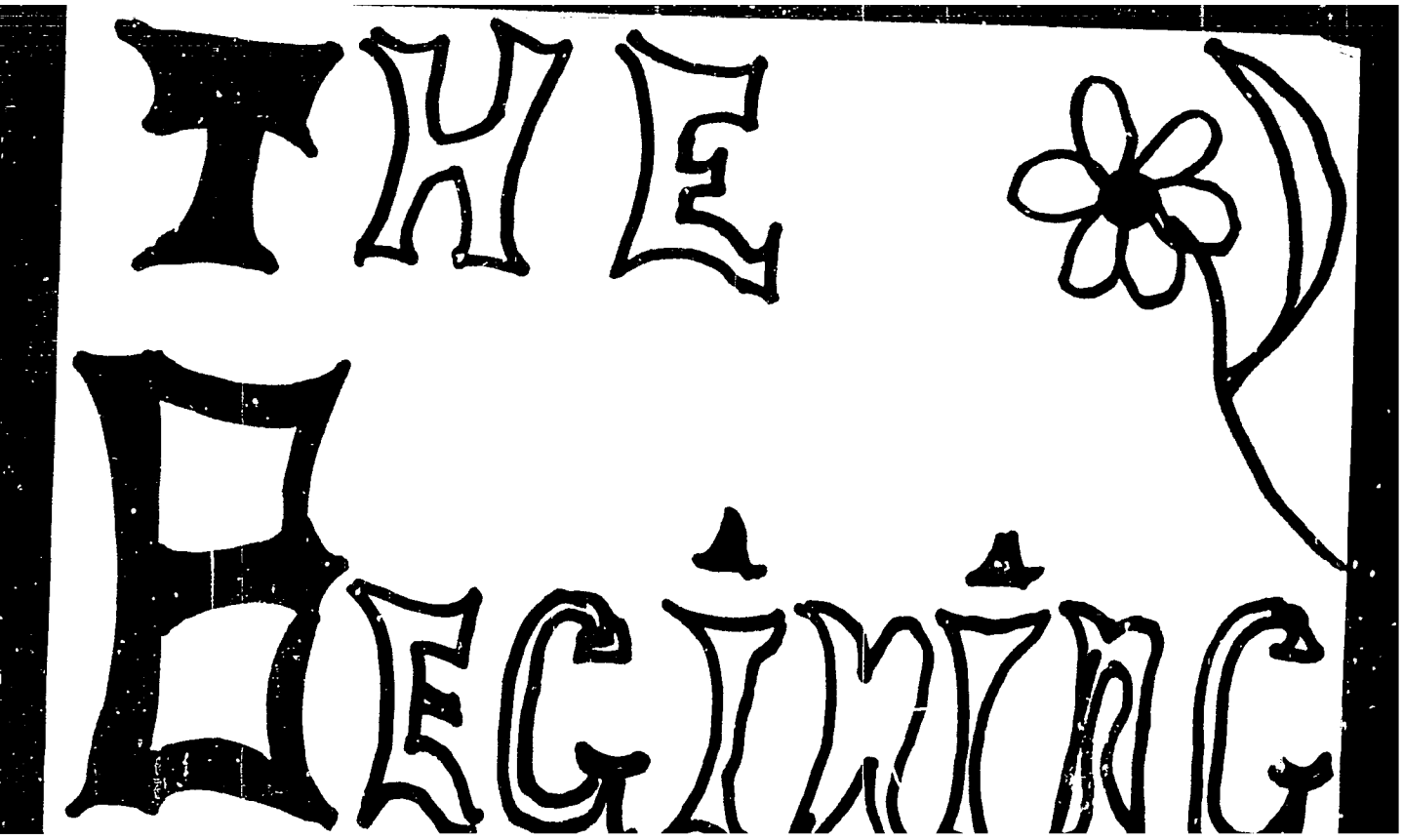
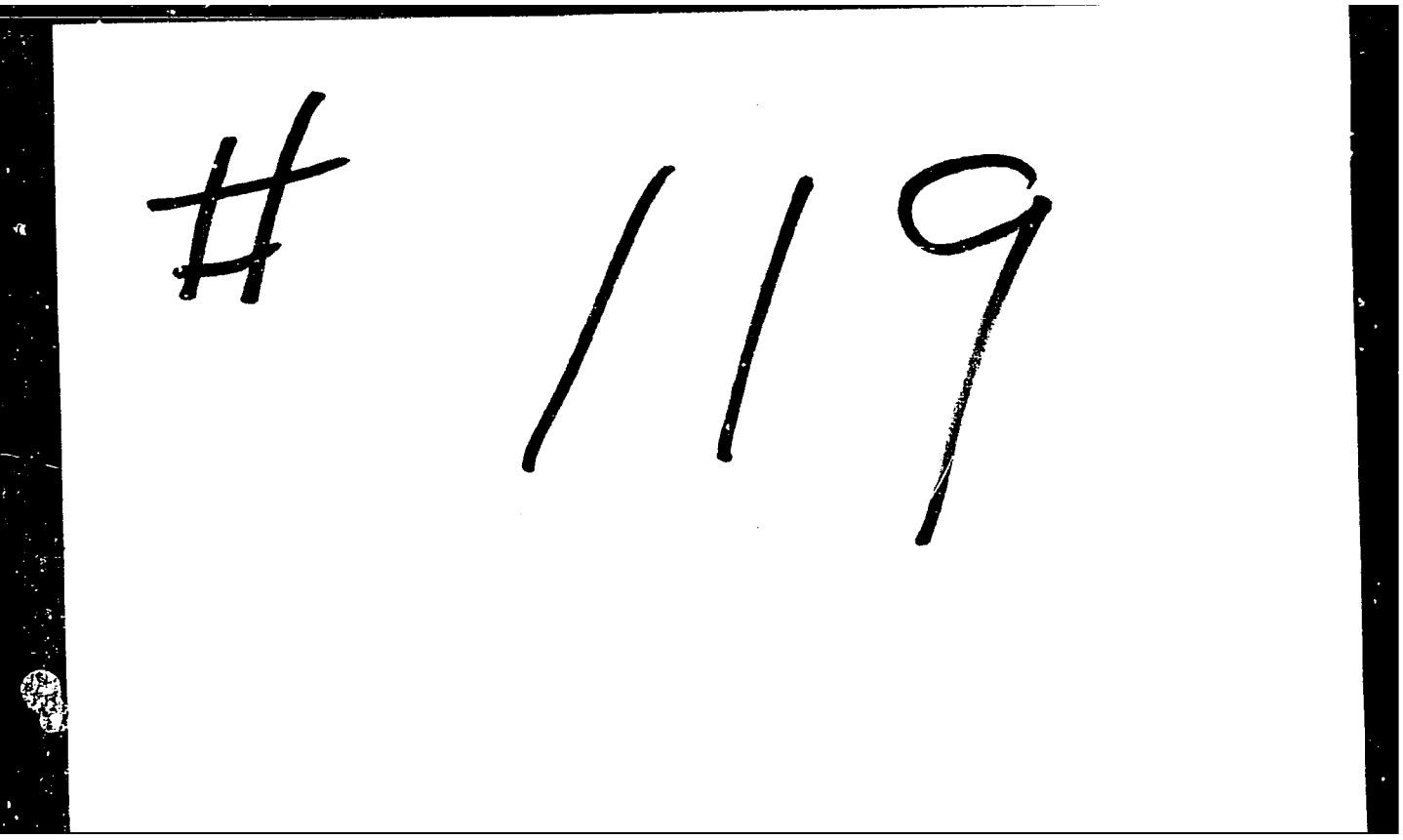




DZHELEPOV B.S.

DZELEPOV, B.S., ALIKHANOV, A.I., and ALICHANIAN, A.I.

"β-Spectra of Some Radioactive Elements," Nature, Vol. 135, p. 393, 1935.

Physical-Technical Instiutute, Leningrad

DZHELEPOV B S.
DZELEPOV, B.S., ALIKHANOV, A.I., and ALICHANIAN, A.I.

"Beta Ray Spectra of Artificially Produced Radioactive Elements," Nature, Vol. 136, pp. 257-258, 1935,

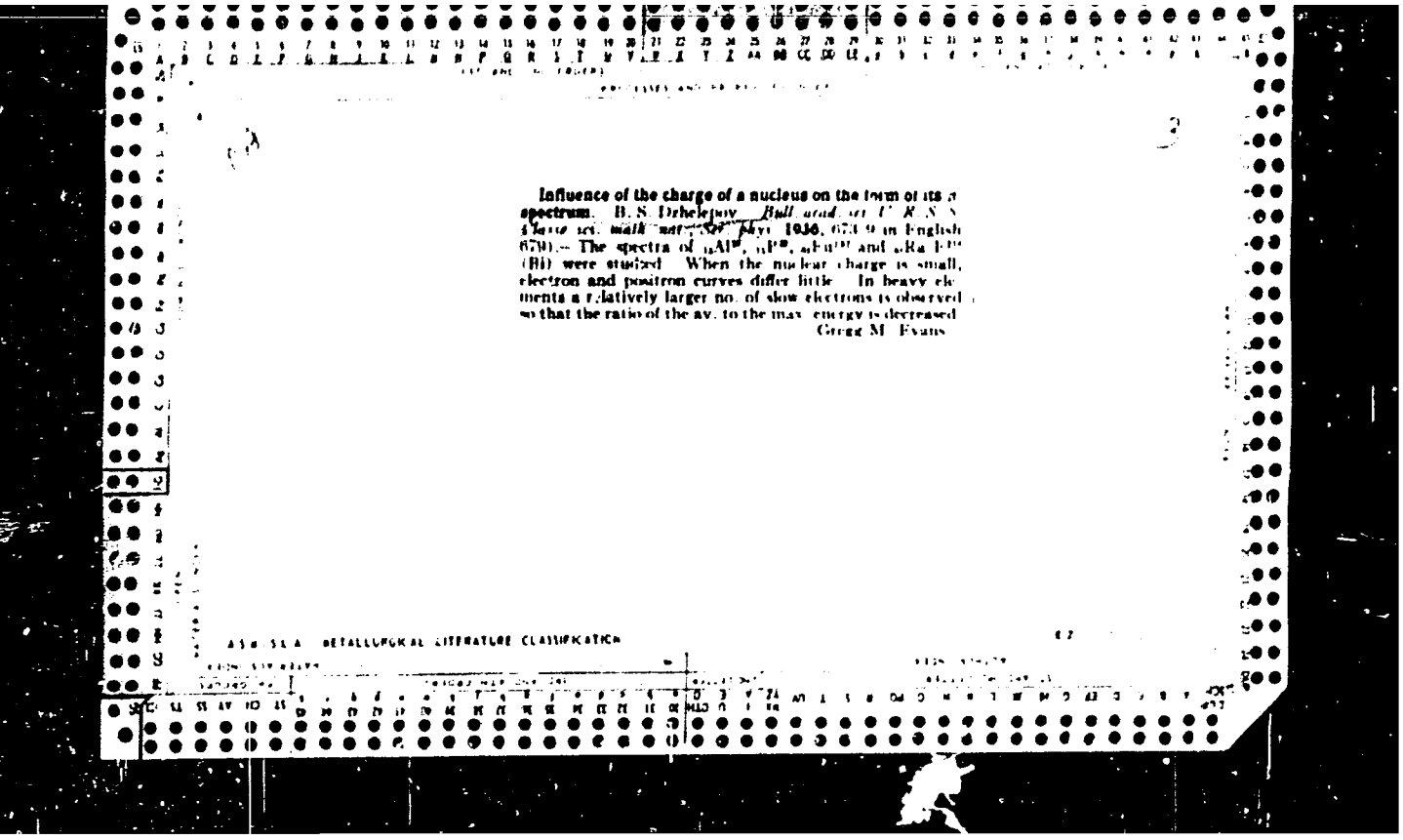
Phyical-Technical Institute, Leningrad.

DZHELEPOV B.S.

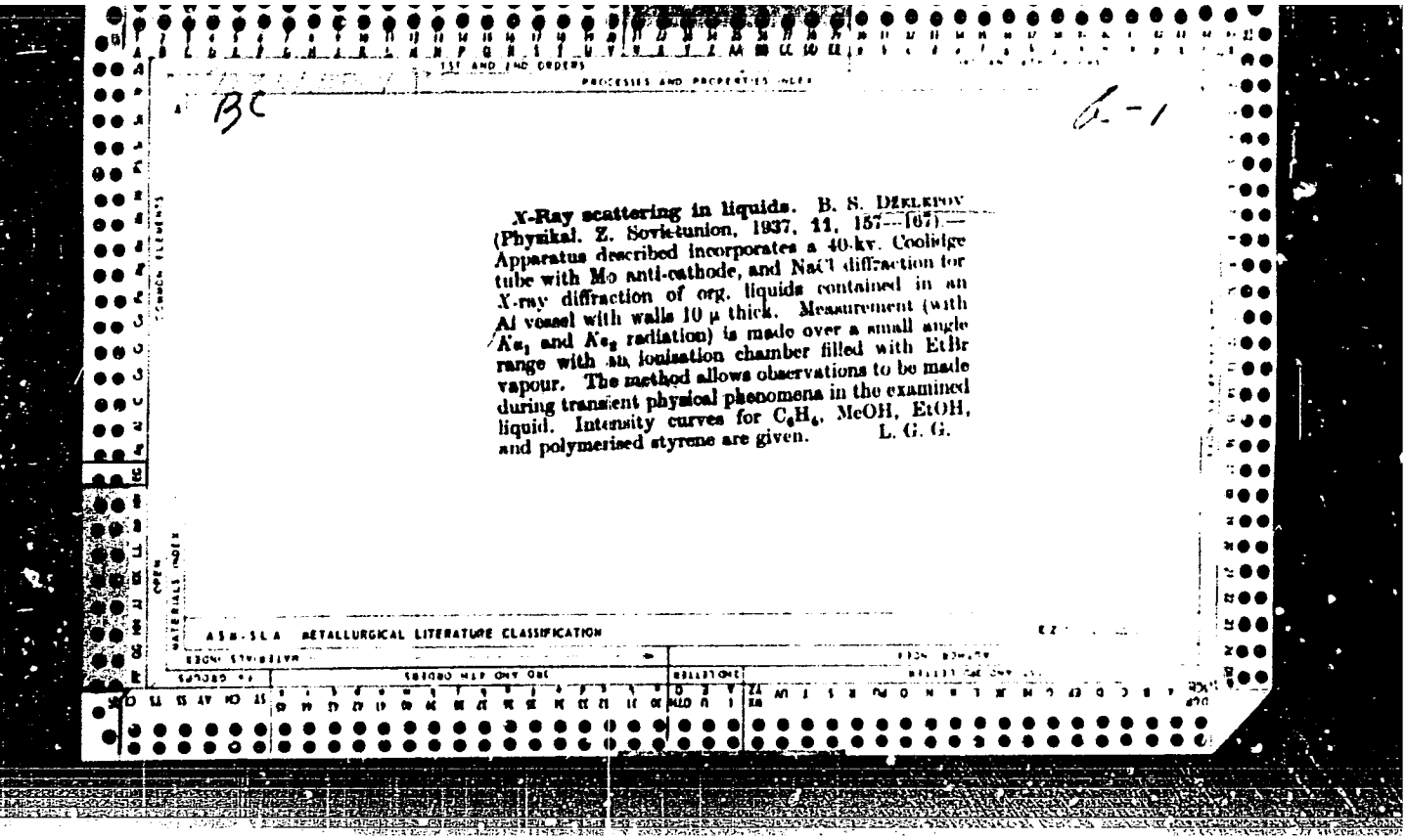
DVELEPOV, B.S., ALICHANIAN, A.I., and ALIKHANOV, A.I.

"The Continuous Spectra of RaE and Rap^{30}," Nature, Vol. 137, pp. 314-315, 1936.

Physical-Technical Institute, Leningrad.



Influence of the charge of a nucleus on the form of its β spectrum. B. S. Dzhelepov. *Bull. acad. sci. U. R. S. S. Classe sci. math. nat.* [illegible] Nos. 1936, 673-9 in English 679).—The spectra of $_{13}Al^{28}$, $_{15}P^{32}$, $_{63}Eu^{152}$ and $_{88}Ra\ E^{210}$ (Bi) were studied. When the nuclear charge is small, electron and positron curves differ little. In heavy elements a relatively larger no. of slow electrons is observed so that the ratio of the av. to the max. energy is decreased.
Gregg M. Evans

