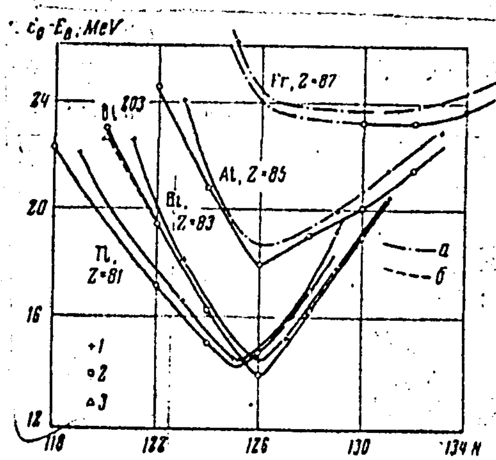

Fig. 3

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Fig. 4

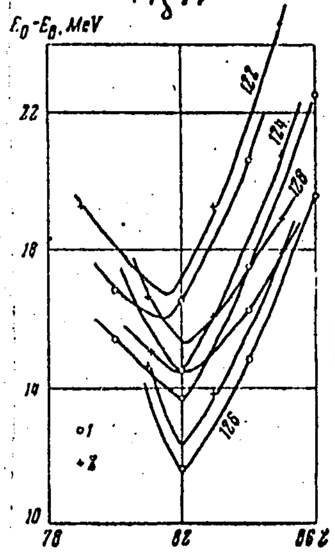
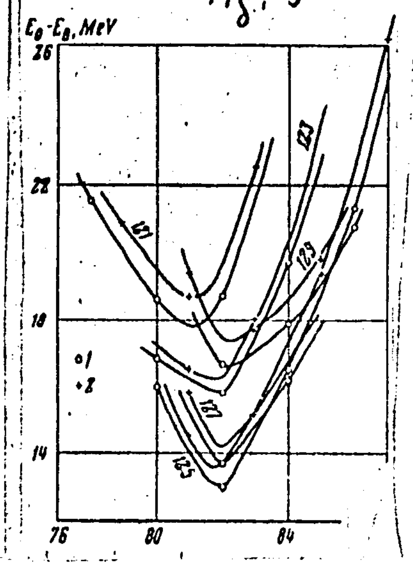


Fig. 5



Legend to Fig. 4: upper branches: odd-even surface; lower branches: even-even surface. 1) points for even-even nuclei; 2) for odd-even nuclei;

Legend to Fig. 5: upper branches: odd-odd surface, lower branches: even-odd surface.
1) points for even-odd nuclei,
2) for odd-odd nuclei;

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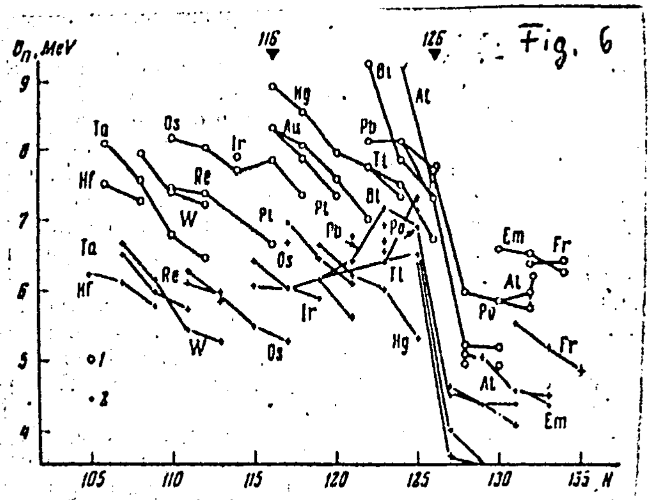
Legend to Fig. 6:
1) ejection energy of even neutrons; 2) ejection energy of odd neutrons;

Fig. 6



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Legend to Fig. 8:
1) points relating to nuclei with even Z; 2) points relating to nuclei with odd Z;

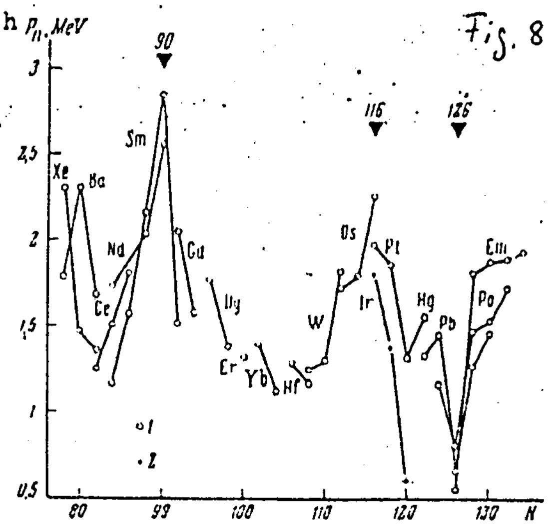

Fig. 8

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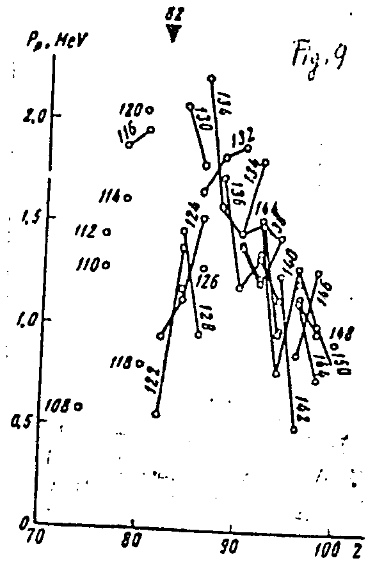
Legend to Fig. 9:
Pairing energy P_p of nuclear protons as a function of Z;



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№ п/п	Реакции 1	2 Энергии реакции Q, вызывающие сомнения [7], MeV	Более надежные значения Q, MeV 3	4 Ссылка на литературу
1	$W^{186}(n,\gamma)W^{187}$	7,1±0,3	5,304±0,009	[11]
			5,33±0,03	[12]
2	$Ir^{191}(n,\gamma)Ir^{192}$	5,15±0,20	6,088±0,010	[12]
			6,085±0,015	[13]
3	$Pt^{194}(\gamma,n)Pt^{193}$	9,50±0,20	8,32±0,15	Наши данные 5
4	$Au^{197}(n,\gamma)Au^{198}$	7,3±0,4	6,494±0,008	[7]
			6,490±0,015	[12]
5	$Hg^{199}(n,\gamma)Hg^{200}$	7,1±0,4	8,03±0,03	[8]
6	$Tl^{203}(\gamma,n)Tl^{202}$	8,8±0,2	7,76±0,30	Наши данные 5
			7,45	[14]
			7,53	[15]
7	$Tl^{203}(n,\gamma)Tl^{204}$	6,54±0,03	≤6,54≥6,20	} Наши данные 5
8	$Tl^{203}(d,p)Tl^{204}$	4,29±0,15	<4,29≥3,93	
9	$Tl^{205}(n,\gamma)Tl^{206}$	6,20±0,03	6,54±0,03	} Наши данные 5
10	$Tl^{205}(d,p)Tl^{206}$	3,93±0,15	3,93±0,15	[15,16]
11	$Bi^{209}(n,\gamma)Bi^{210}$	4,170±0,015	4,56±0,03	} [17]
12	$Bi^{209}(d,p)Bi^{210}$	1,94±0,03	2,34±0,03	

Legend to Table 1: 1) reaction; 2) reaction energy (doubtful); 3) more reliable values of Q; 4) reference; 5) data of the present paper;