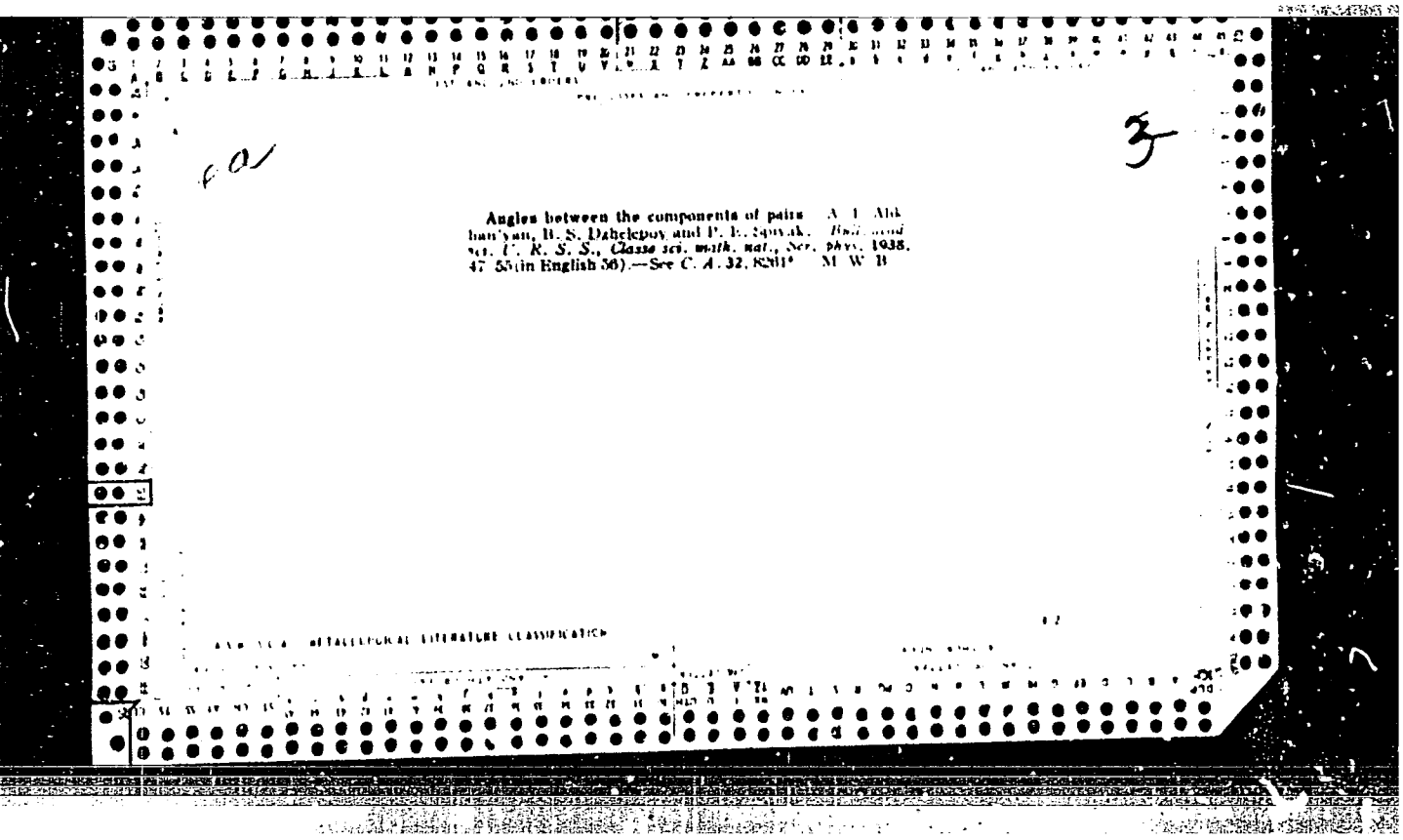


BC

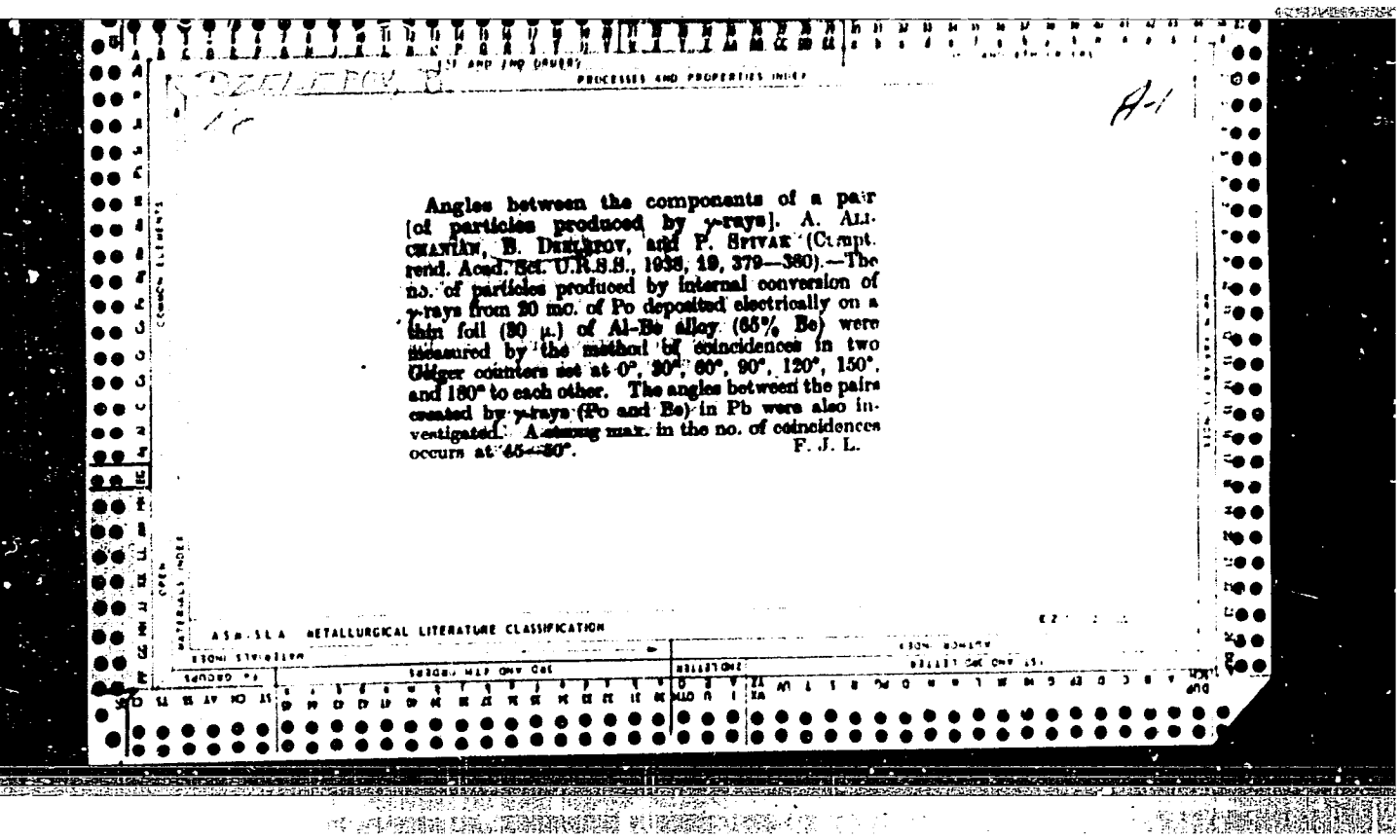
6-1

X-Ray scattering in liquids. B. S. DZELEPOV (Physikal. Z. Sowjetunion, 1937, **11**, 157—167).—Apparatus described incorporates a 40-kv. Coolidge tube with Mo anti-cathode, and NaCl diffraction for X-ray diffraction of org. liquids contained in an Al vessel with walls 10 μ thick. Measurement (with $K\alpha_1$ and $K\alpha_2$ radiation) is made over a small angle range with an ionisation chamber filled with EtBr vapour. The method allows observations to be made during transient physical phenomena in the examined liquid. Intensity curves for C_6H_6, MeOH, EtOH, and polymerised styrene are given. L. G. G.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Angles between the components of pairs ... A. I. Alikhanyan, B. S. Dzhelepov and P. L. Savvak. *Bull. Acad. sci. U. R. S. S., Classe sci. math. nat., Sér. phys.* 1938, 47–55 (in English 56).—See *C. A.* 32, 8301⁹. M. W. B.



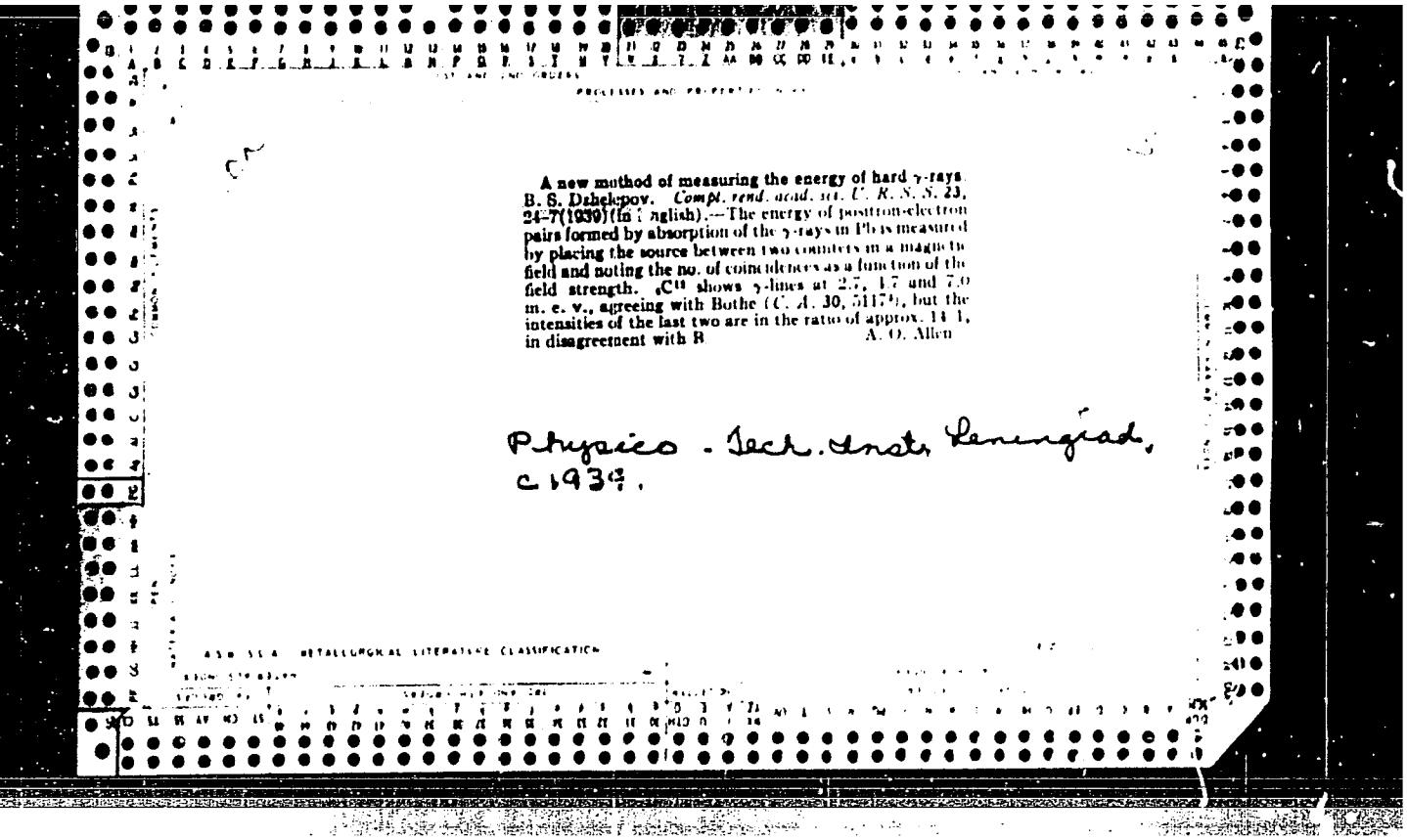
Angles between the components of a pair [of particles produced by γ-rays]. A. ALIKHANIAN, B. DMITRIEV, and P. SHIVAR (C.r. Acad. Sci. U.R.S.S., 1938, 19, 379—380).—The no. of particles produced by internal conversion of γ-rays from 20 mc. of Po deposited electrically on a thin foil (30 μ.) of Al-Be alloy (65% Be) were measured by the method of coincidences in two Geiger counters set at 0°, 30°, 60°, 90°, 120°, 150°, and 180° to each other. The angles between the pairs created by γ-rays (Po and Be) in Pb were also investigated. A strong max. in the no. of coincidences occurs at 45—50°. F. J. L.

DZHELEPOV B S

DVELEPOV, B.S., ALIKHANOV, A.I., and ALICHANIAN, A.I.

"On the Form of the β-Spectrum of Ra E in the Vicinity of the Upper Limit and the Mass of the Neutrino," The Physical Review, Vol. 53, pp. 766-767, 1938.

Physical-Technical Institute, Leningrad, U.S.S.R.



A new method of measuring the energy of hard γ-rays. B. S. Dzhelepov. *Compt. rend. acad. sci. U. R. S. S.* 23, 24–7(1939)(in English).—The energy of positron-electron pairs formed by absorption of the γ-rays in Pb is measured by placing the source between two counters in a magnetic field and noting the no. of coincidences as a function of the field strength. C^{13} shows γ-lines at 2.7, 1.7 and 7.0 m. e. v., agreeing with Bothe (*C. A.* 30, 5117), but the intensities of the last two are in the ratio of approx. 1:1, in disagreement with B

A. O. Allen

Physico - Tech. Inst. Leningrad, c 1939.

DZELEPOW, B.S.

"On the B-Ray Spectra of Mn^{56}, Dy^{165}, and Au^{198}," Dok. An, 30, No. 7, 1941.

Phys-Tech. Inst. State Univ. Leningrad. c1941.

[illegible] AND [illegible]

PROCESSES AND PROPERTIES [illegible]

The angular distribution of pairs produced by γ-rays from Th C''. B. Dzhelepov and [illegible] (Physico-Technical Inst., U.S.S.R.). J. Phys. (U.S.S.R.) 15, 095-101 (in English summary).— The apparent dependence of the divergence angle of positron-electron pairs on the target's Z (L. V. Groshev and I. M. Frank, C. A. 32, 6041) could be due to the variation of scattering power among the gases used simultaneously as targets and cloud chamber gases. D. and [illegible] irradiated Al foil, with 11 and 21 [illegible] Pb foil and 130 [illegible] 210 [illegible] and [illegible], observing the no. of coincidences per hr. [illegible] γ-rays from Th C'', as a function of the angle formed by the axes of the G. M. tubes, which converged on the target. The resolving time of the coincidence circuit was 2.5 × 10 [illegible] sec. The exptl. coincidence rate was 50-200% of background rate. The curves for positron-electron-path angle vs. no. of pairs per hr. coincided almost exactly for the 11 [illegible] Pb and 210 [illegible] Al targets; thus the rate of pair-formation in the region measured (5-30 per hr.) was not a function of Z.

Cyril Feldman

Phys.-Tech. Inst., AS, USSR, -1945-

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1527. The Mass of the Neutrino, by B. S. Dzhelepov and N. M. Anton'eva. *Vestnik Leningradskogo Universiteta*, No. 1, p. 19-54, 1946. (In Russian).

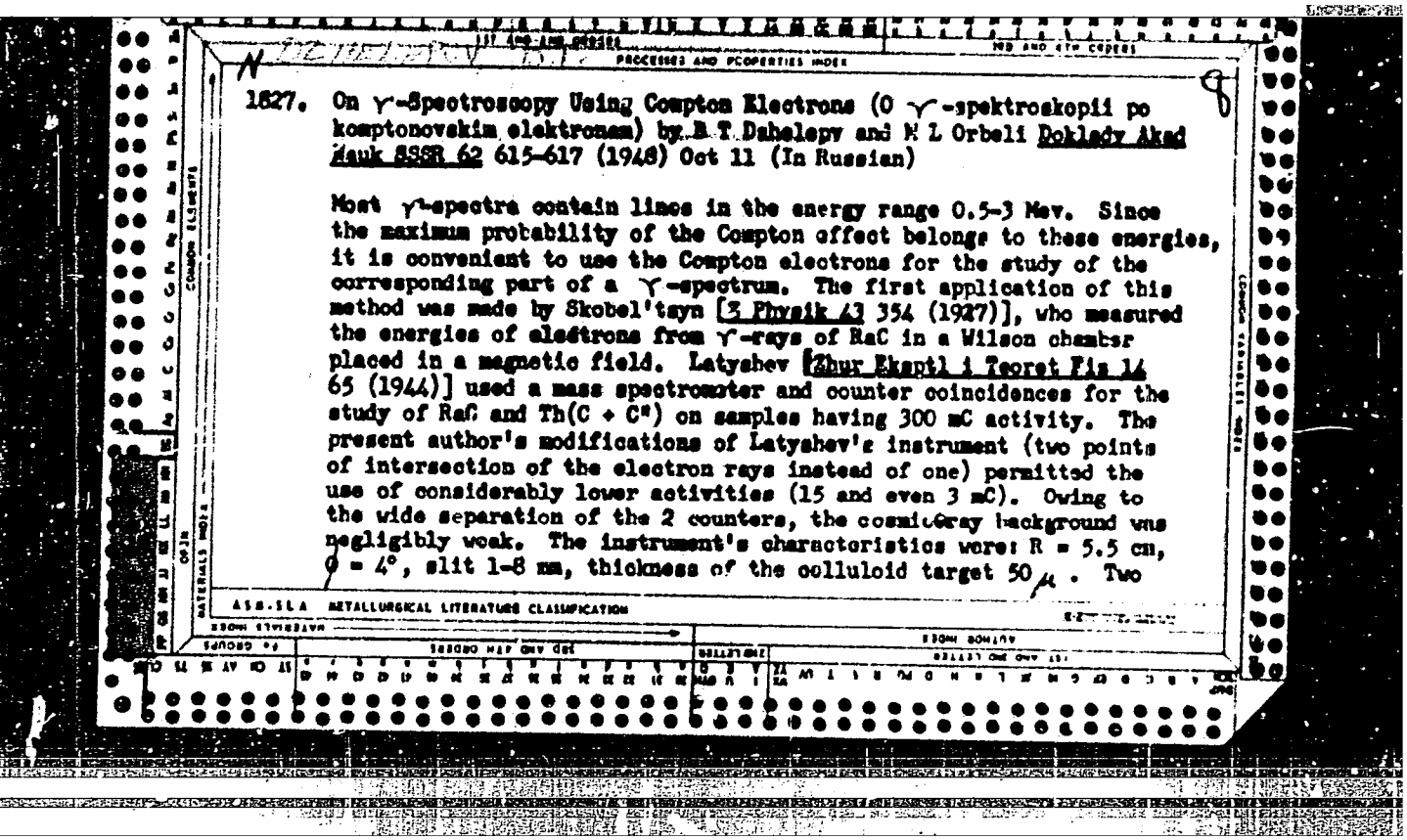
Critical review (45 references), arriving at the conclusion that it cannot be decided as yet whether the mass of the neutrino is rigorously zero or between 0 and 0.15 times the mass of the electron. (CA)

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

β-**Ray spectrum of K^{40}.** B. S. Dzhelepov, M. Kop'eva, and E. Vorob'ev (Univ. Leningrad, Leningrad, U.S.S.R.). *Phys. Rev.* **69**, 538 [illegible]. The β spectrum of the reaction $K^{40} \to Ca^{40}$ has an upper limit of [illegible] kev. and a single max. at about [illegible] kev. A special magnetic spectrometer with 7 counters is described. G. M. F.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



1827. On γ-Spectroscopy Using Compton Electrons (O γ-spektroskopii po komptonovskim elektronam) by B T Dzhelepov and N L Orbeli Doklady Akad Nauk SSSR 62 615-617 (1948) Oct 11 (In Russian)

Most γ-spectra contain lines in the energy range 0.5-3 Mev. Since the maximum probability of the Compton effect belongs to these energies, it is convenient to use the Compton electrons for the study of the corresponding part of a γ-spectrum. The first application of this method was made by Skobel'tsyn [Z Physik 43 354 (1927)], who measured the energies of electrons from γ-rays of RaC in a Wilson chamber placed in a magnetic field. Latyshev [Zhur Eksptl i Teoret Fiz 14 65 (1944)] used a mass spectrometer and counter coincidences for the study of RaC and Th(C + C'') on samples having 300 mC activity. The present author's modifications of Latyshev's instrument (two points of intersection of the electron rays instead of one) permitted the use of considerably lower activities (15 and even 3 mC). Owing to the wide separation of the 2 counters, the cosmic-ray background was negligibly weak. The instrument's characteristics were: R = 5.5 cm, θ = 4°, slit 1-8 mm, thickness of the celluloid target 50 μ. Two

examples of γ-lines determined by this method are shown: the line 2620 Kev of ThC" and the line 1706 Kev of Sb^{124}.

DZHELEPOV, V. S. PA 35/49T87

USSR/Nuclear Physics - Atomic Nuclei - Sep 48
Disintegration of
Nuclear Physics - Radioactivity

"Type M_E^{2E-1} Radioactive Nuclei," V. S. Dzhelepov, Radium Inst, Acad Sci USSR, 4 pp

"Dok Ak Nauk SSSR" Vol LXIII, No 1

Attempts to apply Fermi's formula for the relation between decay constant and decay energy for M_E^{2E-1} nuclei. In these nuclei, during beta-decay a proton is replaced by a neutron, and remainder of the nucleus contains same number of protons and neutrons. Submitted by Acad P. I. Lukirskiy, 29 Jun 48.

35/49T87

C. A.
1951

3 a.

The β-decay of tritium. M. R. Volkhanskii, B. S. Dzhelepov, and L. A. Shiv (A. A. Zhdanov State Univ., Leningrad). *Zhurn. Eksp. Teoret. Fiz.* 3, 333-8 (1949) (in English). See C. A. 43, 8901e.
R. J. C.

DZHELEPOV, B.S., KUDRYAVTSEVA, A.V.

26912. DZHELEPOV, B.S., KUDRYAVTSEVA, A.V.- Tablitsy po raspadu. Proizbedeniya Zhurnal eksperim. Teoret, Fiziki, 1949, VYP. 9, s. 761-93-Bibliogr: 320 nazb.

SO: Letopis'Zhurnal'nykh Statey, Vol. 36, 1949.

DZHELEPOV, B.S.

26911. DZHELEPOV, B.S.-O proizvedeniyakh v teorii b raspada. Zhurnal eksperim. i teoret. Fiziki, 1949 VYP 9 s. 784-95--Bibliogr: 15 nazb.

SO: Letopis'Zhurnal'nykh Statey, Vol. 36, 1949.

PA 46/49T87

USSR/Nuclear Physics - Nuclei May 49
Nuclear Physics - Radioactivity

"Radioactive Nuclei of the Type M_Z^{2Z-1}," B. S. Dzhelepov, Radium Inst, Acad Sci USSR, 21 pp

"Zhur Eksper i Teoret Fiz" Vol XIX, No 5

All nuclei of type M_Z^{2Z-1}, beginning with C_6^{11}, disintegrate with release of positrons. Beta-decay of these nuclei is a permissible transition to ground state of nuclear product. Beta-decay at primary level is not accompanied by gamma radiation. Derives formula for energy of beta-decay, constant of beta-decay, half-life, and

46/49T87

USSR/Nuclear Physics - Nuclei (Contd) May 49

ratio of probability of K-capture to positron emission for this type. Thus, almost all basic characteristics of beta-decay for this type may be predetermined. Submitted 23 Nov 48.

46/49T87

DZHELEPOV, B. S.

DZHELEPOV, B. S. 62/39T96

USSR/Nuclear Physics - Beta Decay Sep 49

"Tables on Beta-Decay: I, the tf Products," B. S. Dzhelepov, A. V. Kudryavtseva, Leningrad State U, 23 pp

"Zhur Eksper i Teoret Fiz" Vol XIX, No 9, pp 761-83.

Selected most reliable data available on decay periods, boundaries of spectra, and type of decay for 313 beta-active substances. Used this data to calculate the tf products. Submitted 4 May 49.

62/49T96

USSR/Nuclear Physics - Beta Decay Sep 49

"The tf Products in the Theory of Beta-Decay," B. S. Dzhelepov, Leningrad State U, 11 pp

"Zhur Eksper i Teoret Fiz" Vol XIX, No 9, pp 784-94.

Having calculated the tf products (Eg, Z) for all beta-active substances from available data, analyzes the distribution of tf values according to magnitude. Concludes that the number of regularities observed, i.e, the constancy of tf for mirror (isomeric) nuclei, the distinct division into A and B groups, the form of the beta-spectra of members of these groups, etc., all confirm

62/49797

USSR/Nuclear Physics - Beta Decay (Contd) Sep 49

the correctness of Fermi's theory. Submitted 4 May 49.

62/49797

DZHELEPOV, B. S.

PA 27/49T85

USSR/Nuclear Physics - Electrons Jan 49
Nuclear Physics - Elementary Particles

"β^+ and β^- Dissociation in Br^{80}," B. S. Dzhelepov, N. M. Anton'yeva, S. A. Shestopalova, 4 pp

"Dok Ak Nauk SSSR" Vol LXIV, No 3, pp 309-12.

To study beta-plus and beta-minus disintegration, small quantity of electrons or positrons must be observed in presence of large quantity of particles of opposite sign. This presents special requirement for the spectrometer separating the particles: diffusion must be almost completely eliminated,

27/49T85

USSR/Nuclear Physics - Electrons (Contd) Jan 49

and at same time wide electron rays must be used. Solution of this problem is detailed. Submitted 4 Sep 48.

27/49T85

DZHELEPOV, B. S.