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Table 2

№ п/п	Ядро	Период полураспада	Вид распада	Энергия распада, вызывающая сомнения, MeV	Энергия распада, исправленная по правилам MeV
1	2	3	4	5	6
1	Ta^{184}	8,7 часа	β^-	⩾1,26 [10]	2,8±0,2
2	Re^{180}	20 часов 2,4 мин	β^+ β^+	⩾2,9 [10] ⩾2,1 [10]	2,2±0,3
3	Re^{182}	60 часов 13 часов	эз эз	2,3±0,2 [19] ⩾1,90 [20]	2,2±0,3
4	Re^{184}	50 дней	эз	1,32±0,30 [21]	1,6±0,3
5	Re^{190}	2,8 мин	β^-	>1,7; <3,2 [10,22]	2,8±0,4
6	Ir^{190}	11 дней	эз	>1,33; <2,0 [10,22]	2,0±0,2
7	Ir^{195}	2,3 часа	β^-	2,1±0,1 [23,24]	0,9±0,3

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Systematic compilation of the binding ... S/048/61/025/001/024/031
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8	Ir^{198}	?	β^-	?[23,25]	$2,7 \pm 0,2$
9	Hg^{195}	9,5 часа	эз	>1,25 [10,22] $1,7 \pm 0,1$ [28]	$1,25 \pm 0,20$
10	Pb^{203}	52 часа	эз	1,8 1,4 } [9,22] $0,95^{+0,30}_{-0,07}$ [27]	$0,95 \pm 0,20$
11	Bi^{203}	11,5 часа	эз, β^+	$3,20 \pm 0,05$ [28] или $3,45 \pm 0,05$	$3,45 \pm 0,05$

Legend to Table 2:
1) current number; 2) nucleus; 3) half-life; a) hr; b) min; c) days;
4) decay mode; 5) decay energy (doubtful); 6) decay energy.

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B146/B102

24.6300

AUTHOR: Kravtsov, V. A

TITLE: Distance between different energy surfaces of nuclei

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 6, 1961, 1852-1858

TEXT: The distance between energy surfaces in the Z-N-E_b coordinate space (E_b is the nuclear binding energy) is investigated. The following surfaces are considered from experimental data only: The best known values obtained until June 1, 1960 are employed for the binding energies. Approximate formulas are given for the distances between surfaces of the following parities with respect to Z and N: even-even, even-odd, odd-odd, and odd-even. The difference in E_b for nuclei of different parities is due to the neutron pairing energy. The distances between the energy surfaces prove to be identical with the energy gaps Δ of the nuclei (Ref. 8: Bohr, A., Mottelson, B., Pines, D., Phys. Rev. 110, 936, 1958; Ref.

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Distance between different energy

9: Belyaev, S. Mat.-fys.-Medd. Dan. Vid. Selsk., 31, 11, 1959; Ref. 10:
Migdal, A., Nucl. Phys., 3, 655, 1959). The distances and their mean
values are graphically shown as a function of Z and N. The mean values
exhibit the following dependence on the mass number A:
$D_{even} = 14.78\ A^{-0.54}$ Mev, $D_{odd} = 7.25\ A^{-0.45}$ Mev, where D_{even} is the
distance between even-even surface and surface of odd A, D_{odd} is the
distance between odd-odd surface and surface of odd A. This is a proof
for the invalidity of the former assumption that the dependence obeys the
Weizsäcker-Fermi formula $D = \delta A^{-3/4}$. A paper by A. Cameron dealing with
the fact that $D_{even} > D_{odd}$ is referred to (Ref. 11: Can. J. Phys., 35, 1021,
1957; Chalk River Report, CRP 690, 1957). Due to the shell effect, D_{even}
and D_{odd} for magic and semimagic Z increase strongly; furthermore, the
distance between the surfaces is diminished in rare earths between two
maxima constituting the boundaries of this domain. With magic numbers,
the increase in the distance is due to the formation of grooves on the

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S/056/61/041/006/030/054
B146/B102