USSR/Physics
Spectrum Analysis
Gold

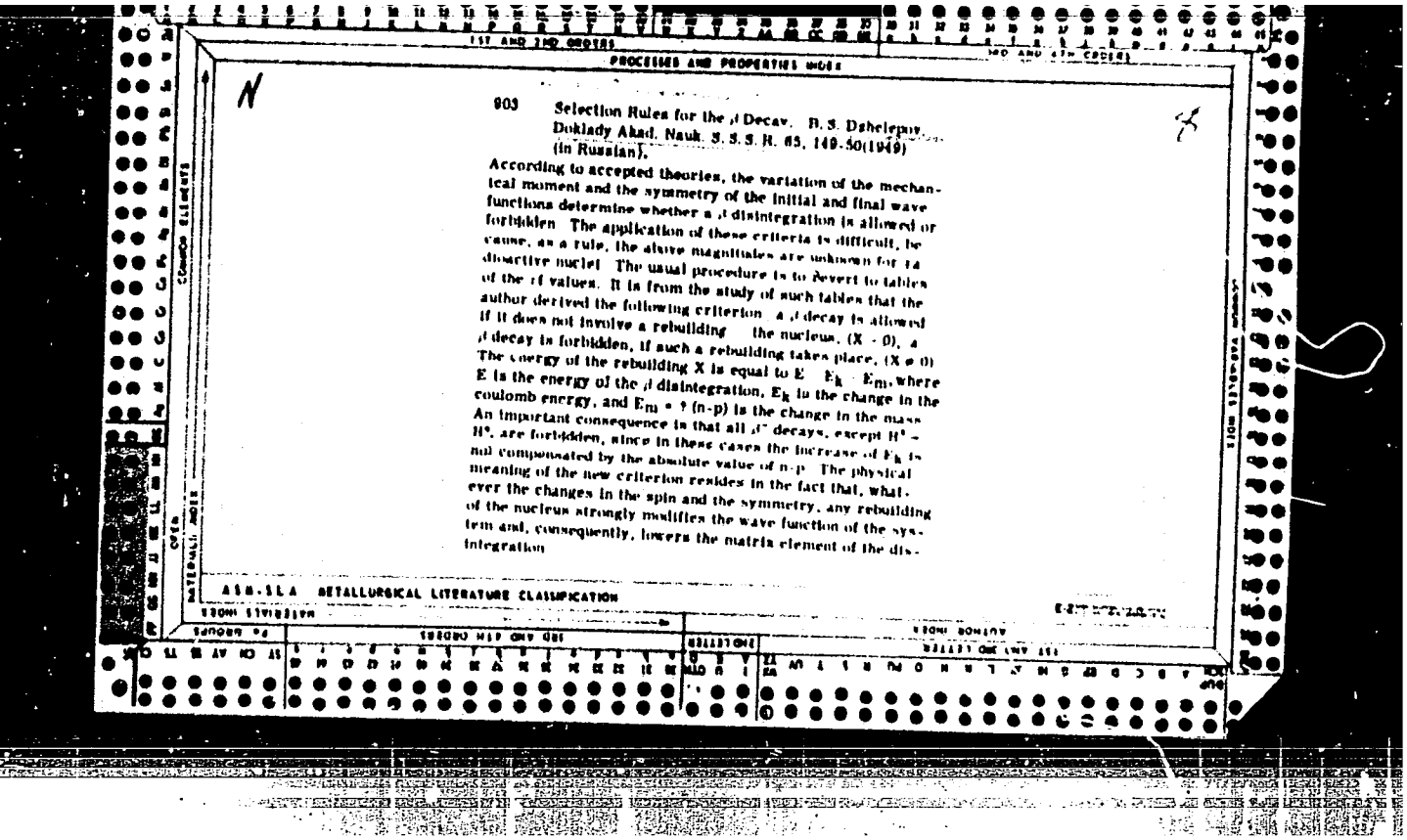
Feb 49

"β -Spectrum of Au^{198}," B. S. Dzhelepov, A. A. Bashilov, A. V. Zolotavin, E. N. Antonʹyeva, Sci Res Phys Inst, Leningrad State U, 3 pp

"Dok Ak Nauk SSSR" Vol LXIV, No 6, pp 803-5.

Studied the β-spectrum of Au^{198}, using a new magnetic spectrometer with improved focus ($\phi = 30°$, $P = 8$ cm, $\Delta p/p = 1$ %). Results correlated well with those of du Mond and Watson. Submitted by Acad P. I. Lukirskiy, 10 Oct 48.

PA 29/49T99



PROCESSES AND PROPERTIES INDEX

903 Selection Rules for the β Decay. B. S. Dzhelepov. Doklady Akad. Nauk. S. S. S. R. 65, 149-50(1949) (in Russian).

According to accepted theories, the variation of the mechanical moment and the symmetry of the initial and final wave functions determine whether a β disintegration is allowed or forbidden. The application of these criteria is difficult, because, as a rule, the above magnitudes are unknown for radioactive nuclei. The usual procedure is to revert to tables of the $\log ft$ values. It is from the study of such tables that the author derived the following criterion: a β decay is allowed if it does not involve a rebuilding of the nucleus, ($X = 0$), a β decay is forbidden, if such a rebuilding takes place, ($X \neq 0$). The energy of the rebuilding X is equal to $E - E_k - E_m$, where E is the energy of the β disintegration, E_k is the change in the coulomb energy, and $E_m = ? (n-p)$ is the change in the mass. An important consequence is that all β^- decays, except $H^3 - He^3$, are forbidden, since in these cases the increase of E_k is small compensated by the absolute value of $n-p$. The physical meaning of the new criterion resides in the fact that, whatever the changes in the spin and the symmetry, any rebuilding of the nucleus strongly modifies the wave function of the system and, consequently, lowers the matrix element of the disintegration.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

USSR/Nuclear Physics - Beta-Decay
Nuclear Physics - Hydrogen Isotope

Jun 49

"The Problem of Beta-Disintegration of H^3," M. Ya. Voyhanskiy, B. S. Dzhelepov, L. A. Sliv, Leningrad State U imeni A. A. Zhdanov, 3 pp

"Dok Ak Nauk SSSR" Vol LXVI, No 5, pp 829-32.

All "mirror" nuclei, type $M^{2z\,1}$, form a compact group of permissible beta-emitters; their theory concerns properties of type $M_z^{2z\,1}$ beta-emitters, upper limits of which change from 18 keV to 5,[illegible] keV and the period from one second to 4.10^8 seconds.

Submitted by Acad P. I. Lukirskiy, 18 Apr 49.

PA 50/49T87

DZHELEPOV, B. S.

USSR/Nuclear Physics - Gamma Rays 21 Dec 49

"Polarization of Annihilation Gamma-Quanta," V. A. Vlasov, B. S. Dzhelepov

"Dok Ak Nauk SSSR" Vol LXIX, No 6, pp 777-780

PA 173T89

From Dirac's theory of 2-quantum annihilation, it follows that during pair-annihilation (electron and positron) in s-state 2 quantum must be polarized in perpendicular planes, as discussed by I. Ya. Pomeranchuk in "Dok Ak Nauk SSSR" Vol LX, 1948 Theory and experience both testify that 2-quantum annihilation under ordinary conditions dominates.

173T89

USSR/Nuclear Physics - Gamma Rays (Contd) 21 Dec 49

Problem of polarization of 2-annihilation quanta can be proved by exptl tests, as described here, with lead block, C_1 and C_2 counters, radiating source, and aluminum cones. Submitted by Acad Lukirskiy 2 Jul 49.

173T89

DZHELEPOV, B. S.

PA 187T82

USSR/Physics - Electron Micro- May/Jun 50
scope

"Betron, the Magnetic Spectrometer With Improved Focusing," B. S. Dzhelepov, A. A. Bashilov; Sci Res Phys Inst, Leningrad State U imeni Zhdanov

"Iz Ak Nauk SSSR, Ser Fiz" Vol XIV, No. 3, pp 264-298

Authors describe the ketron, an instr constructed by them, which uses inhomogeneous transverse magnetic fld decreasing in one direction. Give results of controlled measurements of std electron lines for resolving power 0.5% and for

187T82

USSR/Physics - Electron Micro- May/Jun 50
scope (Contd)

solid angle of capture $\varphi = 30^{\circ}$ and $\varepsilon = \pm 3^{\circ}$. Lines of conversion electrons of familiar gamma-rays of Th(B+C+C'+C"), RaC and Au^{198} are taken as the std. Submitted 24 Apr 50 at session of the Dept of Physicomath Sci, Acad Sci USSR.

187T82

DZHELEPOV, B. S.

USSR/Neclear Physics - Gamma Rays

May/Jun 50

"Radiation of Au^{198}, Ho^{166} and Lu^{177}, "N. M. Anton'yeva, A. A. Bashilov, B. S. Dzhelepov, A. V. Zolotavin, Sci Res Phys. Inst, Leningrad State Univ.

"Iz Ak Nauk SSSR, Ser Fiz" Vol XIV , No 3, Pp 299-318

Describes results of studying conversion rasiation of Au^{198}, Ho^{166} and Lu^{177} as measured by the "ketron, " a spectrometer with improved focusing (cf. Per Abs 187T82). Beta-spectrum of Au^{198} was found to be simple; spectra of Ho^{166} and Lu^{177}, complex. Computes assumed half life of Ho^{166}. Submitted 24 Apr 50 at session of the Dept of Physicomath Sci, Acad Sci USSR.

Pa 187T68

DZHELEPOV, B.

Zhurnal Eksperimental Teoreticheskoi Fiziki, 1950, Vol. 20, Nol 2, 1950

"On the Question of the Fine Structure of The γ-Lines of RaC:" by G.D. Latyshev. Correction to the ar-icle by B. Dzhelepov and A.V. Kudryavtseva (Zh. Eksp. Teor. Fiz., 1949, 19,). Z.Zavelskmi.

DZHELEPOV, B.

USSR/Nuclear Physics - Nuclei, Atomic Apr 50

"Table of Atomic Nuclei," B. Dzhelepov, S. Petrovich, 95 pp.

"Uspekh Fiz Nauk" Vol XL, No 4

Includes 85-page table of atomic nuclei, giving: atomic number (1 to 97), stable nuclei, prevalence, half life, conversion types (alpha, beta, gamma, neutron, K-conversion), energy of alpha and beta in Mev, energy of gamma rays in Mev, and nuclear reactions. Bibliography lists sources of information, mainly non-Russian.

161T112

168T62

DZHELEPOV, B.

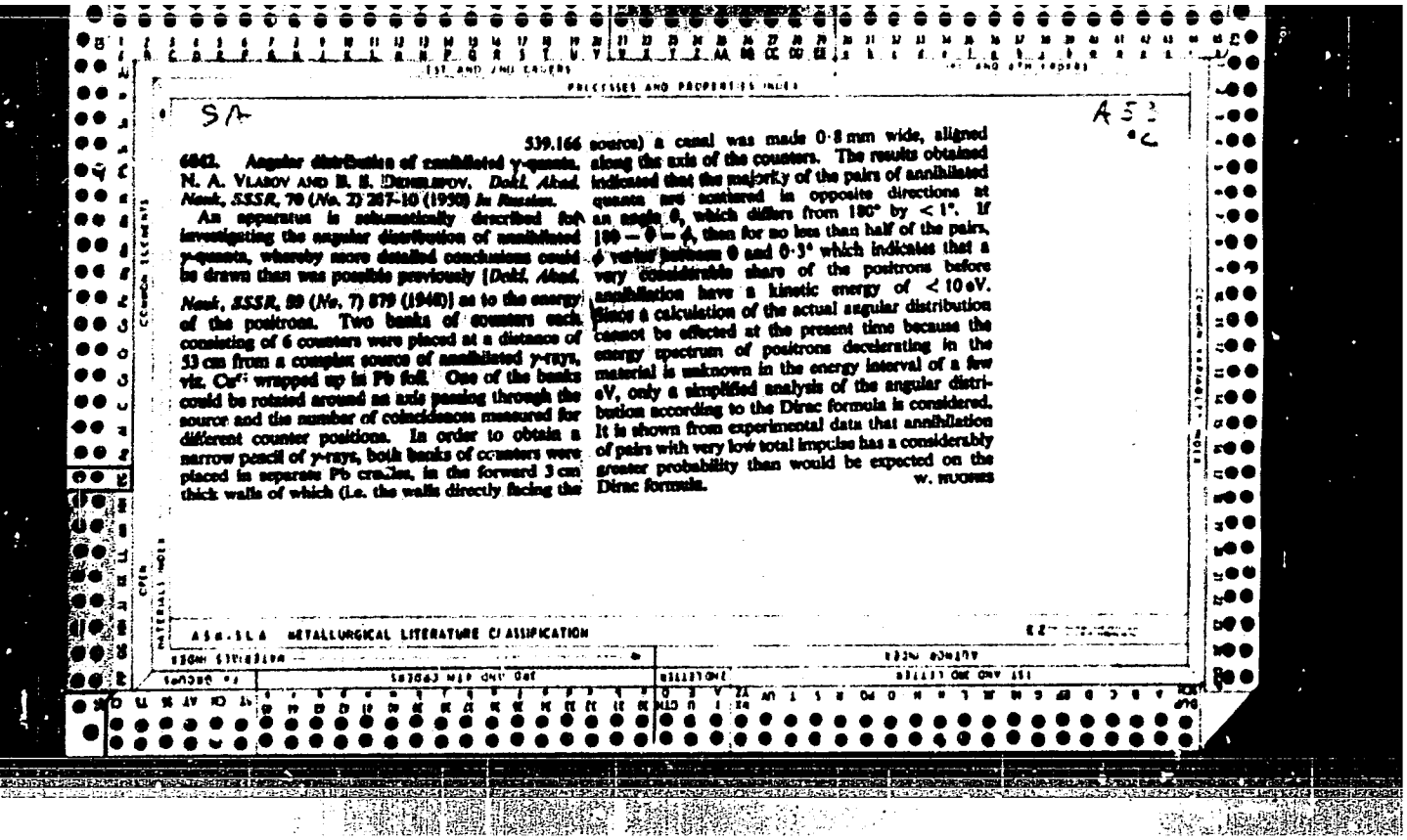
USSR/Nuclear Physics - Helium Jun 50

"Radioactive Helium Isotopes," K. Artemov, B. Dzhelepov

"Uspekh Fiz Nauk" Vol XLI, No 2, pp 189-210

Comprehensive survey of available literature on He^5 and He^6. Discusses reactions $Li^7 + H^2 = He^4 + He^5$, $He^4 + H^2 = He^5 + H^1$, and $He^4 + H^3 = He^6 + H^1$. In section on He^6, discusses threshold and cross section of the reactions $Be^9(n,\alpha)He^6$, $Li^6(n,p)He^6$, and $Li^7(\gamma,p)He^6$. Also discusses use of He^6 to check neutrino hypothesis. Only eight of the 65 sources listed are Soviet.

168T62



539.166

6862. **Angular distribution of annihilated γ-quanta.** N. A. VLASOV AND B. S. DZHELEPOV. *Dokl. Akad. Nauk, SSSR*, 70 (No. 2) 207–10 (1950) *In Russian.*

An apparatus is schematically described for investigating the angular distribution of annihilated γ-quanta, whereby more detailed conclusions could be drawn than was possible previously [*Dokl. Akad. Nauk, SSSR*, 69 (No. 7) 879 (1949)] as to the energy of the positrons. Two banks of counters each, consisting of 6 counters were placed at a distance of 53 cm from a complex source of annihilated γ-rays, viz. Cu^{64} wrapped up in Pb foil. One of the banks could be rotated around an axis passing through the source and the number of coincidences measured for different counter positions. In order to obtain a narrow pencil of γ-rays, both banks of counters were placed in separate Pb cradles, in the forward 3 cm thick walls of which (i.e. the walls directly facing the source) a canal was made 0·8 mm wide, aligned along the axis of the counters. The results obtained indicated that the majority of the pairs of annihilated quanta are scattered in opposite directions at an angle θ, which differs from 180° by $< 1°$. If $180 - \theta = \phi$, then for no less than half of the pairs, ϕ varies between 0 and 0·3° which indicates that a very considerable share of the positrons before annihilation have a kinetic energy of < 10 eV. Since a calculation of the actual angular distribution cannot be effected at the present time because the energy spectrum of positrons decelerating in the material is unknown in the energy interval of a few eV, only a simplified analysis of the angular distribution according to the Dirac formula is considered. It is shown from experimental data that annihilation of pairs with very low total impulse has a considerably greater probability than would be expected on the Dirac formula. W. MUCHIN

DZHELIPOV, B. S.

USSR/Nuclear Physics - Beta-Spectrum
Isotope

Jan 50

"Beta-Spectrum of Ho^{166}," N. M. Anton'yeva, A. A. Bashilov, B. S. Dzhelipov, A. V. Zolotavin, Phys Inst, Leningrad State U imeni A. A. Zhdanov, 4 pp

"Dok Ak Nauk SSSR" Vol LXX, No 3

Used magnetic spectrometer with improved focusing to study beta-spectrum of Ho^{166}. Thin layer of Ho_2O_3, irradiated by neutrons and deposited on strip of cigarette paper, was electron source. Electron radiation of Ho^{166} consists of continuous beta-spectrum with limit of about 1,840 kev and intense group of slow electrons less than 100 kev. Submitted 21 Sep 49 by Acad P. I. Lukirskiy.

158T80

DZHELEPOV, B.S.

"Beta Spectrum of Lu^{177}," Dok.AN., 70, No. 4, 1950.
Physics Inst., Ak.A. Zhdanov Leningrad State U., -c1950-.

SA
Sect. A

Radioactivity

539.166

6827. Gamma radiation of Ag^{110}. B. S. [redacted], N. N. Zhukovskii and Yu. V. Kholnov. *Guide Russ. Period. Lit. Brookhaven*, 4, 369–70 (*Dec.*, 1951).

Full translation of article abstracted in Abstr. 9671 (1951).

USSR/Nuclear Physics Jul/Aug 51

"Mirror" Nuclei of Higher Order," B. S. Dzhelepov

PA 195T63

"Iz Ak Nauk SSSR, Ser Fiz" Vol XV, No 4, pp 496-504

"Mirror" nuclei are isobars of types N + p, N + n, where N is "residue nucleus" with equal number of protons (p) and neutrons (n). Such nuclear pairs differ in mass according to difference in Coulomb energy and to mass difference (p - n), indicating that binding energy of proton or neutron to residual nucleus is the same. Comparison of nuclear masses

195T63

USSR/Nuclear Physics (Contd) Jul/Aug 51

of types N + 2p and N + 2n is now possible for 5 pairs and measuring methods were reported by author at a seminar of Sci Res Inst of Phys, Leningrad State U, 2 Oct 50.

195T63

DZHELEPOV, B. S.

DZHELEPOV, B.S.

✓Tables on β-decomposition. II. Effect of the Coulomb field on β-spectra. B. S. Dzhelepov and L. N. Zyryanova (Leningrad State Univ.). *Zhur. Eksptl. i Teoret. Fiz.* 21, 923–41(1951).—Excerpts from the tables of values for β-decay are given for the value of $F(E, Z)$, which describes the effect of the Coulomb field on the form of β-spectra. The value of $F(E, Z)$ was calcd. by means of an approx. formula developed earlier (Hulme, *C.A.* 26, 911). 14 pages of tables. J. Rovtar Leach

DZHELEPOV, B. S.

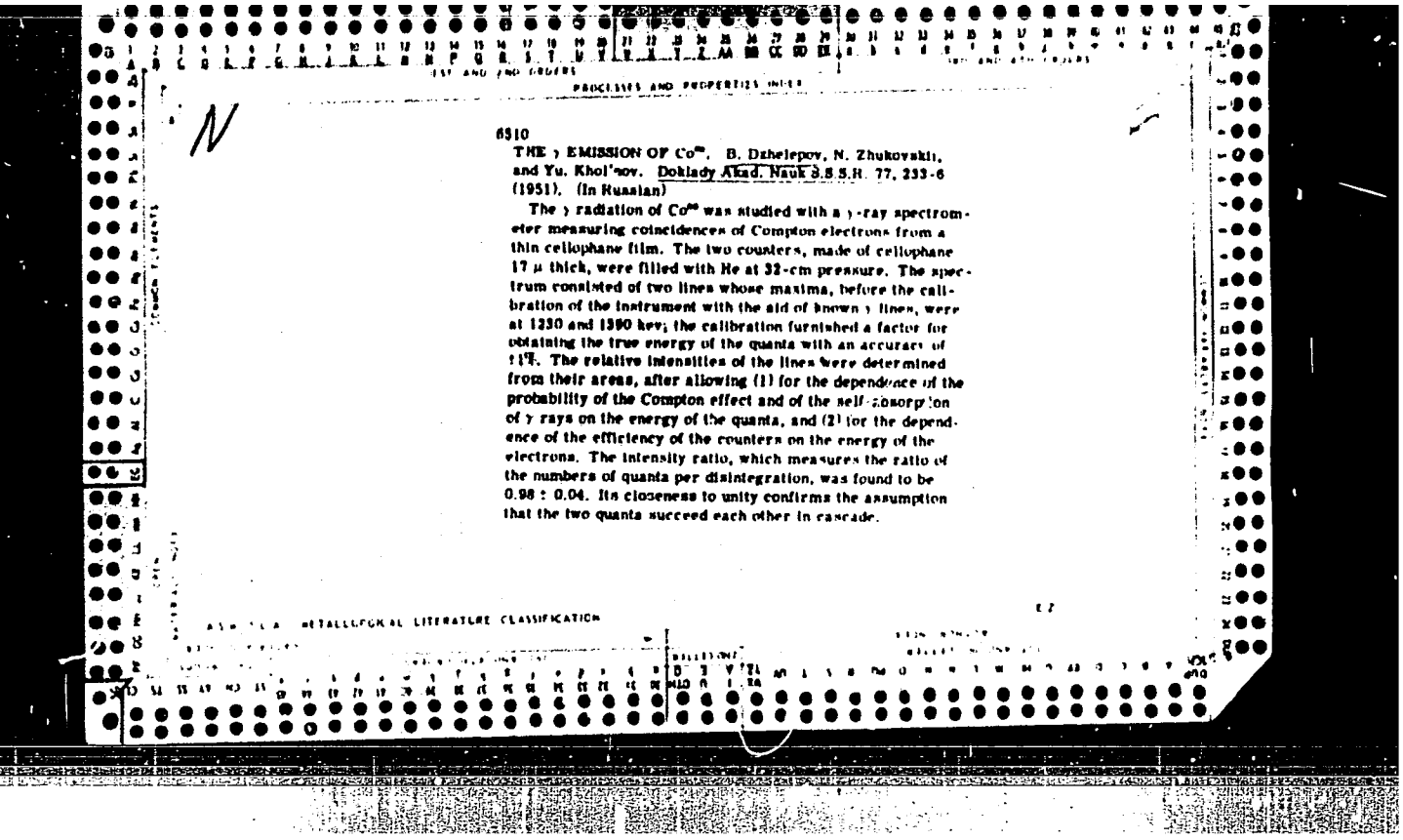
USSR/Nuclear Physics - Chlorine, Level of 21 Jan 51

"Natural Width of the Gamma Level of Cl^{36*}," B. S. Dzhelepov

"Dok Ak Nauk SSSR" Vol LXXVI, No 3, pp 385-388

Considers formation and decay of Cl^{36*} resulting in release of gamma quanta, proton, alpha particle, and thermal neutron. Mainly survey on present-day lit (mostly non-Russian) on subject decay. Submitted 23 Nov 50 by Acad P. I. Lukirskiy.

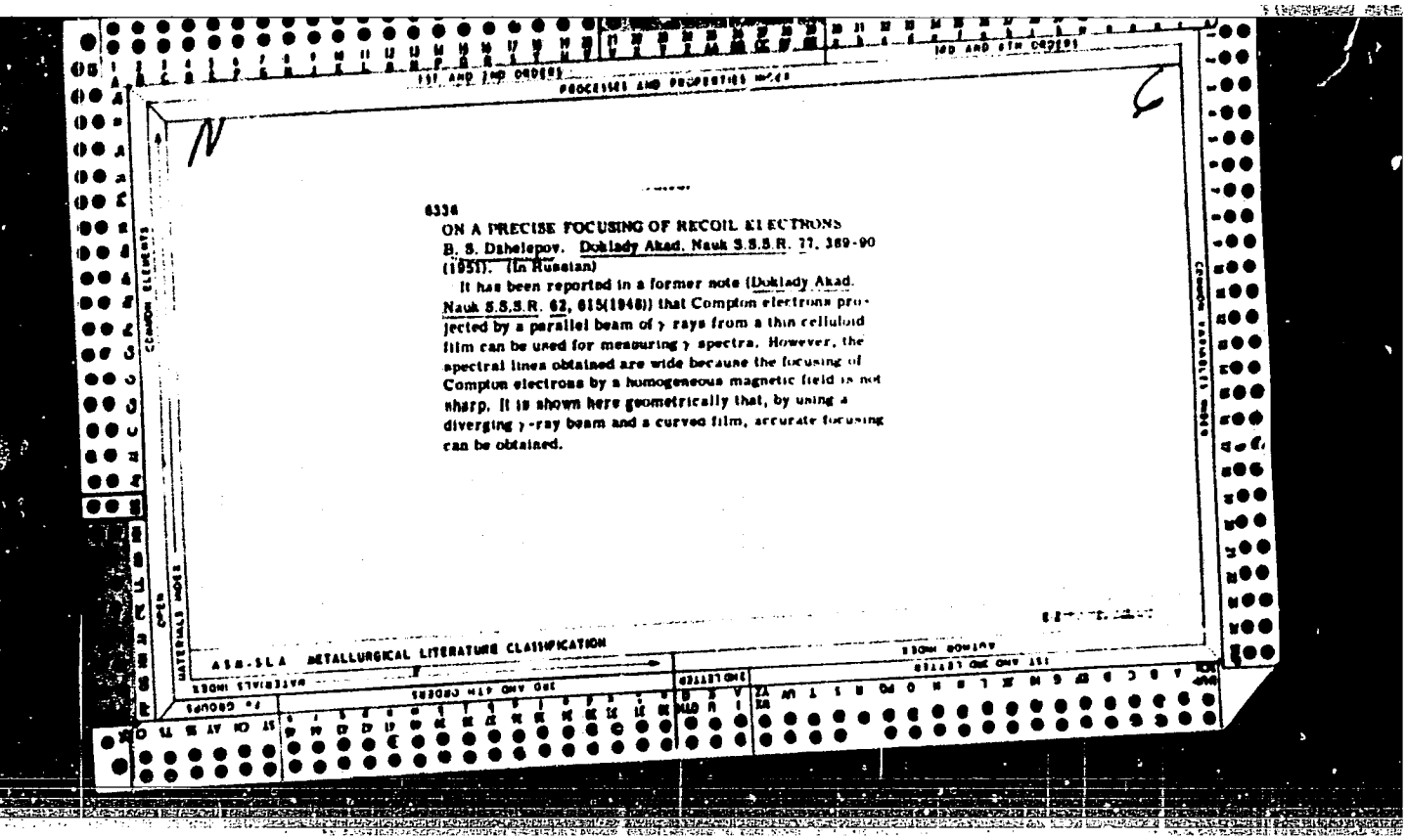
178T90



6510

THE γ EMISSION OF Co^{60}. B. Dzhelepov, N. Zhukovskii, and Yu. Khol'nov. Doklady Akad. Nauk S.S.S.R. 77, 233-6 (1951). (In Russian)

The γ radiation of Co^{60} was studied with a γ-ray spectrometer measuring coincidences of Compton electrons from a thin cellophane film. The two counters, made of cellophane 17 μ thick, were filled with He at 32-cm pressure. The spectrum consisted of two lines whose maxima, before the calibration of the instrument with the aid of known γ lines, were at 1230 and 1390 kev; the calibration furnished a factor for obtaining the true energy of the quanta with an accuracy of ±1%. The relative intensities of the lines were determined from their areas, after allowing (1) for the dependence of the probability of the Compton effect and of the self-absorption of γ rays on the energy of the quanta, and (2) for the dependence of the efficiency of the counters on the energy of the electrons. The intensity ratio, which measures the ratio of the numbers of quanta per disintegration, was found to be 0.98 ± 0.04. Its closeness to unity confirms the assumption that the two quanta succeed each other in cascade.

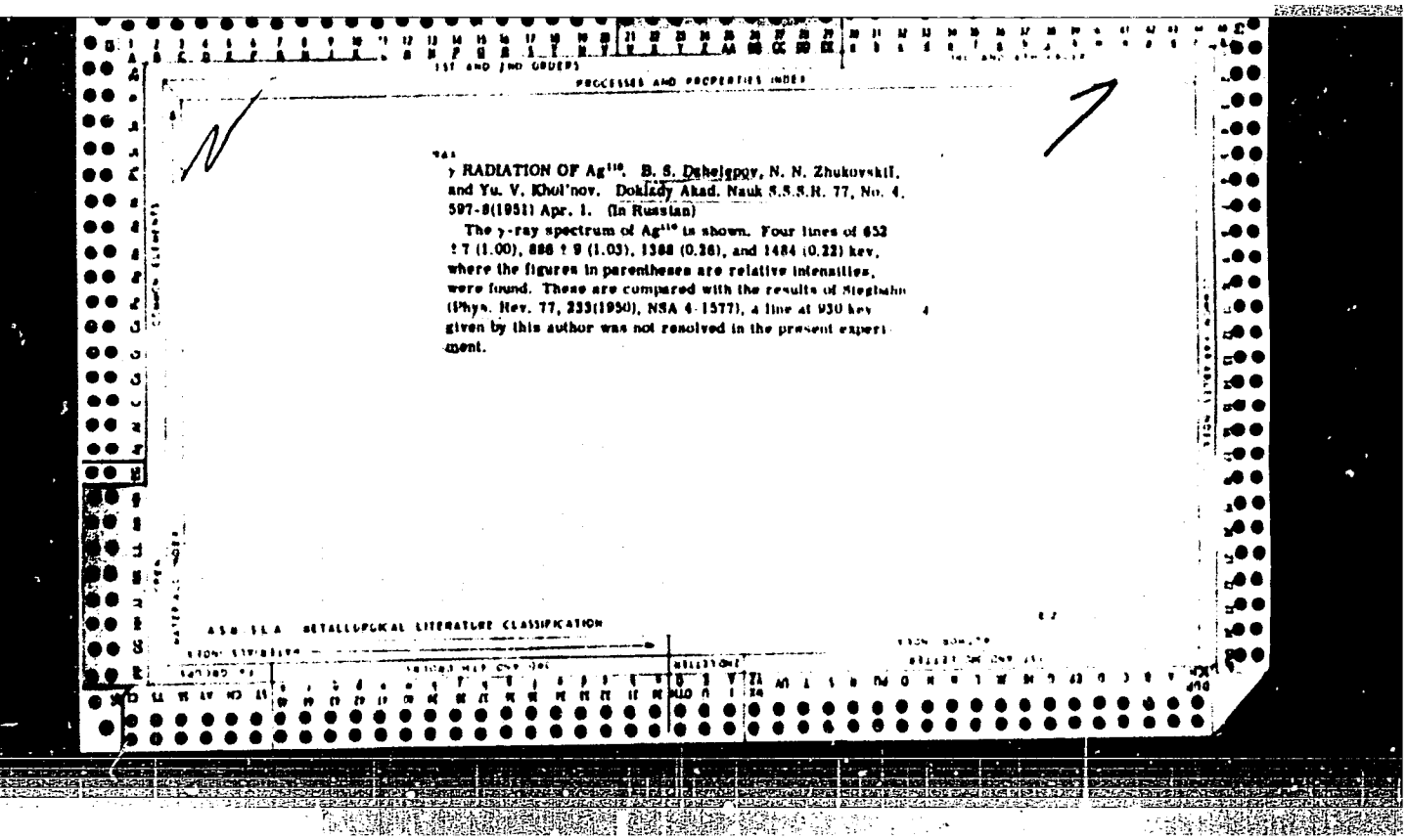


6336

ON A PRECISE FOCUSING OF RECOIL ELECTRONS

B. S. Dzhelepov. Doklady Akad. Nauk S.S.S.R. 77, 389-90 (1951). (In Russian)

It has been reported in a former note (Doklady Akad. Nauk S.S.S.R. 62, 615(1948)) that Compton electrons projected by a parallel beam of γ rays from a thin celluloid film can be used for measuring γ spectra. However, the spectral lines obtained are wide because the focusing of Compton electrons by a homogeneous magnetic field is not sharp. It is shown here geometrically that, by using a diverging γ-ray beam and a curved film, accurate focusing can be obtained.

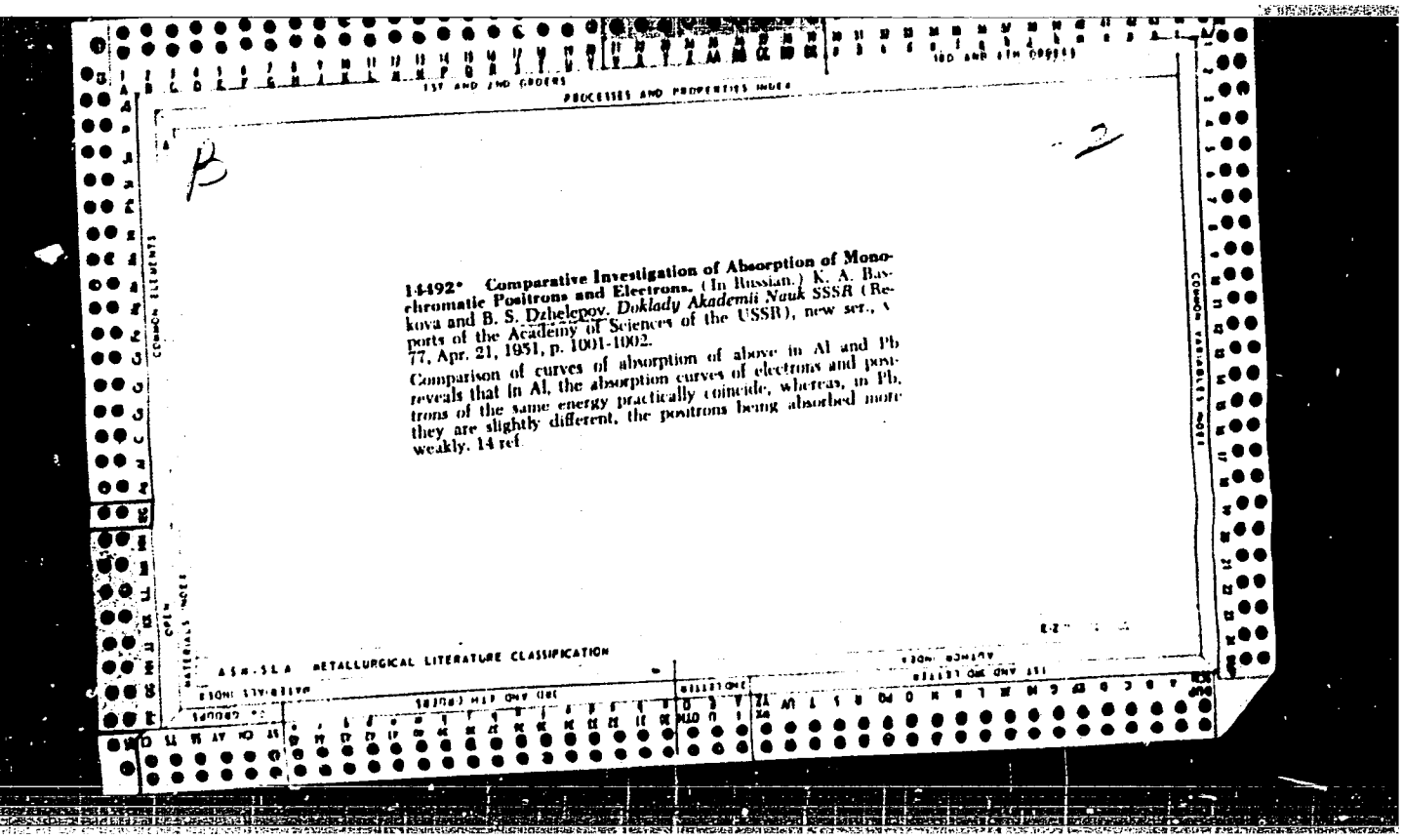


PROCESSES AND PROPERTIES INDEX

γ RADIATION OF Ag^{110}. B. S. Dzhelepov, N. N. Zhukovskii, and Yu. V. Khol'nov. Doklady Akad. Nauk S.S.S.R. 77, No. 4, 597-8(1951) Apr. 1. (In Russian)

The γ-ray spectrum of Ag^{110} is shown. Four lines of 652 ± 7 (1.00), 886 ± 9 (1.03), 1388 (0.26), and 1484 (0.22) kev, where the figures in parentheses are relative intensities, were found. These are compared with the results of Steigmann (Phys. Rev. 77, 233(1950), NSA 4-1577), a line at 930 kev given by this author was not resolved in the present experiment.

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION



14492* **Comparative Investigation of Absorption of Monochromatic Positrons and Electrons.** (In Russian.) K. A. Baskova and B. S. Dzhelepov. *Doklady Akademii Nauk SSSR* (Reports of the Academy of Sciences of the USSR), new ser., v 77, Apr. 21, 1951, p. 1001-1002.

Comparison of curves of absorption of above in Al and Pb reveals that in Al, the absorption curves of electrons and positrons of the same energy practically coincide, whereas, in Pb, they are slightly different, the positrons being absorbed more weakly. 14 ref.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

DZHELEPOV, B. S. May-Jun 52

USSR/Nuclear Physics - Beta -Spectrum of Ir

"The Beta-Spectrum of Ir^{192}," A. A. Bashilov, N. M. Anton'yeva, B. S. Dzhelepov

"Iz Ak Nauk SSSR, Ser Fiz" Vol 16, No 3, pp 264-305

The exptl data in this report was heard 14 Feb 51 in the Acad Sci USSR. Discusses the general knowledge concerning the radioactive isotope Ir^{192} ; the spectrometer used and the conditions governing the measurements; general appearence of the beta-spectrum of Ir^{192}; comparison of the results of the measurements of the beta-spectrum of Ir^{192} with the data of various authors mostly foreign; the spectrum of the electrons of internal conversion of Ir^{192} and their conversion lines and energy lines; the spectrum of electrons of conversion of gamma-rays of Ir^{192} according various authors; the gamma-radiation of Ir^{192} according to the data of various authors; [illegible] the capture of atomic electrons; the scheme describing the decay of Ir^{192}. [illegible] ledges the assistance of Ye. G. [illegible].

[illegible]

DZHELEPOV, B. S.

IA 242T96

USSR/Nuclear Physics - Nuclear Masses. Dec 52

"Masses of Light Nuclei," B. S. Dzhelepov and L. N. Zyryanova

"Uspekhi Fiz Nauk" Vol 48, No 4, pp 465-530

Reviews the exptl data published up to Mar 1952. Discusses the principles governing processing of data. Presents complete tables of nuclear masses for atomic numbers Z up to 20. 455 references appended, which are all Western.

242T96

DZHELEPOV, B.

USSR/Physics - Gamma-Spectrum of Br^{82} - 21 Jul 5

235T88

"The Gamma-Ray Spectrum of Br^{82}," B. Dzhelepov, A. Silant'yev, Radium Inst, Acad Sci USSR

"Dok Ak Nauk SSSR" Vol 85, No 3, pp 533-535

Investigates the gamma-ray spectrum of Br^{82} with the aid of the Radium Institute's gamma spectrometer ("ritron"), which was described by B. S. Dzhelepov and M. Orbeli ("Dok Ak Nauk SSSR" Vol 62, 615, 1948). Gives a table showing the energy and intensity of the gamma rays of Br^{82} in comparison with foreign results. Acknowledges assistance of

235T88

N. N. Zhukovskiy, Yu. V. Khol'nov, and K. Gromov. Submitted by Acad P. I. Lukirskiy 14 May 52.

(PA 56 no. 671:7890 '53)

235T88

DZHELEPOV, B.

USSR.

γ-Ray spectrum of Co^{58}. K. Gromov and B. Dzhelepov. *Doklady Akad. Nauk S.S.S.R.* 85, 269-30[illegible] (1952). The No. 2
was studied by means of a γ-spectrometer. The relative intensities were detd. with an accuracy of 5%. The lines 561, 566, and 600 e.kv. were not sepd. and the relative intensity was the sum of the 3 intensities. The lines 1150 and 1348 e.kv. were clearly expressed although their relative intensities were low. The exptl. data were compared with those of other investigators. J. Roytar Leach

DZHELEPOV, B.

235T98

USSR/Physics - Gamma Radiation 11 Sep 52

"Gamma Radiation of Sb^{124}," K. Gromov, B. Dzhelepov, M. Zhukovskiy, A. Silant'yev, Yu. Khol'nov

"Dok Ak Nauk SSSR" Vol 86, No 2, pp 255-258

By means of the gamma spectrometer that employs the Compton electron, the authors investigate gamma radiation of subject antimony isotope, under conditions similar to those of the investigation of gamma spectra of Co^{60} and Ag^{110} in 1951 by the authors. The source of gamma rays was activated metallic antimony in the amt of 0.7 gram. Discuss exptl

235T98

curve of current strength in an electromagnet versus number of coincidences per unit of time. Submitted by Acad P. I. Lukirskiy 2 Jul 52.

235T98

DZHELEPOV, B. S.

USSR/Nuclear Physics - Gamma Radiations 21 Sep 52

"Gamma Radiation of Fe59," B. S. Dzhelepov, M. N. Zhukovskiy, Yu. V. Kholnov, Radium Inst im Khlopin, Acad Sci USSR

DAN USSR, Vol 86, No 3, pp 497-499

Gamma radiation of Fe59 was investigated by means of gamma spectrometer using recoil electrons. Operating conditions were similar to those used in previous works by authors (DAN 77, 233 and 597 (1951); DAN 83, 3 (1952). Results of expts showed that a target of cellophane 200 thick may be used for 1-Mev rays, because the scattering of electrons distorts little the shape of spectrum lines and does not affect their intensity. Presented by Acad P. I. Lukirskiy 2 Jul 52

PA 247T100

USSR.