Distance between different energy

energy surfaces (Ref. 13: Kravtsov, V. A., Izv. AN SSSR seriya fiz., 18, 5, 1954). It is pointed out that the increase in distance is anomalously high in the range of the magic number 40; that the nuclear masses pf Ga - Ru are, however, not sufficiently known to permit conclusions. There are 6 figures and 13 references: 3 Soviet and 10 non-Soviet. The four most recent references to English-language publications read as follows: F. Everling, L. König, J. Mattauch, A. Wapstra. Nucl. Phys., 15, 342, 1960; J. Benson, R. Damerow, R. Ries. Phys. Rev., 113, 1105, 1959; S. Belyayev, Mat.-fys. Medd. Dan. Vid. Selsk., 31, 11, 1959; A. Migdal, Nucl. Phys., 3, 655, 1959

ASSOCIATION: Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic Institute)

SUBMITTED: June 17, 1961

Card 3/3

KRAVTSOV, V.A.

The atomic weight scale C^{12}= 12 and new tables of atomic weights of elements and nuclidic masses. Usp. fiz. nauk 78 no.1:65-92 S '62. (MIRA 15:9)

(Atomic weights) (Nuclei, Atomic)

KRAVTSOV, A. V.; KRAVTSOV, V. A.

"The Nuclear Energy Services."

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

LFTI, LPI (Leningrad Physico Technical Inst, Leningrad Polytechnical Inst)

L 58718-65 EWT(m) Peb DIAAP

AM5016874 BOOK EXPLOITATION S/ 14 B+1

Kravtsov, Vladimir Aleksandrovich

The masses of atoms and nuclear binding energies 19 (Massy atomov i energii svyazi yader) Moscow, Atomizdat, 1965. 375 p. illus., biblio., tables. 3000 copies printed. Editor: Z. D. Andreyenko; Technical editor: N. A. Vlasova; Proofreader: Ye. A. Beranzhe

TOPIC TAGS: atomic mass, nuclear binding energy, nuclear energy surface, nuclear model, nuclide mass.

PURPOSE AND COVERAGE: In the first part of the book, basic definitions and magnitudes to be studied are presented, and methods of measurement, apparatus, and the processes for computing the tables of masses and of nuclear binding energies are described. After a brief review of the basic models of nuclear structure, the second part of the book contains a systematization of masses and nuclear binding energies that provides confirmation of theory and broadens our understanding of nuclear structure. The author expresses his gratitude to O. V. Shalayevskiy, G. F. Dranitsynaya, and A. V. Kravtsov.

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SUB CODE: NP SUBMITTED: 17Feb65 NR REF SOV: 63

OTHER: 365 DATE ACQ: 08Jul65

Card 3/3

KRAVTSOV, V.G.; ROGULEV, B.A.

Improving the desulfuration process in smelting high carbon tool steel. Metallurg 5 no.2:17-18 F '60.
(MIRA 13:5)

1. Chelyabinskiy metallurgicheskiy zavod.
(Desulfuration) (Tool steel)

ROBUK, N.N., inzh.; KRAVTSOV, V.G., inzh.

New constructional decisions in the hydraulic turbine equipment of the Dneprodzerzhinsk Hydroelectric Power Station. Elek.sta. 33 no.2:32-36 F '62. (MIRA 15:3)

(Dneprodzerzhinsk Hydroelectric Power Station)
(Hydraulic turbines)

KRAVTSOV, V.G.

Design shortcomings of the ZhR-5 radio transmitter-receiver set. Avtom., telem. i sviaz' 6 no.10:42-43 O '62. (MIRA 16:5)

1. Starshiy elektromekhanik Omskoy distantsii signalizatsii i svyazi Zapadno-Sibirskoy dorogi.
(Railroads--Communication systems)
(Railroads--Electronic equipment)

SUPRUNENKO, Dmitriy Alekseyevich; KRAVTSOV, V.G., red.; YARISH, Ye.I., tekhred.