539.152.1

3742. About similar status of isobaric nuclei. B. S. DZHELEPOV. *Dokl. Akad. Nauk SSSR*, 87, No. 3, [illegible] (1952) *In Russian.*

Energy levels of mirror nuclei are discussed, and it is shown that if the final neutron of the one mirror nucleus and the final proton of the other do not enter into the inner structure, then the energy levels of the latter nucleus are similar in spacing to those of the former, but are displaced by the additional Coulomb energy. The more complicated situation arising when one or both of the final nucleons enter into the inner structure is also discussed. G. E. BROWN

DZHELEPOV, B. S.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

Name	Title of Work	Nominated by
Dzhelepov, B. S.	Research on the beta and gamma spectra of radioactive substances (series of articles)	Radium Institute, Academy of Sciences USSR

SO: W-30604, 7 July 1954

DZHELEPOV, B. S.

USSR/Nuclear Physics - Nuclei, Jul/Aug 53
Isobaric,
Review of

"Similar States of Isobaric Nuclei," B. S. Dzhelepov, Phys Inst, Leningrad State U im Zhdanov

Iz Ak Nauk, Ser Fiz, Vol 17, No 4, pp 391-410

Attempts to establish laws of energy at specified conditions in coupling of ground and excited states of isobaric nuclei. Reviews briefly his theory of mirror nuclei (DAN 62, 51 (1951); ZhETF 19 (1949); Izv AN, Ser Fiz 15 (1951)).

272T43

Discusses theory of similar-state nuclei and concludes that their parity and mechanical moments and their isotopic spins are identical. One hundred references, mostly American, appended. Rec 4 Jul 53.

DZHELEPOV, B. S.

USSR/Nuclear Physics - Conversion Spectrum, RaD Jul/Aug 53

"Conversion Spectrum of RaD," A. A. Bashilov, B. S. Dzhelepov and L. S. Chervinskaya, Phys Inst Leningrad State U im Zhdanov

Iz Ak Nauk, Ser Fiz, Vol 17, No 4, pp 428-435

Attempt to find experimentally more accurate relative intensities of conversional transition lines at 47.7 keV, to define coeff of conversion and the multipolarity of this transition. The number of conversion electrons was found to be 58 ± 3 and the transition ΔE = 46.7 keV

272T45

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was found to have a magnetic dipole. Indebted to N. M. Anton'yeva and G. A. Kazina. Rec 20 Jun 53. Thirty, mostly foreign, references appended.

DZHELEPOV, B. S. Jul/Aug 53

USSR/Nuclear Physics - Hf Isotopes

"Emission of Hf175 and Hf 181," A. A. Bashilov, N. M. Anton'yeva, B. S. Dzhelepov and A. I. Dolgintseva, Phys Inst, Leningrad State Univ im Zhdanov

Iz Ak Nauk, Ser Fiz, Vol 17, No 4, pp 437 -467

Briefly review present knowledge of subject which they consider incomplete. Study emission of radioactive Hf175 and Hf181 irradiated by slow neutrons, and describe the schemes of decay of Hf175 and Hf181. Forty-three, references, mostly foreign. Rec 27 Jun 53.

272146

DZHELEPOV, B. S.

Chemical Abstracts
Vol. 48 No. 5
Mar. 10, 1954
Nuclear Phenomena

(5) 8 1

Radiation of zinc[65]. A. A. Bashilov, N. M. Antonieva, B. L. Brodskiĭ, and B. S. Dzhelepov (A. A. Zhdanov State Univ., Leningrad). *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 17, 258–80(1953).—The upper limit of the β^+-spectrum is 325 ± 2 e.kv. The energy of γ-rays corresponding to the conversion of Zn^{65} with a K-electron to Cu^{65} is 1122 ± 5 e.kv.; $e/\beta^+ = (5.5 \pm 0.5) \times 10^{-3}$ (e = the no. of conversion electrons). The ratio β^+/γ was established with the help of the photoeffect, a piece of Zn wire, activated by slow neutrons and enclosed in Pb foil being used as a photoelectron source; $\beta^+/\gamma = (3.0 \pm 0.2) \times 10^{-2}$. $\alpha_K \leq 0.9\,\alpha_{K+L}$; $\alpha_K] = (1.5 \pm 0.2) \times 10^{-4}$ which corresponds to a $M1$ transition type. The β^+-decay of Zn^{65} leads to the ground state of Cu^{65}. The γ line is emitted when Zn^{65} is transformed into an excited state 1123 e.kv. of Cu^{65}, ft for the transition to the ground state = 3.2×10^7; for the K-electron capture = 2.5×10^7. The ground state of Cu^{65} is $p_{3/2}$, the excited state −5/2. Ni^{65} can have transitions to the 1122-e.kv. level of Cu^{65} and to a 2nd higher level, 1490 e.kv ($f_7/_2$). Several facts still remain contradictory. S. P.

8-19-54 RMZ

DZHELEPOV, B. S.

USSR/Nuclear Physics - Radioactive Rel86 Jul/Aug 53

"Beta Spectrum of Rel86," N. M. Anton'yeva, A. A. Bashilov, B. S. Dzhelepov and L. S. Chervinskaya, Phys Inst, Leningrad State U im Zhdanov

Iz Ak Nauk, Ser Fiz, Vol 17, No 4, pp 507-510

Studied emission of Rel86 seven days after irradiation and elimination of Rel88. Rel86 transmites into Osl86 by beta-decay and into Wl86 by electron capture, releasing in both cases gamma rays. Half life of Rel86 was found to be 93 hours. Rec 16 July 53.

272T50

DZHELEPOV, B. S.

USSR/Nuclear Physics - Cu, Gamma Emission Jul/Aug 53

"Gamma Emission of Cu^{64}," B. S. Dzhelepov, N. N. Zhukovskiy, V. P. Prikhodtseva and Yu. V. Kholnov, Radio Inst, Acad Sci USSR

Iz Ak Nauk, Ser Fiz, Vol 17, No 4, pp 511-517

Studied in the gamma-spectrum of Cu^{64} the line $h\nu$ = 1.34 MeV, also observed by F. Kurie and M. Ter-Pogossian (Phys Rev 74,677 (1948)). Worked with gamma spectrometer, using recoil electrons. Obtained the same results as previously (DAN 86, 497 (1952)). Indebted to A. V. Kudryavtseva, L. N. Zyryanova and V. Chumin. 272T51

Rec 9 Jul 53.

DZHELEPOV, B. S.

USSR/Nuclear Physics - Gamma-Spectrometer Jul/Aug 53

"Gamma Spectrometer With Improved Focusing," B. S. Dzhelepov, N. N. Zhukovskiy, A. S. Karamyan and S. A. Shestopalova, All-Union Sci-Res Inst of Metrology; Radium Inst, Acad Sci USSR

Iz Ak Nauk, Ser Fiz, Vol 17, No 4, pp 518-520

Attempt to improve resolution of gamma spectroscope described previously by Dzhelepov et al. (DAN 62, 613 (1948); 77, 233 (1951)). Because this spectroscope is based on recoil electrons, author named it "elotron." Indebted to V. Chumin and S. Rusinova. Rec 16 Jul 53.

272T52

USSR/ Nuclear Physics

Card 1/1 Pub. 43 - 2/11

Authors : Bashilov, A. A.; Antonyeva, N. M.; Blinov, M. V.; and Dzhelepov, B. S.

Title : Cs^{134} radiation

Periodical : Izv. AN SSSR. ser. fiz. 18/1, 43-64, Jan-Feb 1954

Abstract : The β-spectrum and the spectra of conversion electrons and photoelectrons obtained from gamma-rays of a long-life Cs^{134} isomer were investigated. The measurements were carried out on several sources of different origin and having different surface densities. The general form of the Cs^{134} beta-spectrum obtained with a source having an average surface density is shown in one of the tables. The spectrum of conversion electrons was observed to consist of 14 lines corresponding to eight gamma-conversions. Data regarding the conversion intensities and interpretations of these data are given. In order to determine the relative intensities of gamma-lines the authors investigated the radiation of Cs^{134} by observing the photoelectrons expelled from the target. Twenty-nine references: 8-USSR; 21-USA (1934-1952). Tables; graphs.

Institution : The A. A. Zhdanov State University, Physics Institute, Leningrad

Submitted : November 30, 1953

USSR/ Nuclear Physics

Card 1/1 Pub. 43 - 4/11

Authors : Dzhelepov, B. S.; Novosil'tseva, N. D.; and Tishkin, P. A.

Title : Formation of Re^{188} during the bombardment of W with slow neutrons

Periodical : Izv. AN SSSR. ser. fiz. 18/1, 76-78, Jan-Feb 1954

Abstract : Experiments prove that the entrapment of neutrons by Re, which is found among the substances usually attached to W, results in the formation of Re^{188} with a spectrum limit of 2 mev and a very small life period of 16.9 hr. One of the stable tungsten isotopes (W^{188}) is considered to be the basic source for the formation of Re^{188}. The beta-spectrum of the W^{185} plus W^{188} plus Re^{188} compound derived after repeated extraction of Re from W was measured and the results obtained are given in graphs. The decomposition period for Re^{188} was established. Three references: 2-USSR and 1-USA (1946-1951). Graphs.

Institution : The A. A. Zhdanov State University, Physics Institute, Leningrad

Submitted : January 5, 1954

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000411910001-4"

USSR/ Nuclear Physics - Radioactive decomposition

Card 1/1 Pub. 43 - 6/11

Authors : Bashilov, A. A.; Dzhelepov, B. S.; and Chervinskaya, L. S.

Title : Radioactive decomposition of La^{140}

Periodical : Izv. AN SSSR. ser. fiz. 18/1, 88-92, Jan-Feb 1954

Abstract : The radioactive decomposition of the La140 isotope was investigated by means of a ketron-spectrometer having a non-uniform magnetic field and improved focus. Electron registration was carried out on a counter the window of which was covered with a collodion layer with a surface density of $\sim$0.25 mg cm-2. The semi-decomposition period for La140 was established and the experimental results obtained are tabulated. Eighteen references: 16-USA; 1-USSR and 1-German (1935-1951). Tables; graphs.

Institution : The A. A. Zhdanov State University, Physics Institute, Leningrad

Submitted : November 30, 1953

USSR/ Nuclear Physics - Spectral analysis

Card 1/1 Pub. 43 - 7/11

Authors : Antonyeva, N. M.; Bashilov, A. A.; Dzhelepov, B. S.; and Orlov, V. I.

Title : The beta-spectrum of P^{32}

Periodical : Izv. AN SSSR. ser. fiz. 18/1, 93-94, Jan-Feb 1954

Abstract : The form of the beta-spectrum of the radioactive P^{32} isotope, obtained according to the reaction P^{31} (n,gamma) P^{32}, was investigated by means of a magnetic ketron-spectroscope of high resolving power and by means of a conventional spectrometer with semi-circular focus in a homogeneous magnetic field with resolving power of 1.5%. The results regarding the form of the beta-spectrum are presented by a Curie curve. Data on the semi-decomposition period of the investigated radioactive phosphorous isotope are included. Ten references: 2-USSR and 8-USA (1946-1952). Table; graph.

Institution : The A. A. Zhdanov State University, Physics Institute, Leningrad

Submitted : November 30, 1953

USSR/ Nuclear Physics - Spectroscopy

Card 1/1 Pub. 43 - 8/11

Authors : Dzhelepov, B. S.

Title : The role of repeated electron diffusion in different gamma-spectroscopy methods

Periodical : Izv. AN SSSR. ser. fiz. 18/1, 95-126, Jan-Feb 1954

Abstract : The method employed in calculating the angular electron distribution distortions, due to repeated electron diffusions, is described. The effect of repeated electron diffusion was evaluated on the basis of the F. Williams theory. The ideas of the theory are explained. The role of repeated electron diffusion in various gamma-spectroscopy methods is discussed. A special instance is cited where the electrons diffuse in the very same target in which they originated. A method for the calculation of photoelectron diffusion is briefly described. Seven references: 5-USSR and 2-English (1939-1948). Tables; graphs; drawings.

Institution : Academy of Sciences USSR, Radium Institute

Submitted : December 15, 1953

DZHELEPOV, B.S.

USSR/Nuclear Physics

Card 1/2 Pub. 43 - 1/5

Authors : Dzhelepov, B. S.

Title : Isobaric spins and similar states of atomic nuclei

Periodical : Izv. AN SSSR. Ser. fiz. 18/5, 523 - 562, Sep - Oct 1954

Abstract : Scientific data are presented regarding the isobaric spins of three known types of π-mesons (π^+, π^0, π^-). All these particles have almost identical mass and their spin is apparently equal to 0. It was established that all π-mesons (pseudo-scalar particles) have uneven wave functions. No contradicting factors were found to show that all three π-mesons do not represent three different charges states of one and the same particle. all these mesons strongly react with nuclei and this reaction at sufficiently high energies is of no electromagnetic nature. The probability of forming π-mesons by stable gamma-quanta or fast nucleons was established for all three particles.

Institution: .....

Submitted: September 30, 1954

Periodical: Izv. AN SSSR. Ser. fiz. 18/5, 523 - 562, Sep - Oct 1954

Card 2/2 Pub. 43 - 1/5

Abstract: The specific meson reaction forces of all three π -mesons with any nuclon or nucleus are considered identical. One-hundred references: 11 USSR; 81 USA; 1 Canadian; 2 German; 3 Swiss and 2 English (1932-1954). Tables; graphs; diagrams; drawings.

DZHELEPOV, B.S.

USSR/ Physics - Instruments

Card 1/ Pub. 43 - 5/5

Authors : Dzhelepov, B. S.; Zhukovskiy, N. N.; and Khol'nov, Yu. V.

Title : Ritron - gamma-spectrometer utilizing output electrons

Periodical : Izv. AN SSSR. Ser. fiz. 18/5, 599 - 624, Sep - Oct 1954

Abstract : The Ritron-magnetic gamma-spectrometer described in this report can be used for the study of gamma-spectra of radioactive substances with energies of from 300 - 4000 kev. With respect to resolving power the instrument was found to be inferior to the gamma-spectrometer with improved focus "Elotron", however, it has a certain advantage over the former, namely, it utilizes only uniform magnetic fields which makes it possible to calculate the form of the spectral line, spectral sensitivity, luminosity and other properties of the instrument. Some results obtained by the application of the Ritron-spectrometer are listed. Twenty-seven references: 15 USSR; 1 Canadian; 1 English; 1 Dutch and 9 USA (1927 - 1954). Tables; diagrams; drawings.

Institution: Academy of Sciences USSR, Radium Institute

Submitted: October 4, 1954

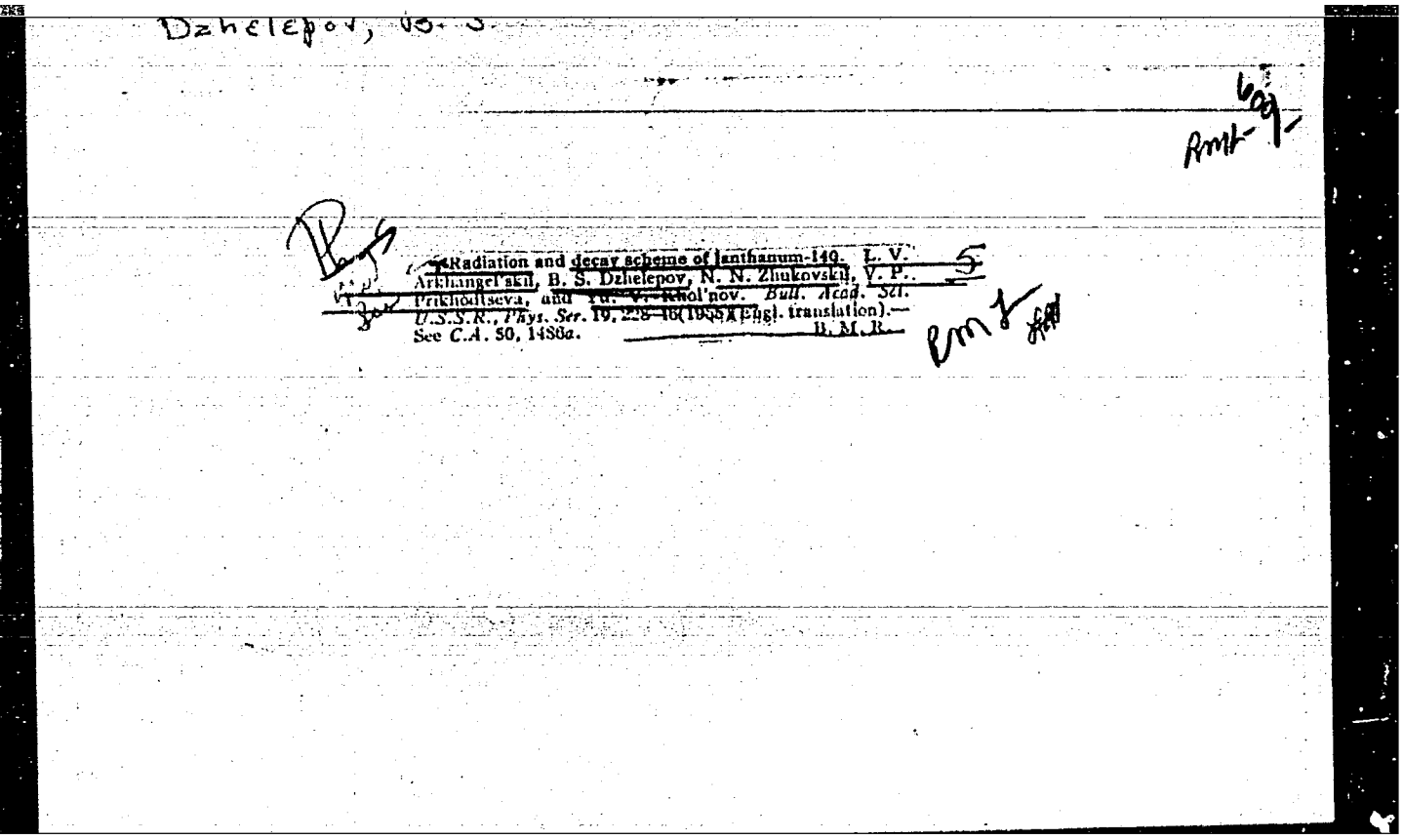
IOFFE, A.F.; LEBEDEV, A.A.; FOK, V.A.; STARIK, I.Ye.; KONSTANTINOV, B.P.; DZHELEPOV, B.S.; PERFILOV, N.A.; DOBRETSOV, L.N.; STARODUBTSEV, A.V; NEMILOV, Yu.A.; ZHDANOV, A.P.; MURIN, A.N.; AGLINTSEV, K.K.; TSAKE-VA, T.V.; SHUL'MAN, A.R.; YEREMEYEV, M.A.

P.I.Lukirskii; obituary. Vest.AN SSSR 24 no.12:62 D '54.(MLRA 8:1)
(Lukirskii, Petr Ivanovich, 1894-1954)

DZHELEPOV, B.S.

3

12141 AEC-tr-3033
MEASUREMENT OF THE HALF-LIVES OF RADIOACTIVE ISOTOPES BY THE DIFFERENTIAL CHAMBER METHOD.
B. S. Dzhelepov and O. E. Kraft. Translated from Vestnik Leningrad. Univ. No. 8, 97-111(1955). 23p.

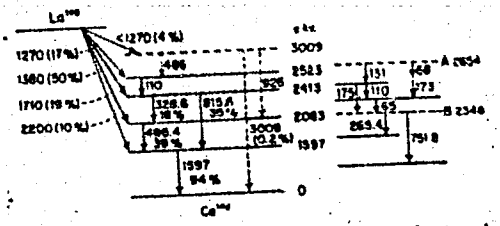


Dzhelepov, B. S.

Radiation and decay scheme of lanthanum-140. L. V. Arkhangel'skii, B. S. Dzhelepov, N. N. Zhukovskii, V. P. Prikhodtseva, and Yu. V. Rhol'nov. *Bull. Acad. Sci. U.S.S.R., Phys. Ser.* 19, 228–36 (1955) (Engl. translation).—See *C.A.* 50, 1488a. B. M. R.

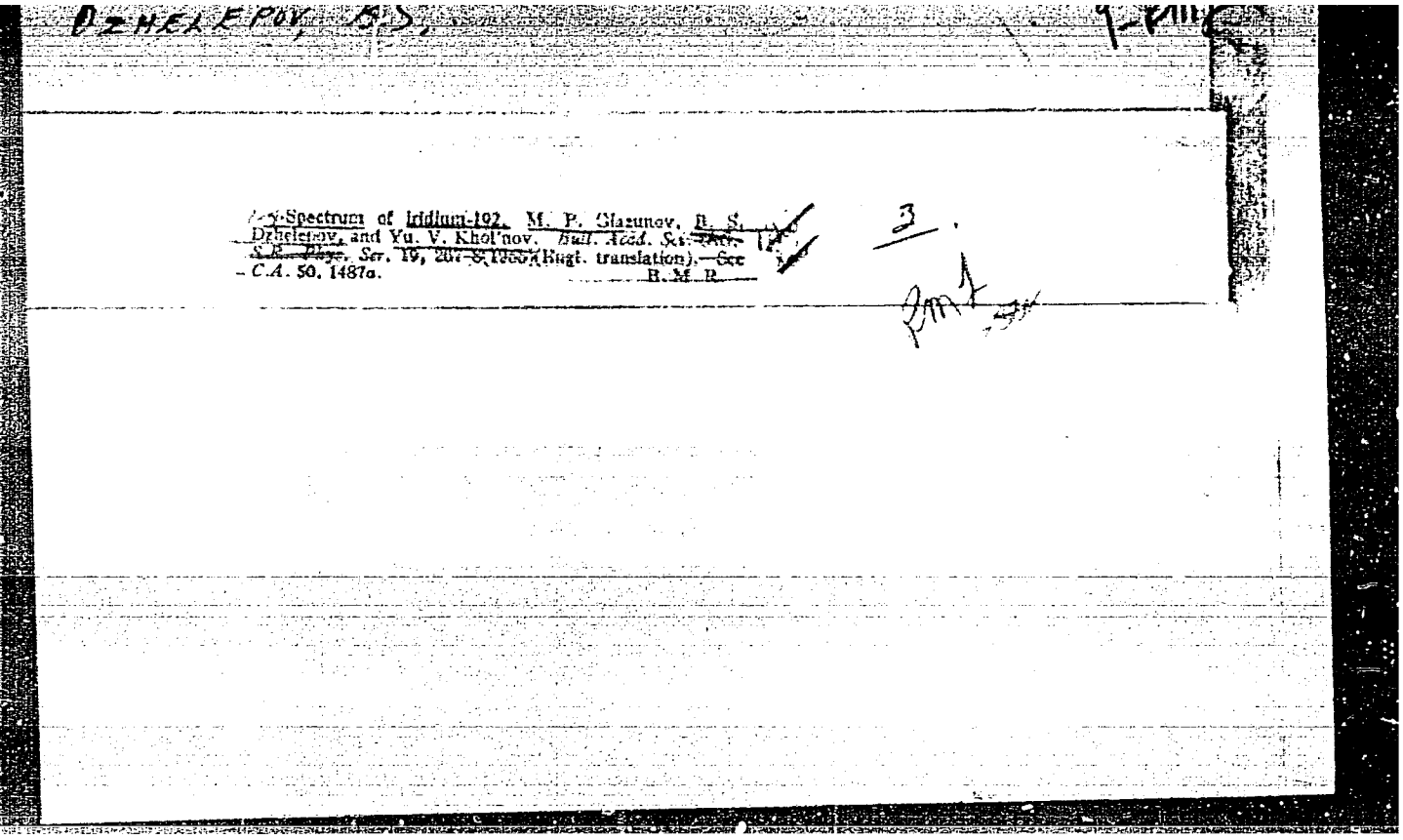
Dzhelepov, B.S.

γ-Radiation and decay scheme of lanthanum-140. V. V. Arkhangel'skii, B. S. Dzhelepov, N. N. Zhukovskii, V. P. Prikhodtseva, and Yu. V. Khol'nov. *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 19, 251-70(1955).—The γ-ray spectrum of La_2O_3 irradiated by neutrons was investigated with a ritron γ-spectrometer (cf. *C.A.* 49, 8143c). The energy and the relative intensities are 335 (0.19), 482 (0.41), 822 (0.37), 918 (0.12), 1597 (1.00), 2535 (0.068), >2700 e.kv. (<0.002). The half-life of decay is 40 hrs. From all data a decay scheme is derived.



The conversion coeffs. and the abs. intensities of γ-transitions are calcd. The properties and the decay of the radioactive isobars Xe^{140}, Cs^{140}, Ba^{140}, Pr^{140}, and Nd^{140} are discussed. A diagram is drawn on a unitary energetic scale of the levels and transitions in these atoms. The particularly dense packing of Ce^{140} is attributed to the presence of a completed 82 neutron shell (magic no.). S. Pakuzer

(4)



DZHELEPOV, B.S.

γ-Spectrum of Iridium-192. M. P. Glazunov, B. S. Dzhelepov, and Yu. V. Khol'nov. *Bull. Acad. Sci. USSR, Phys. Ser.* 19, 201-3 (1955) (Engl. translation).—See *C.A.* 50, 1487a.

B.M.B.

3

DZHELEPOV B. S.

1-1642

467

GAMMA RADIATION FROM Au^{198}. B. S. Dzhelepov, N. N. Zhukovskiĭ, V. P. Prikhodtseva and Yu. V. Khol'nov. (Khlopin Radium Inst.). Izvest. Akad. Nauk S.S.S.R. Ser. Fiz. 19, 271-6(1965) May-June. (In Russian)

Investigation concerning γ radiation of Au^{198} based on two new γ lines of 676 and 1089 Ke and associated β−γ and γ−γ coincidences. Systematic and detailed description of the Au^{198} decay scheme is given. 31 references. (R.V.J.)

(3)

Dzhelepov, B.S.

γ-Spectrum of Iridium-194. M. P. Glazunov, B. S. Dzhelepov, and Yu. V. Khol'nov. Izvest. Akad. Nauk S.S.S.R., Ser. Fiz. 19, 294-6(1955).—The following measurements with a ritron spectrometer of the energy and intensity of γ-lines are reported: 314 (9.09), 466 (4.58), (6.14) (1.74) 788? (<0.002), 898 (0.037), 1063 e.kv. (0.0098). S. Pakswer

(2)

Dzhelepov, B.S.

γ-Radiation of europium-152,154. B.S. Dzhelepov, N. N. Zhukovskii, and V. G. Nedovesov. Izvest. Akad. Nauk U.S.S.R. Ser. Fiz. 19, 296–9(1955).--The γ-lines were measured on γ-spectrometers by using Compton electrons and ritron. The relative intensities of the lines 341, 427, 593, 717, 779, 871, 958, 1106, 1281, and 1409 e.kv. obtained by both methods are tabulated. S. Paksweer

(2)

DZHELEPOV, B. S.

USSR/ Physics

Card 1/1 Pub. 22 - 11/51

Authors : Dzhelepov, B., Member Correspondent of the Acad. of Sc., USSR

Title : About the natural width of the spectral lines of recoiled electrons

Periodical : Dok. AN SSSR 101/5, 825-828, Apr. 11, 1955

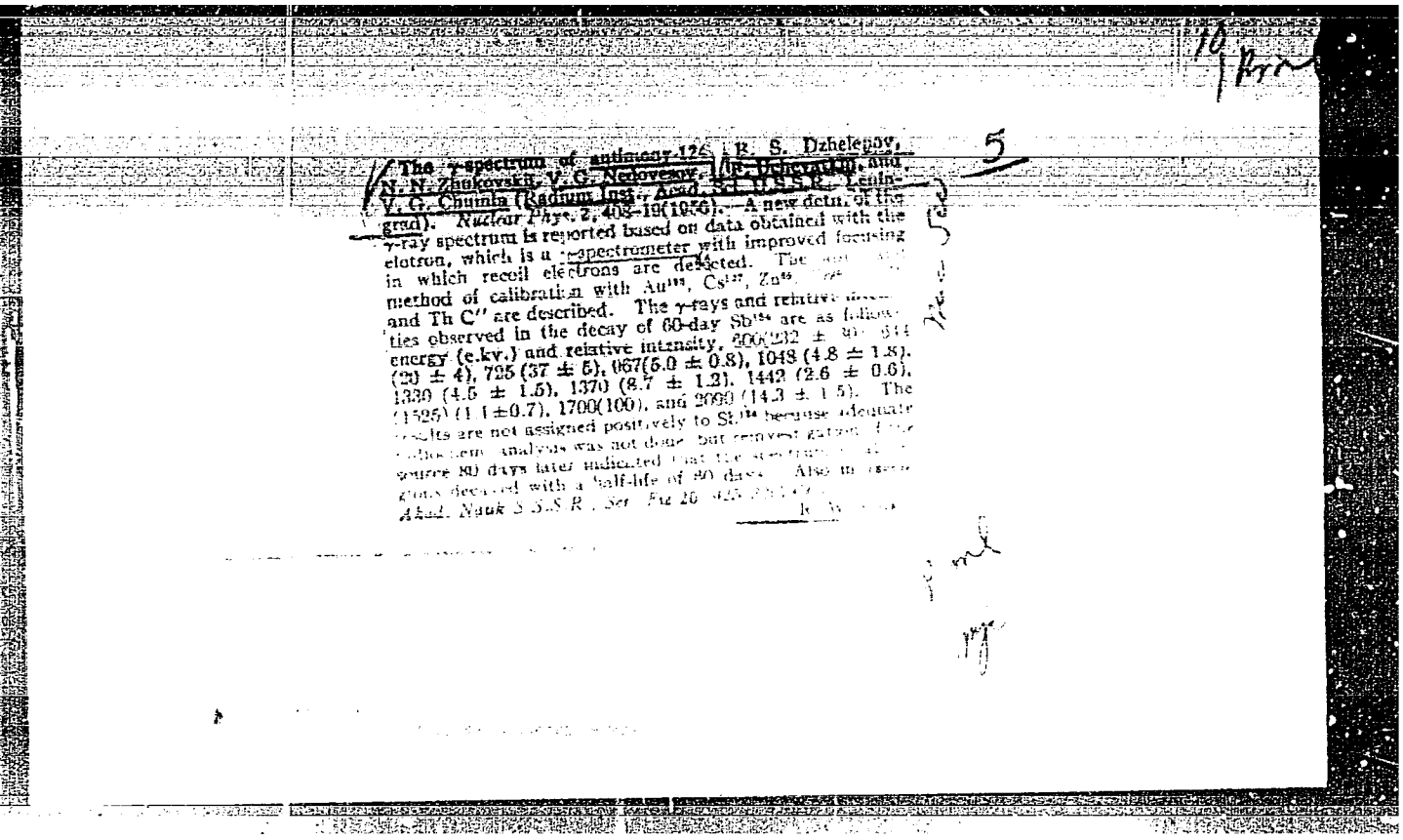
Abstract : Experiments, conducted to determine the causes of the discrepancies between the calculated and observed widths of the spectral lines of recoiled electrons, are described. The experiments were conducted with the assumption that the spectrum line of an electron must have its own natural width which does not mainly depend on the comparatively small bond energy, but on the speed of atomic electrons which, e.g., for a K-electron of nitrogen atom is $V=117\times10^6$ cm/sc ($V=\beta_0 c$, where $\beta_0=0.039$ and c is the speed of light). Disregarding the natural width of the spectral line of a recoiled electron is considered the main cause of the mentioned discrepancies. Eight references: 4 USSR, 2 German and 2 USA (1942-1954). Diagrams; graph.

Institution : Acad. of Sc., USSR, Institute of Radiations

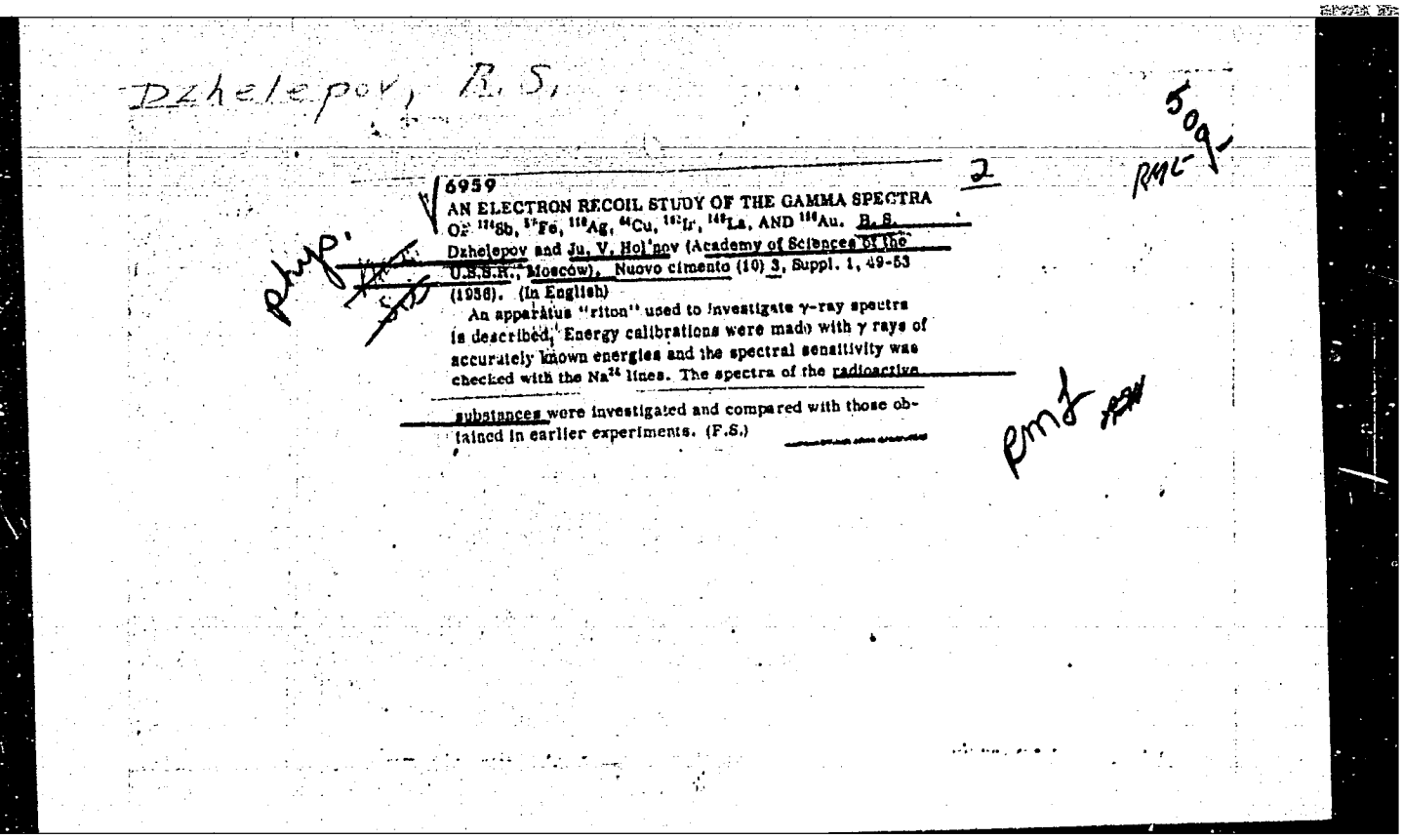
Submitted : December 6, 1954

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

[Influence of the electric fiel 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)



The γ-spectrum of antimony-126 | B. S. Dzhelepov, N. N. Zhukovskiĭ, V. G. Nedovesov, [illegible] Dzhelepov, and V. G. Chumbu (Radium Inst. Acad. Sci. U.S.S.R., Leningrad). *Nuclear Phys.* 2, 403–19(1956).—A new detn. of the γ-ray spectrum is reported based on data obtained with the elotron, which is a β-spectrometer with improved focusing in which recoil electrons are detected. The [illegible] method of calibration with Au^{198}, Cs^{137}, Zn^{65} [illegible] and Th C″ are described. The γ-rays and relative [illegible] ties observed in the decay of 60-day Sb^{126} are as follows: energy (e.kv.) and relative intensity, 400(232 ± 30), 614 (20) ± 4), 725 (37 ± 5), 067(5.0 ± 0.8), 1048 (4.8 ± 1.8), 1330 (4.5 ± 1.5), 1370 (8.7 ± 1.2), 1442 (2.6 ± 0.6), (1525) (1.1 ±0.7), 1700(100), and 2090 (14.3 ± 1.5). The results are not assigned positively to Sb^{126} because adequate [illegible] analysis was not done, but removal [illegible] source 80 days later indicated that the [illegible] decayed with a half-life of 80 days. Also in [illegible] *Akad. Nauk S.S.S.R., Ser. Fiz.* 20, 425 [illegible]



Dzhelepov, B. S.

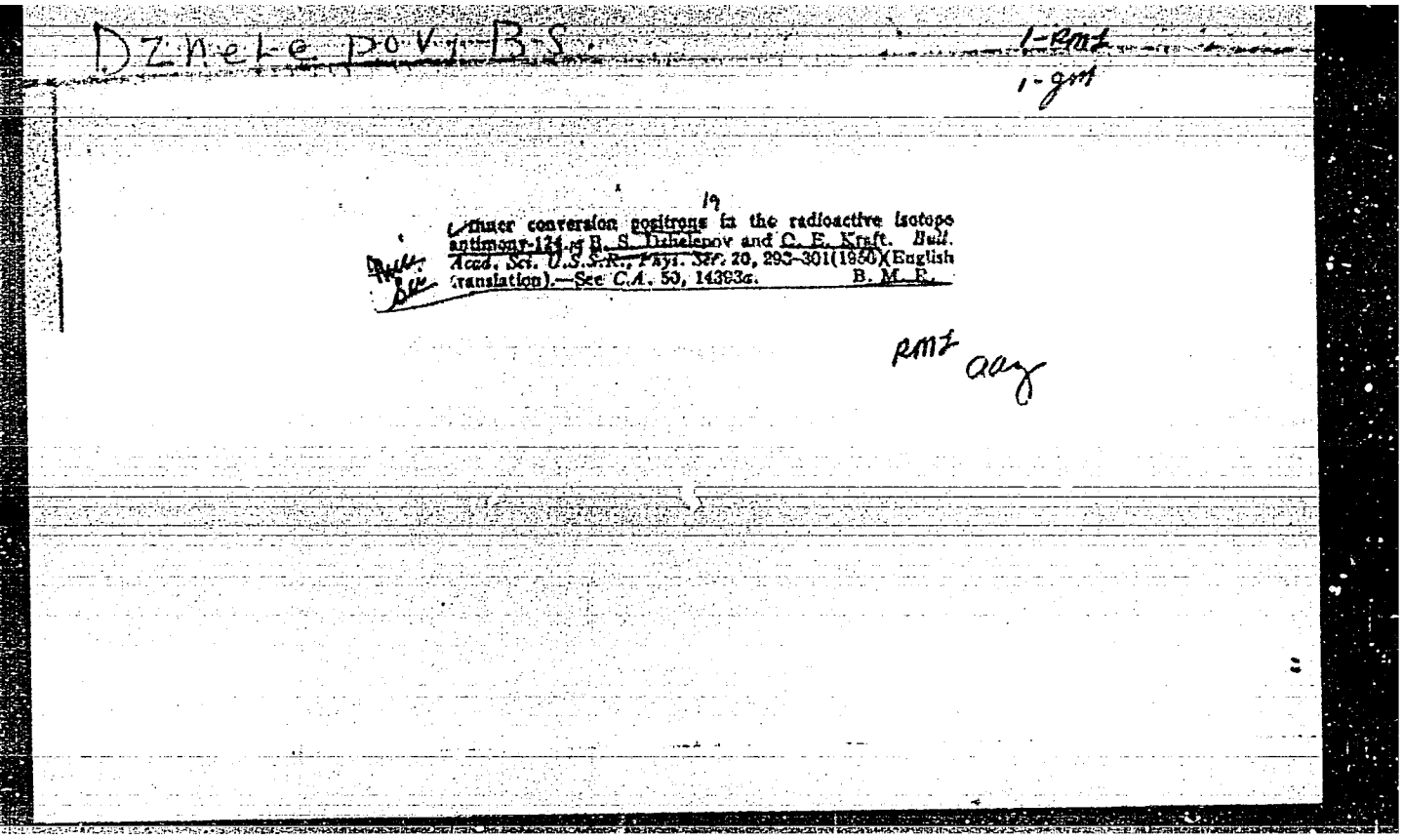
6959
AN ELECTRON RECOIL STUDY OF THE GAMMA SPECTRA OF ^{124}Sb, ^{59}Fe, ^{110}Ag, ^{64}Cu, ^{192}Ir, ^{140}La, AND ^{198}Au. B. S. Dzhelepov and Ju. V. Hol'nov (Academy of Sciences of the U.S.S.R., Moscow). Nuovo cimento (10) 3, Suppl. 1, 49-53 (1956). (In English)

An apparatus "riton" used to investigate γ-ray spectra is described. Energy calibrations were made with γ rays of accurately known energies and the spectral sensitivity was checked with the Na^{24} lines. The spectra of the radioactive substances were investigated and compared with those obtained in earlier experiments. (F.S.)

Dzhelepov, B. S.

V 4940
THE RaC γ-RAY SPECTRUM. B. S. Dzhelepov and S. A. Sestopalova (Academy of Sciences of the U.S.S.R., Moscow). Nuovo cimento (10) 3, Suppl. No. 1, 54-60(1956). (In English)

The modifications made to the gamma spectrometer (ritron) to reduce the halfwidth of the lines and to permit the separation of the spectrum into its components are described. The modified instrument is called an elotron. The experimental curve obtained for the RaC γ spectrum and the correction made are discussed. (See Nuovo cimento (10) 3, Suppl. No. 1, 49-53(1956).) (F.S.)