[Solvable and nilpotent linear groups] Razreshimye i nil'potentnye lineinye gruppy. Minsk, Izd-vo Belgosuniv. im. V.I. Lenina, 1958. 92 p. (MIRA 12:4)
(Groups, Theory of)

[illegible], V.G., Cand Phys-Math Sci -- "[illegible] products of groups." [illegible], 195[illegible]. 7 pp (Min of Higher Education USSR. [illegible] State [illegible] V.I. Lenin), 150 copies ([illegible], 27-58, [illegible])

— [illegible] —

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000826310014-6"

DOVNOROVICH, Vitol'd Ignat'yevich; KRAVTSOV, V.G., red.; KONCHITS, Ye.P., tekhred.

[Three-dimensional contact problems in the theory of elasticity] Prostranstvennye kontaktnye zadachi teorii uprugosti. Minsk, Izd-vo Belorusskogo gos.univ. im. V.I. Lenina, 1959. 106 p. (MIRA 13:2)
(Elasticity)

TUTAYEV, Leonid Kondrat'yevich; KRAVTSOV, V.G., red.;MISHANOVA, Ye.A., red.; BELEN'KAYA, I.Ye., tekhred.

[Lobachevskii's geometry; a projective model] Geometriia Lobachevskogo; proektivnaia model'. Minsk, Izd-vo Belgos-universiteta im. V.I.Lenina, 1959. 126 p. (MIRA 12:11)
(Geometry, Non-Euclidean)

[illegible]

Modern methods for rubber compound feeding to the calender spacing. Kauch. i rez. 23 no.6:50-52 Je '64.
(MIRA 17:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorskiy institut po oborudovaniyu dlya shinnoy promyshlennosti.

BRAGIN, V.V.; KRAVTSOV, V.G.

Assembly of tire treads from widened cord plies. Kauch.i rez. 24 no.1:50-52 Ja '65. (MIRA 18:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorskiy institut po oborudovaniyu dlya shinnoy promyshlennosti.

L 29249-66

ACC NR: AP6019315 SOURCE CODE: UR/0104/66/000/002/0040/0041

AUTHOR: Kravtsov, V. G. (Engineer); Medovaya, M. S. (Engineer) 51 B

ORG: none

TITLE: Rotating-blade hydroturbine for Saratovskaya hydroelectric power station

SOURCE: Elektricheskiye stantsii, no. 2, 1966, 40-41

TOPIC TAGS: water turbine, turbine blade, servomechanism, hydroelectric power plant

ABSTRACT: A description of variable-pitch four-bladed hydroelectric turbines now being built at the Kharkov Turbine Plant for the Saratovskaya Hydroelectric Station. The new design has allowed: 1) an increase of the hub ratio to 0.35; 2) a reduction in the weight of the turbine; 3) an improvement in the technology of manufacture; 4) reduction in mounting and repair times; 5) a reduction in dimensions of the body of the working wheel. The four stainless steel blades are rotated by a servo-mechanism in the center of the blade wheel. Each blade was welded up from two sections. Assembly, balancing and testing are performed in the working (horizontal) position. The turbine, together with its generator, form a unit designed to generate 57,200 kw. Total weight is over 2,100 tons. Orig. art. has: 1 table. [JPRS]

SUB CODE: 10, 09 / SUBM DATE: none

Card 1/1 UDC: 621.224.35

V. I

PHASE I BOOK EXPLOITATION SOV/5116

Akademiya nauk SSSR. Institut mashinovedeniya

Instrumental'nyye rezhushchiye materialy (Cutting-Tool Materials) Moscow, Izd-vo AN SSSR, 1960. 137 p. 6,000 copies printed.

Resp. Ed.: A. I. Isayev, Doctor of Technical Sciences, Professor; Ed. of Publishing House: G. B. Gorshkov; Tech. Ed.: N. F. Yegorova.

PURPOSE: This collection of articles is intended for scientific personnel and production engineers engaged in the manufacture and use of cutting tools.