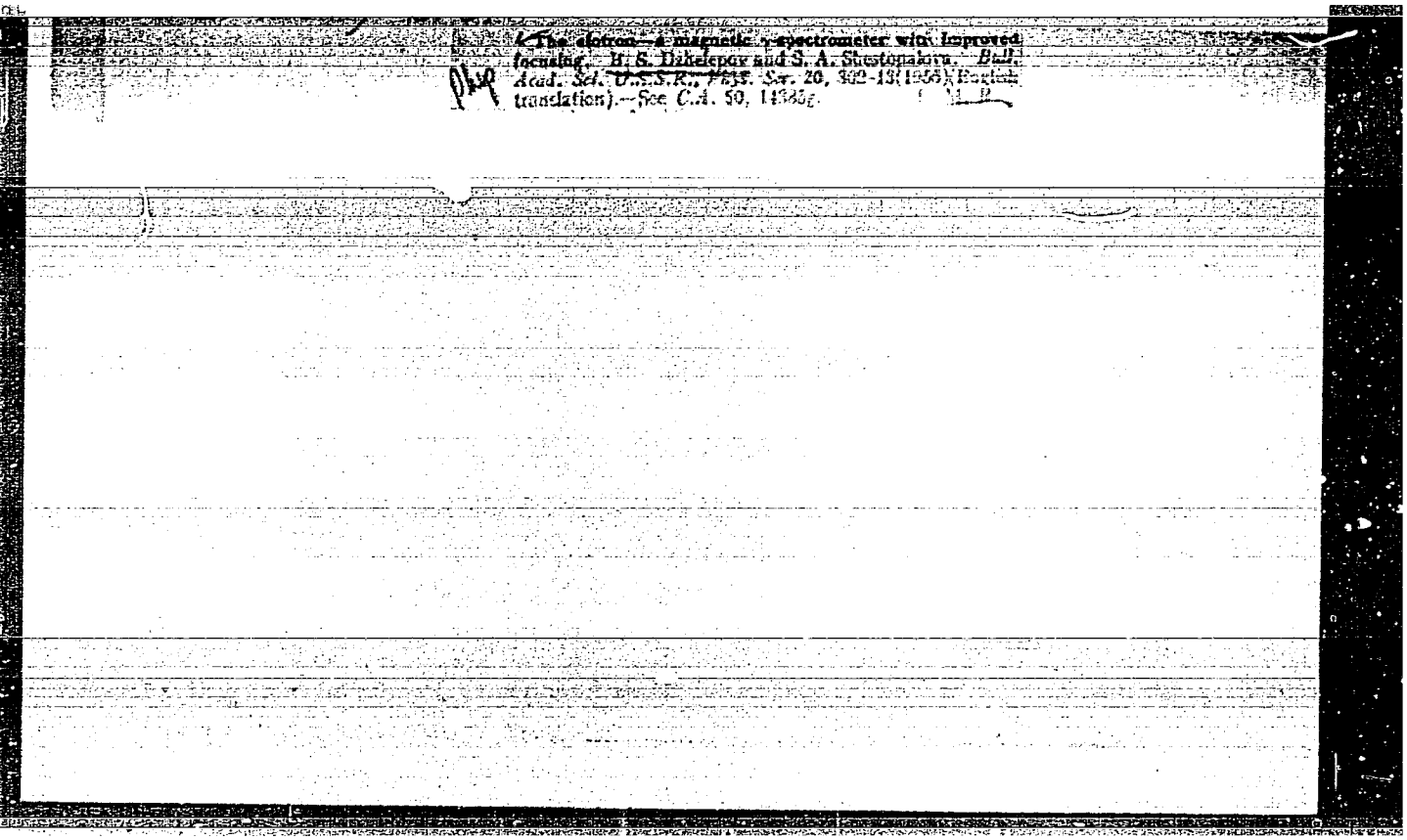
Dzhelepov, B. S.

1-RMI
1-gm

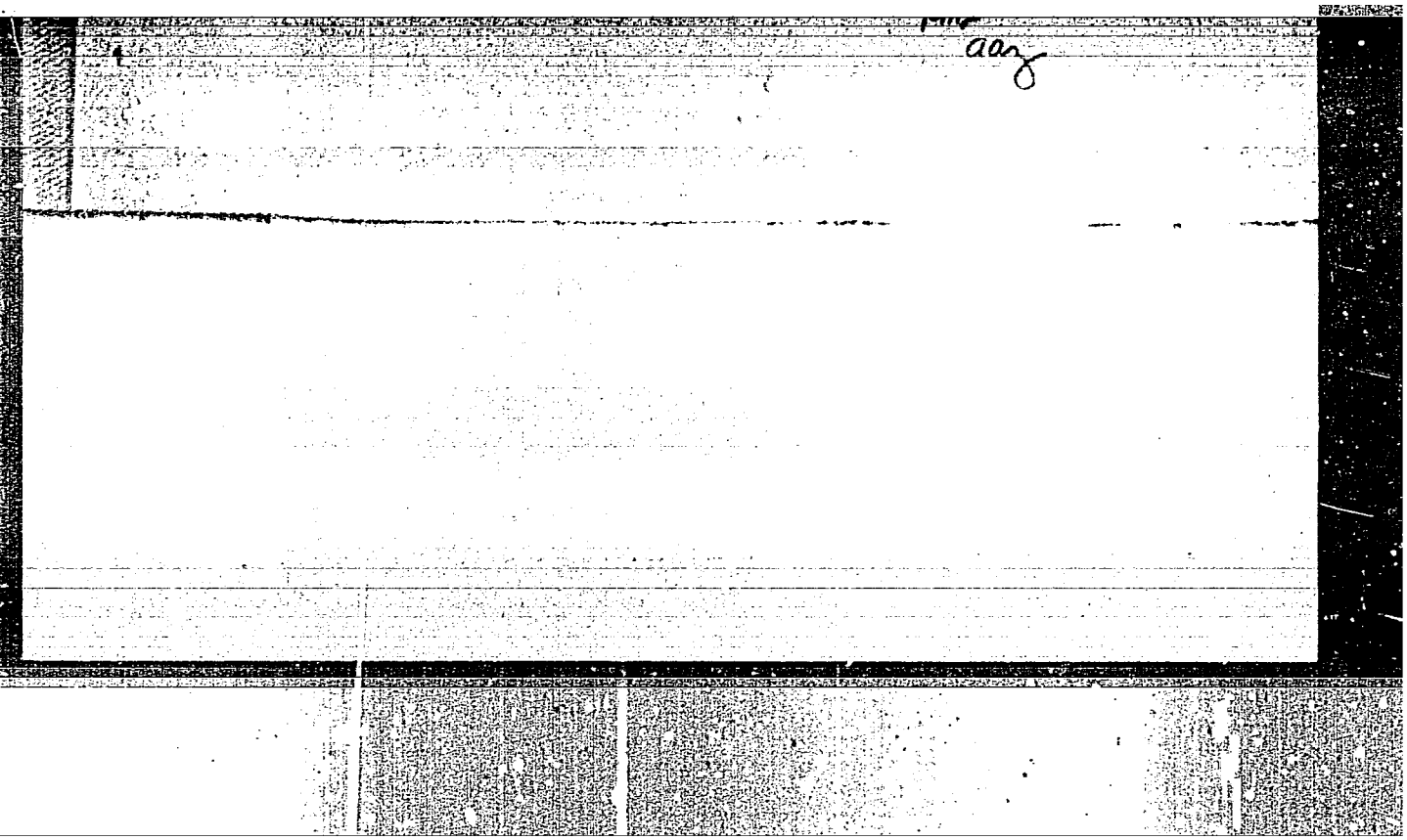
19

Quantum conversion positrons in the radioactive isotope antimony-124 of B. S. Dzhelepov and G. E. Kraft. *Bull. Acad. Sci. U.S.S.R., Phys. Ser.* 20, 293-301(1956)(English translation).—See *C.A.* 50, 14393a. B. M. E.

RMI aay



The electron—a magnetic γ-spectrometer with improved focusing. B. S. Dzhelepov and S. A. Shestopalova. *Bull. Acad. Sci. U.S.S.R., Phys. Ser.* 20, 322-19(1956)(English translation).—See *C.A.* 50, 14345g.



10450

POSITRONS OF INTERNAL CONVERSION IN RADIOACTIVE ISOTOPE Sb^{124}. B. S. Dzhelepov and O. E. Kraft (Zhdanov Leningrad State Univ.). Izvest. Akad. Nauk S.S.S.R. Ser. Fiz. 20, 318-27(1956) Mar. (In Russian)

An improved β spectrometer with triple-beam focusing was designed for the investigation of β-radiation weak components of particular type on the background of intensive radiation of particles of different type. In the new spectrometer the counters were placed in a chamber separated from the apparatus by 8 to 10μ thick cellophane layers. 5×10^{-2} mm Hg vacuum was created in the apparatus. Correct shapes of electron spectra were obtained only at high energies (>600 kev). The shape distortions were due to the electron scattering on the layer of the first counter. During the experiments with Sb^{124} the distortions did not exceed 5% in the energy range of 600 kev. Measurements of the counting rate of coincidences in "electron" and "positron" fields were made with P^{32} as source. It has been observed that with small "positron" fields the number of coincidences is reduced with the increase of the field. Calculations of impulses registered by first and second counters and the resolving time of the amplifier ($\tau = 8 \times 10^{-6}$ sec) produced the number of accidental coincidences in any magnetic field which also showed that the number

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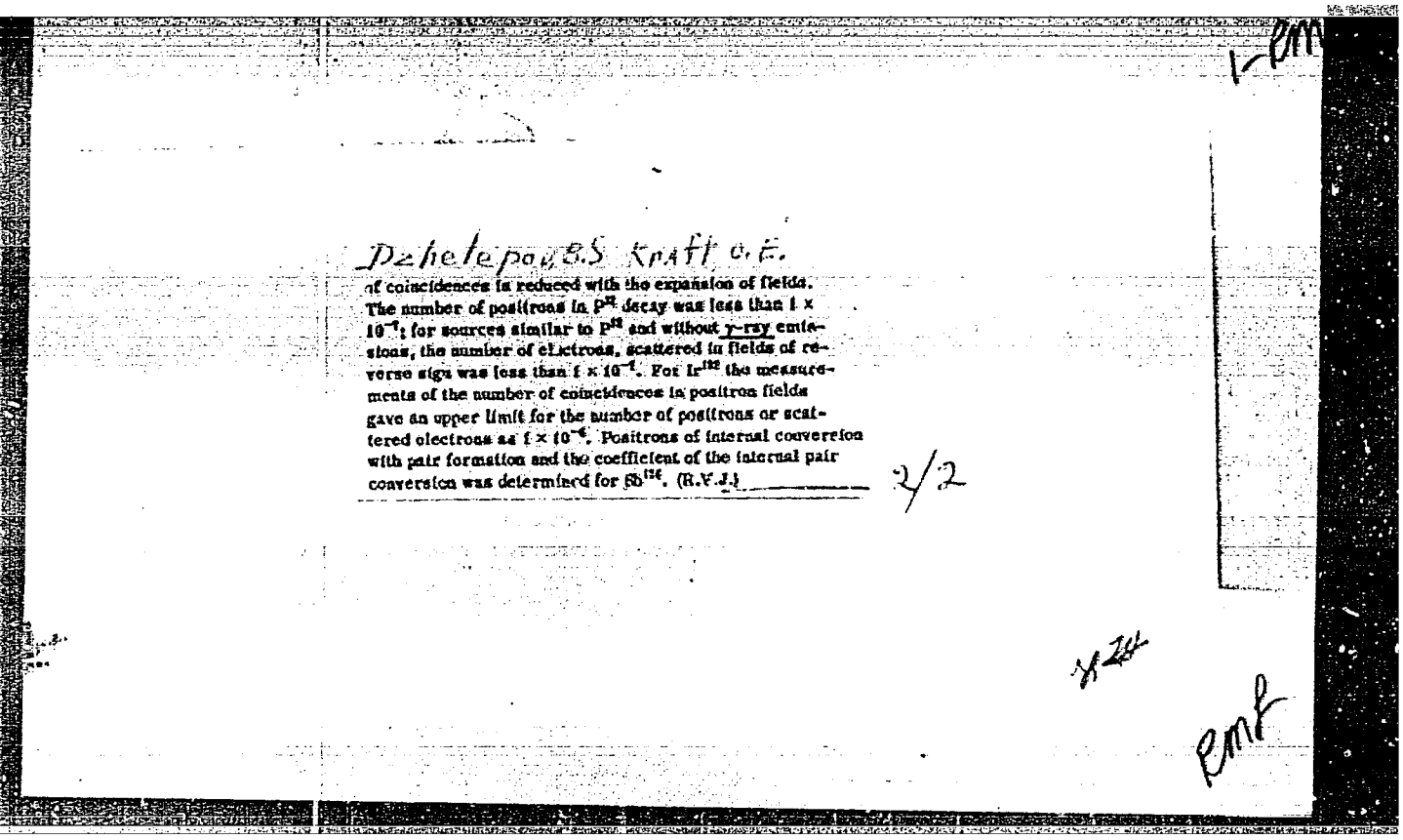

Dzhelepov B.S. Kraft O.E.

of coincidences is reduced with the expansion of fields. The number of positrons in P^{32} decay was less than 1×10^{-4}; for sources similar to P^{32} and without γ-ray emissions, the number of electrons, scattered in fields of reverse sign was less than 1×10^{-4}. For Ir^{192} the measurements of the number of coincidences in positron fields gave an upper limit for the number of positrons or scattered electrons as 1×10^{-6}. Positrons of internal conversion with pair formation and the coefficient of the internal pair conversion was determined for Sb^{124}. (R.V.J.)

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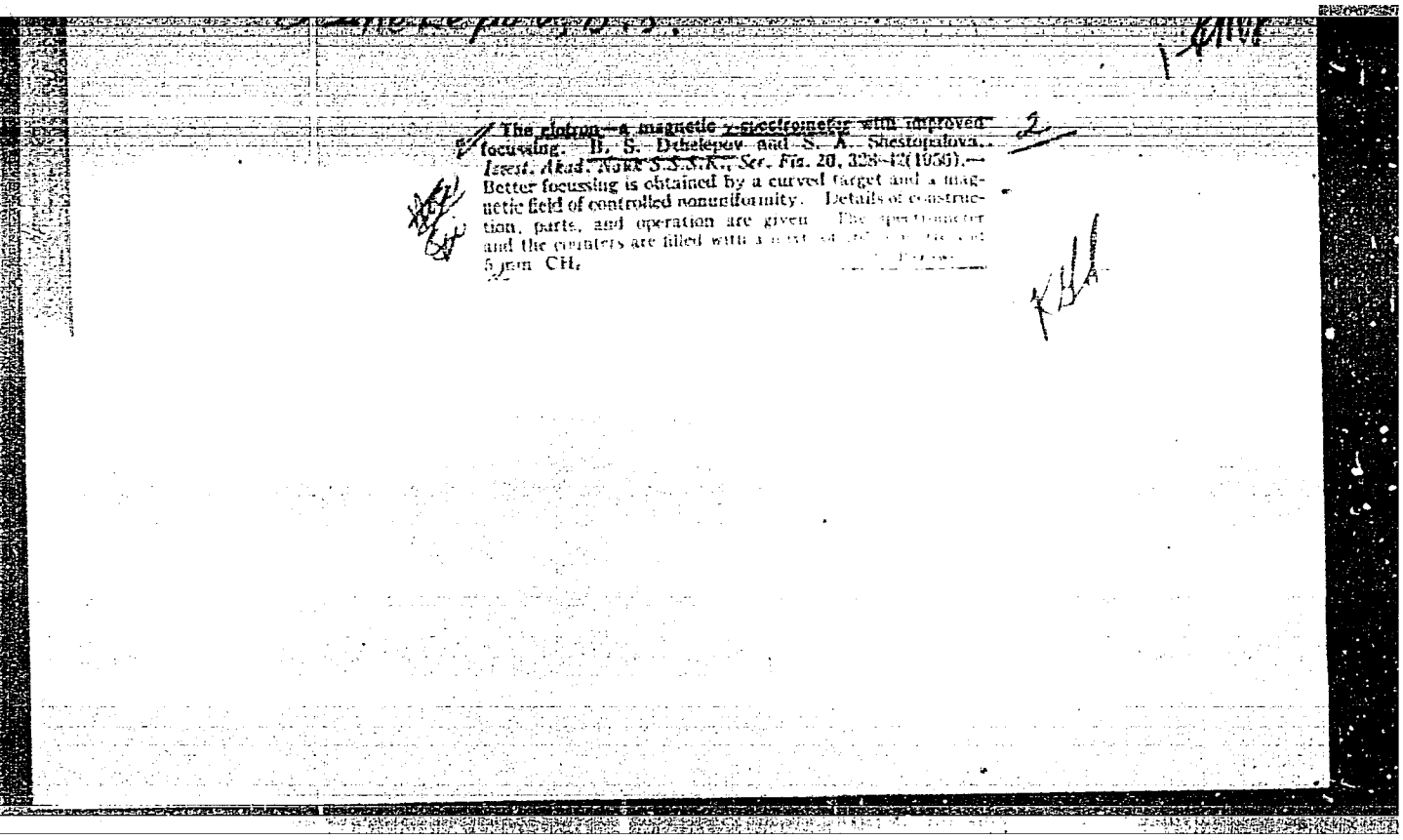


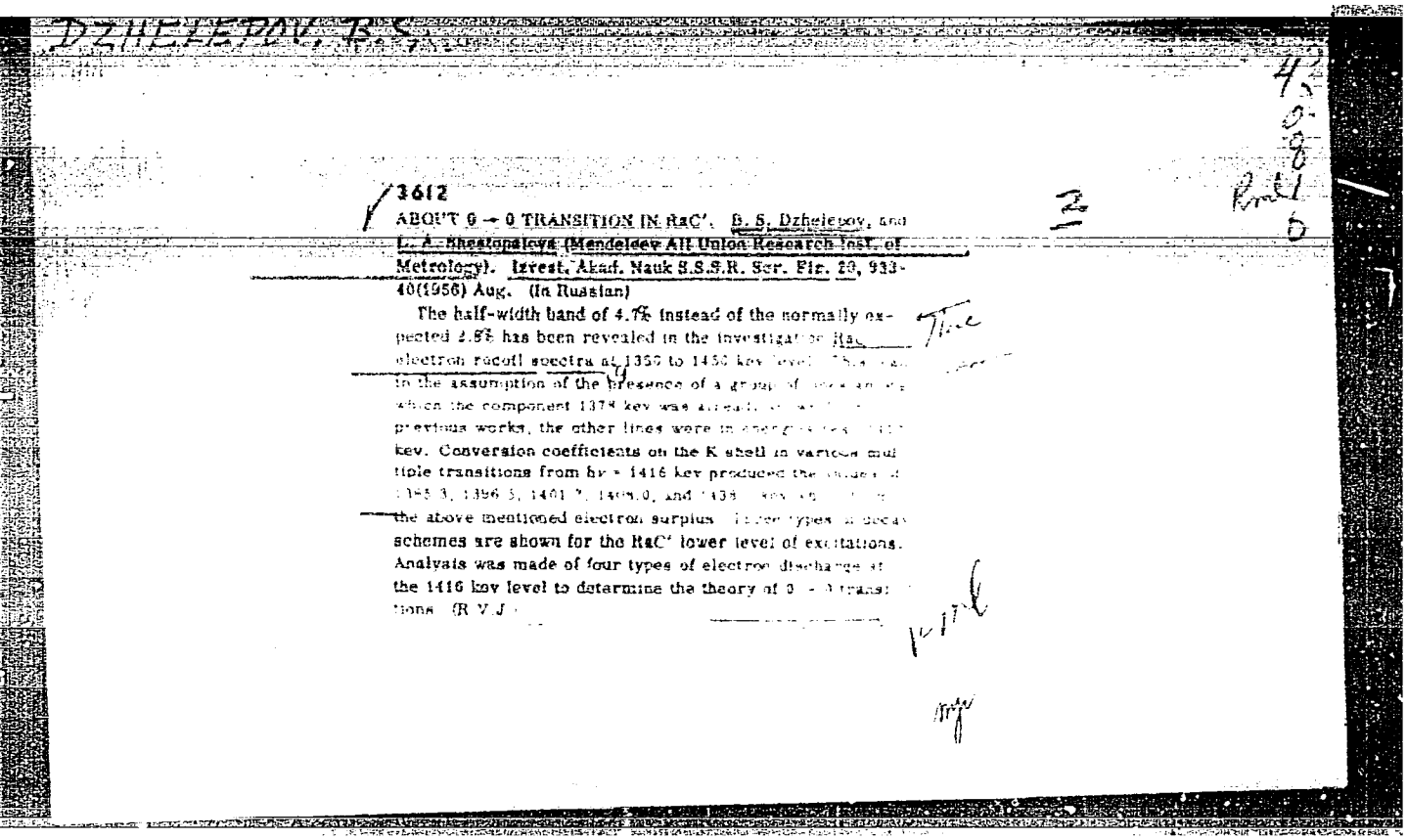
The platron—A magnetic γ-spectrometer with improved focussing. B. S. Dzhelepov and S. A. Shestopalova. *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 20, 325–32(1956).—Better focussing is obtained by a curved target and a magnetic field of controlled nonuniformity. Details of construction, parts, and operation are given. The spectrometer and the counters are filled with a [illegible] 5 μm CH.