COVERAGE: The collection contains papers read at a seminar on cutting-tool materials organized and sponsored by the Komissiya po tekhnologii mashinostroyeniya (Commission on Processing in Machine Building). The seminar investigated the cutting properties of ceramic and carbide tool materials, the effect of temperature on cutting edges, the problem of wear, and the possibility of using cutting tools more efficiently. No personalities are mentioned. References accompany each article. There are 81 references: 79 Soviet, and 2 English.

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PHASE I BOOK EXPLOITATION SOV/5302

Kravtsov, Vladimir Ivanovich

Issledovaniye svoystv novykh rezhushchikh instrumental'nykh materialov (Investigation of the Properties of Newly Developed Cutting-Tool Materials) Frunze, Kirgizgosizdat, 1960. 119 p. Errata slip inserted. 1,000 copies printed.

Ed.: A. M. Toropov; Tech. Ed.: S. Chotiyev.

PURPOSE: This booklet is intended for technical personnel engaged in metal cutting.

COVERAGE: The booklet reviews investigations of the cutting properties of ceramic cutting-tool materials, discusses the physical nature of surface friction, and analyzes friction theories. The following are also considered: the physical nature of various types of wear, wear measurement, the friction-and-wear process in metal cutting, and the study of friction by using simulation by vacuum. No personalities are mentioned. There are 56 references, all Soviet.

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ALEKSANDROV, S.G.; FEDOROV, R.Ye.; KRAVTSOV, V.I., otv.red.; MIKHAYLOV, T.K., otv.red.; PROKOF'YEVA, N.B., red.izd-va; POLENOVA, T.P., tekhn.red.

[Soviet satellites and space rockets] Sovetskie sputniki i kosmicheskaia raketa. Moskva, Izd-vo Akad.nauk SSSR, 1959. 231 p. (MIRA 12:3)
(Rockets (Aeronautics)) (Artificial satellites)

ALEKSANDROV, S.G.; FEDOROV, R.Ye.; KRAVTSOV, V.I., otv. red.; MIKHAYLOV, T.K., otv. red.; PROKOF'YEVA, N.B., red. izd-va; POLENOVA, T.P., tekhn. red.; GUSEVA, A.P., tekhn. red.

[Soviet satellites and spaceships] Sovetskie sputniki i kosmicheskie korabli. Izd.2., dop. i perer. Moskva, Izd-vo Akad. nauk SSSR, 1961. 439 p. (MIRA 14:8)
(Artificial satellites) (Spaceships)

KRAVTSOV, V.I., inzhener.

New developments in inspecting section disconnectors. Elek. i tepl. tiaga no.6:32 Je '57. (MIRA 10:8)
(Electric railroads)

KRAVTSOV, V.I.; PETROVA, G.M.

Kinetics of aquation of iridium chloride ions and the oxido-reduction potential of $IrCl_6^{2-}$ / $IrCl_6^{3-}$. Zhur.neorg.khim. 9 no.4:1010-1013 Ap '64. (MIRA 17:4)

1. Leningradskiy gosudarstvennyy universitet imeni Zhdanova.

KOROTKOV, V.P.; YEREMIN, N.Ye., inzhener; KRAVTSOV, V.I., inzhener.

Making mercury-arc rectifiers. Elek.i tepl.tiaga no.9:33-36 S '57. (MIRA 10:10)

1. Nachal'nik remontno-revizionnogo tsekha Novosibirskogo uchastka energosnabzheniya (for Korotkov).

(Mercury-arc rectifiers)

KRAVTSOV, V.I., starshiy nauchnyy sotrudnik, kandidat tekhnicheskikh nauk; EYDEL'MAN, S.Ya., inzhener.

Method for direct measurement of stresses in concrete. Izv. VNIIG no.39: 89-96 '49. (MIRA 10:3)

(Concrete--Testing) (Strain gauges)