Investigation of hard γ-rays of weak intensity with the help of the photoneutron effect. B. S. Dzhelepov and L. A. Vartanyan. *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 20, 581–6(1956).—Photoneutrons were registered either in a spiral-shaped U chamber or by the activation of $KMnO_4$ soln. By using this method, hard γ-rays were investigated in Co^{60}, Sb^{124}, Ag^{108}, and In^{116} spectra. No hard γ-rays were found in Co^{60}; this shows the small probability of the transition $4^+ \rightarrow 0^+$ to the Ni^{60} ground level. A small γ-ray intensity with $h\nu = 1.8$ m.e.v. was observed on Ag^{108}. Hard γ-rays of 2.3 m.e.v. and an intensity of 2×10^{-3} quantum/decay were observed in Sb^{124} and rays of 1.85 m.e.v. and an intensity of 7×10^{-4} quantum/decay were observed in In^{116}. S. Paksver

3611

GAMMA-RAY SPECTRA OF Sb^{124}. B. S. Dzhelepov, [illegible] Zhukovskiĭ, V. G. Nedovesov, L. F. Uchevatkin, and L. [illegible] Chumin. Izvest. Akad. Nauk S.S.S.R. Ser. Fiz. 20, 925-32 (1956) Aug. (In Russian)

Studies were made to determine the relative intensities of γ lines in the Sb^{124} γ spectra. The investigations were carried out on the Elotron (γ-spectrometer with improved focusing using the electron recoil). The descriptions and design of the apparatus, the diagrams of measurements of the Sb^{124} γ spectra and tabulations are presented. (tr. V.J.)

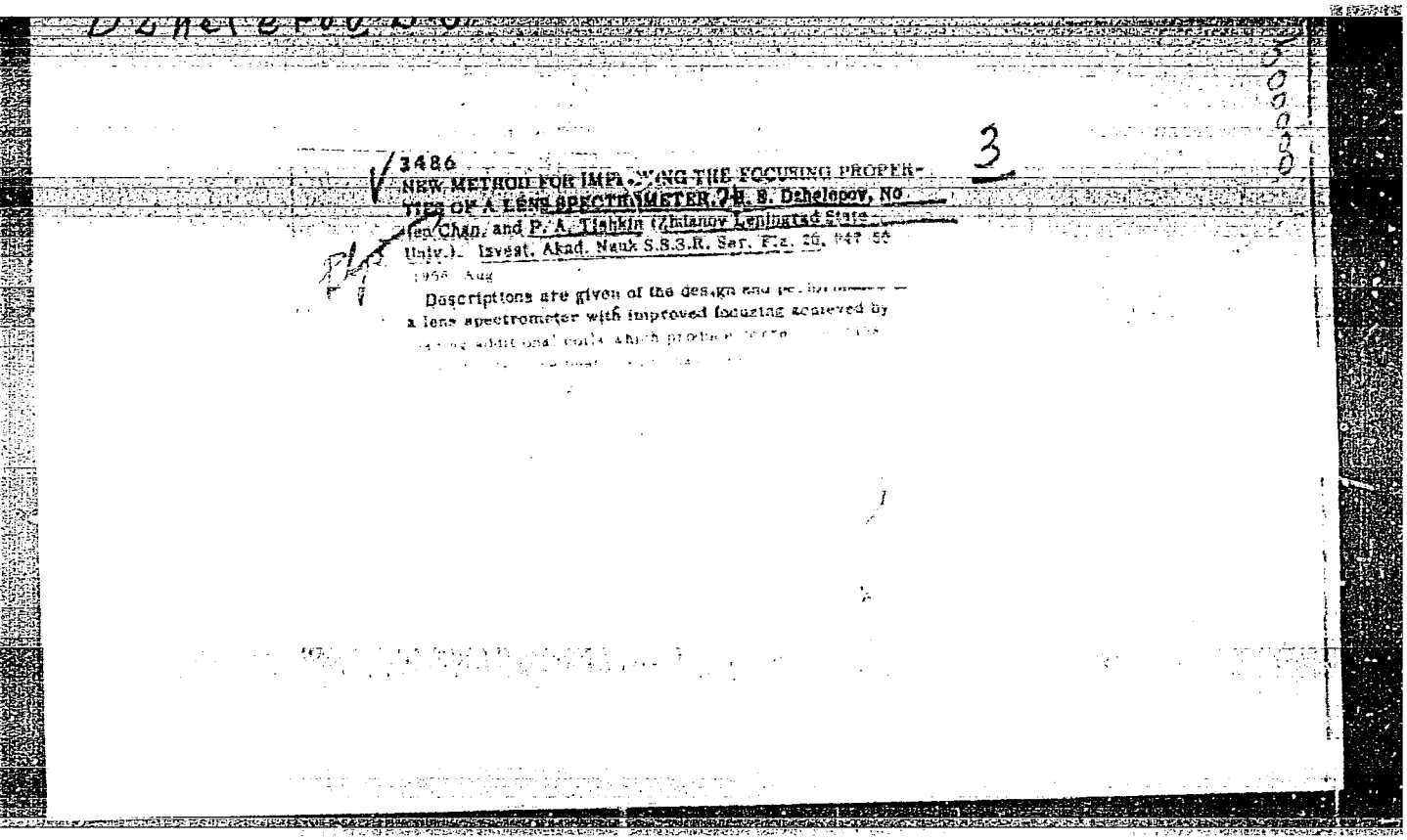


DZHELEPOV, B. S.

3612

ABOUT 0 → 0 TRANSITION IN RaC'. B. S. Dzhelepov, and L. A. Sheshonaleva (Mendeleev All Union Research Inst. of Metrology). Izvest. Akad. Nauk S.S.S.R. Ser. Fiz. 20, 933-40(1956) Aug. (In Russian)

The half-width band of 4.7% instead of the normally expected 2.8% has been revealed in the investigation Ra[illegible] electron recoil spectra at 1350 to 1450 kev level. This was in the assumption of the presence of a group of [illegible] which the component 1378 kev was already [illegible] previous works, the other lines were in energies [illegible] kev. Conversion coefficients on the K shell in various multiple transitions from hν = 1416 kev produced the values of 1385.3, 1396.5, 1401.7, 1409.0, and 1438 [illegible] the above mentioned electron surplus. Three types of decay schemes are shown for the RaC' lower level of excitations. Analysis was made of four types of electron discharge at the 1416 kev level to determine the theory of 0 → 0 transitions. (R. V. J.)



3486
NEW METHOD FOR IMPROVING THE FOCUSING PROPERTIES OF A LENS SPECTROMETER. Z. H. S. Dzhelepov, Ho Yen-Chan, and P. A. Tishkin (Zhdanov Leningrad State Univ.). Izvest. Akad. Nauk S.S.S.R. Ser. Fiz. 20, 947-50 1956 Aug

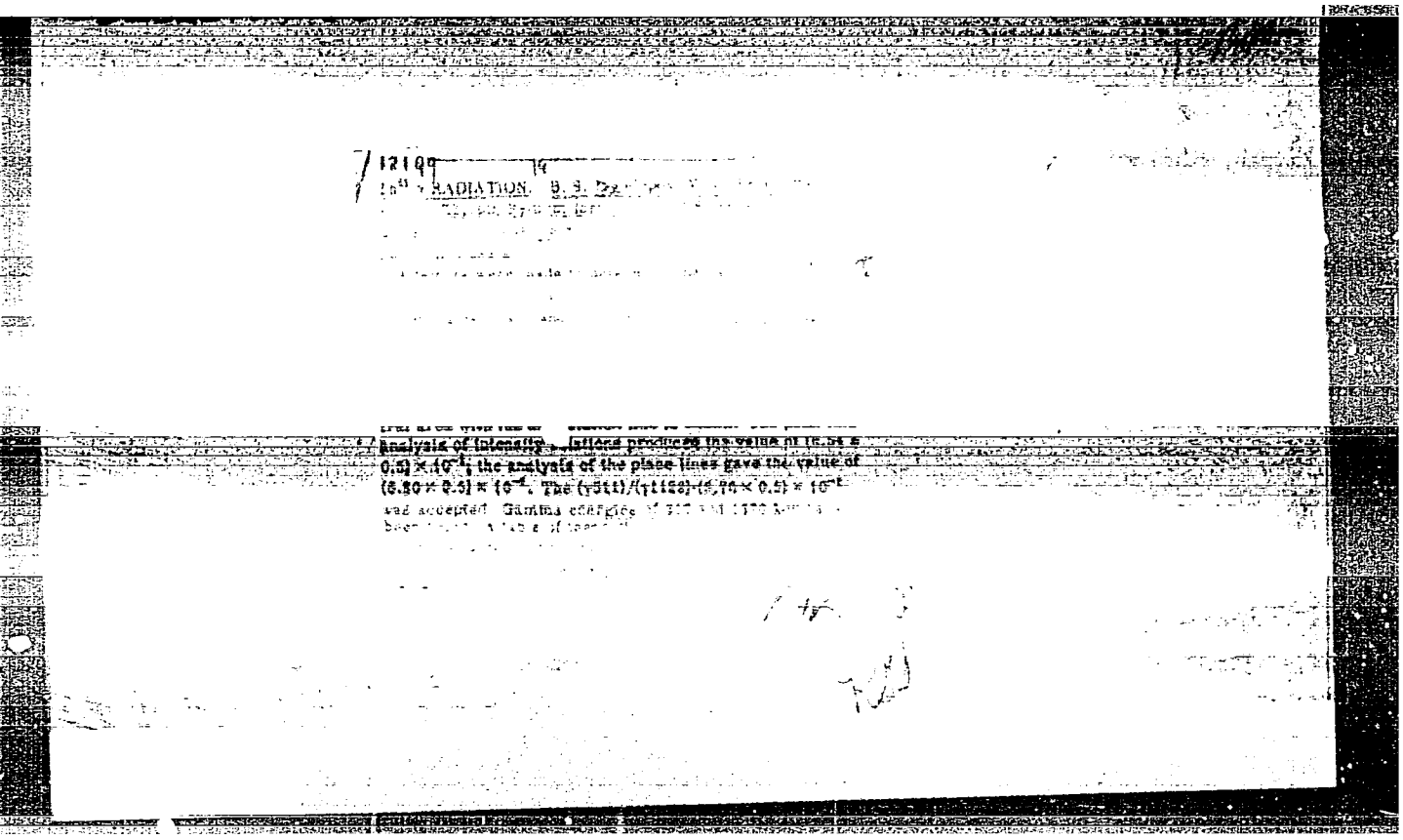
Descriptions are given of the design and performance of a lens spectrometer with improved focusing achieved by [illegible] which produces [illegible]

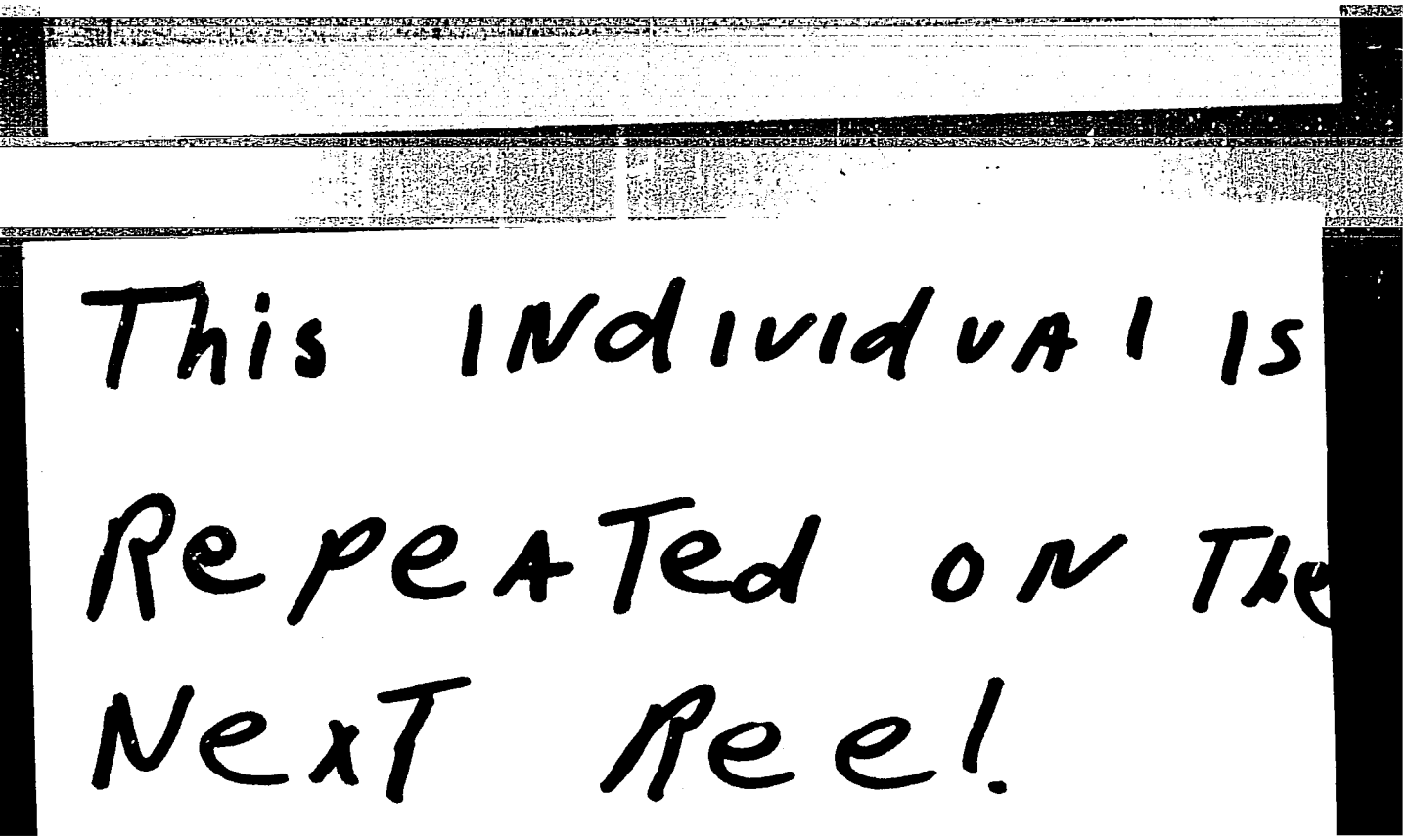
UZHELEPOV, M.

2

3514
STUDIES OF ANGULAR DISTRIBUTIONS OF γ QUANTA DURING POSITRON ANNIHILATION IN VARIOUS MATERIALS. K.A. Bankova and B.S. Zhelepov. (Zhdanov Leningrad State Univ.). Izvest. Akad. Nauk S.S.S.R. Ser. Fiz. 20, 851-6(1956) Aug. (In Russian)

Scintillation counters with NaI(Tl) crystals and schemes of coincidences with resolving time of 5×10^{-9} sec were used to determine the angular distribution curves for the quanta during the annihilation of positrons in various materials. The experimental geometrical measurements using Cu^{64} as the positron source with Be or Pb targets and the curves of the angular distribution of γ quanta in positron absorption in Pb ampoules with Cu^{64} source and in Be and Pb are presented. Results obtained for Be and Pb, quantitatively, coincided with results of G. Lang et al. Phys. Rev. 99, 596(1955), however, the width ratio for the Be angular distribution to the width of Pb curve on the half height was obtained as 1.2 while in Lang's work it was shown as 1.16. With the increase of fermion energy in metals, the width of the angular distribution curve for the annihilated γ quanta increases too. For Be, the curve is wider than in the other investigated metals because of larger fermion energy of its electrons (14 ev). In K, Na, and Li, the fermion energy equals 2 to 4 ev, while in Pb it is approximately 10 ev. The difference in the angular distribution indicates the important part the electron velocities play in the annihilation process. (R.V.J.)





DZHELEPOV

8001

ON DOUBLE ALLOWED β TRANSFORMATION. B. S. Djelepov and L. K. Peker. Doklady Akad. Nauk S.S.S.R. 106, 626-9(1956) Feb. 1. (In Russian)

The β transformation probability depends on the variation of the total moments in the ΔI system, on the variation of the wave function in the Δd system, and on the variation of the orbital moments of the ΔL system. The β transformation is solved for the cases where variation of these magnitudes are within the definite limit governed by the selective rule, while for the cases where ΔI, Δd, and ΔL variations are beyond the limits, the β transformation relates to the forbidden cases. Calculations are made to find all the factors which prohibit the β transformation and determine the differences in log ft values in transformations where ΔI, Δd, and ΔL are known to be equal. Correlation of log ft values in β transformation with equal ΔI, Δd, and ΔL are set up for the cases of competing $\beta^+ - \beta^-$ decays in nuclei of even parity A and odd Z, and for cases of successive β decays in isobaric triplets in which the mean isobar has an even parity A and an odd Z. In both cases the end isobars are nuclei with an even parity A and an odd Z. Data for all 21 cases analyzed for both types of decay showed that binary bound β decays have similar prohibiting order. Correlations of log ft for binary bound β decay established a rule that if one of the ground nuclei has a complete proton or neutron shell the log ft value is smaller in transformations related to such nuclei than the log ft in transformations of the one which does not possess the complete shell. The table of β transformation of types $0^+ \rightarrow K \rightarrow 0^+$, and $0^+ \rightarrow K \rightarrow 0^+$, and the relation of deformation coefficient to the number of nucleons in the complete shell are discussed. (R.V.J.)

DZELEPOV, B. S.

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DECAY SCHEMES OF RADIOACTIVE ISOTOPES. Vol. 1

Dzelepov and L. K. Peker. Translated from a publication of the Academy of Sciences, U.S.S.R., Moscow-Leningrad, 1957. 176p.

Available data on the decay characteristics of nuclei having mass numbers between 1 and 253 were compiled, and decay schemes are presented. Decay schemes for the related disintegrations of different isotopes with the same mass number are shown in a single figure for convenience in the study of nuclear structure. However, in heavy nuclei where a disintegration may occur, this convention is assumed only as a starting point for a method of representation. All numerical data are exhibited directly in the decay schemes. Both the decay schemes and numerical data were taken from the most reliable data published prior to May, 1956. (D.E.B.)

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RML

JOLIOT-CURIE, Frederic; SKOBEL'TSYN, D.V., akademik, otvetstvennyy redaktor; TAMM, I.Ye., redaktor; DZHELEPOV, B.S., redaktor; FRANK, I.M., redaktor; GROSHEV, L.V., redaktor; SMIRNOVA, G.N., redaktor; BARIT, I.Ya, redaktor izdatel'stva; RYNDZYUNSKAYA, S.M., redaktor izdatel'stva; ZELINKOVA, Ye.V., tekhnicheskiy redaktor; NAZARYAN, L.V., tekhnicheskiy redaktor

[Selected works. Work written in collaboration with Irene Joiot-Curie] Izbrannye trudy. Frederik i Iren Zholio-Kiuri. Sovmestnye trudy. Moskva, Izd-vo Akademii nauk SSSR, 1957. 561 p. (MLRA 10:2)
(Radioactivity)

SOV/112-59-3-5251

21(3)

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 3, p 135 (USSR)

AUTHOR: Aglintsev, K. K., Balon, Z. P., Dzhelepov, B. S., Karavayev, F. M., Karamyan, A. S., Konstantinov, A. A., Ostromukhova, G. P., Prokof'yev, P. T., Rusinova, S. A., Sumbayev, O. I., Khol'nov, Ye. A., Shestopalova, S. A., Yudin, M. F., and Yaritsyna, I. A.

TITLE: Metrology of Penetrating Radiations
(Metrologiya pronikayushchikh izlucheniy)

PERIODICAL: V sb.: Atomn. energiya v mirnykh tselyakh. Gosenergoizdat, 1957, pp 145-181

ABSTRACT: Projects are described of the Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii (All-Union Scientific-Research Metrology Institute) imeni D. I. Mendeleyev on standardization of measures in the ionizing-radiation field, and on the construction of standard and reference outfits for reproducing the fundamental units in the whole range of energies and intensities of radiations of all types. The following outfits are described: (1) a standard reproducing

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Metrology of Penetrating Radiations

the roentgen in the range of 40-300 Kev; (2) a reference outfit for measuring in roentgens of electromagnetic-radiation doses having the quantum energy of 300-1,500 Kev; (3) an outfit for measuring in roentgens the electromagnetic-radiation doses with quantum energy of 3-20 Kev with an error of 1%; (4) two standard outfits for measuring radium gamma-equivalents; (5) differential lead-ball gamma-calorimeters for measuring the activity of various preparations on the basis of their gamma radiation; (6) an isothermal calorimeter operating on the principle of liquid-nitrogen evaporation for measuring the activity of beta preparations; (7) a differential alpha-calorimeter for measuring the activity of radium preparations. An activity-measurement method by counting the number of particles emitted by a preparation is being developed in two directions: counting of particles in a definite solid angle and the same in the total solid angle by means of "4π-counters." The beta-particle counter within a definite angle permits measuring preparations with an activity of 10^{-8} - 10^{-5} curie with an error of 4-6%. Two alternate designs of "4π-

Metrology of Penetrating Radiations

counters" are described. One of them permits measuring beta preparations with an activity of 10^{-10} -5×10^{-8} curie with an error of 2-4%, and the second, 5×10^{-11} -5×10^{-7} curie with an error of 1-3%. The outfits have been built for measuring neutron streams from 10^{8} down to a few tens of neutrons per sec. A gamma-spectrometer "Elotron" with an improved focusing has been built for investigation of gamma spectra in the energy range of 600-3,000 Kev. To conduct investigations in the range of 120-1,300 Kev, a 2-meter long crystal-diffraction gamma-spectrometer of the Dumond spectrometer type has been built. Also, a magnetic spectrometer analyzing photoelectrons has been built for the range of 200-700 Kev. Measuring the half-life from a few hours to a few years is made by two methods: the method of successive measurements of gamma-equivalent preparations and the differential-chamber method. The results of half-life measurements for a number of isotopes are tabulated.

N.G.Z.

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