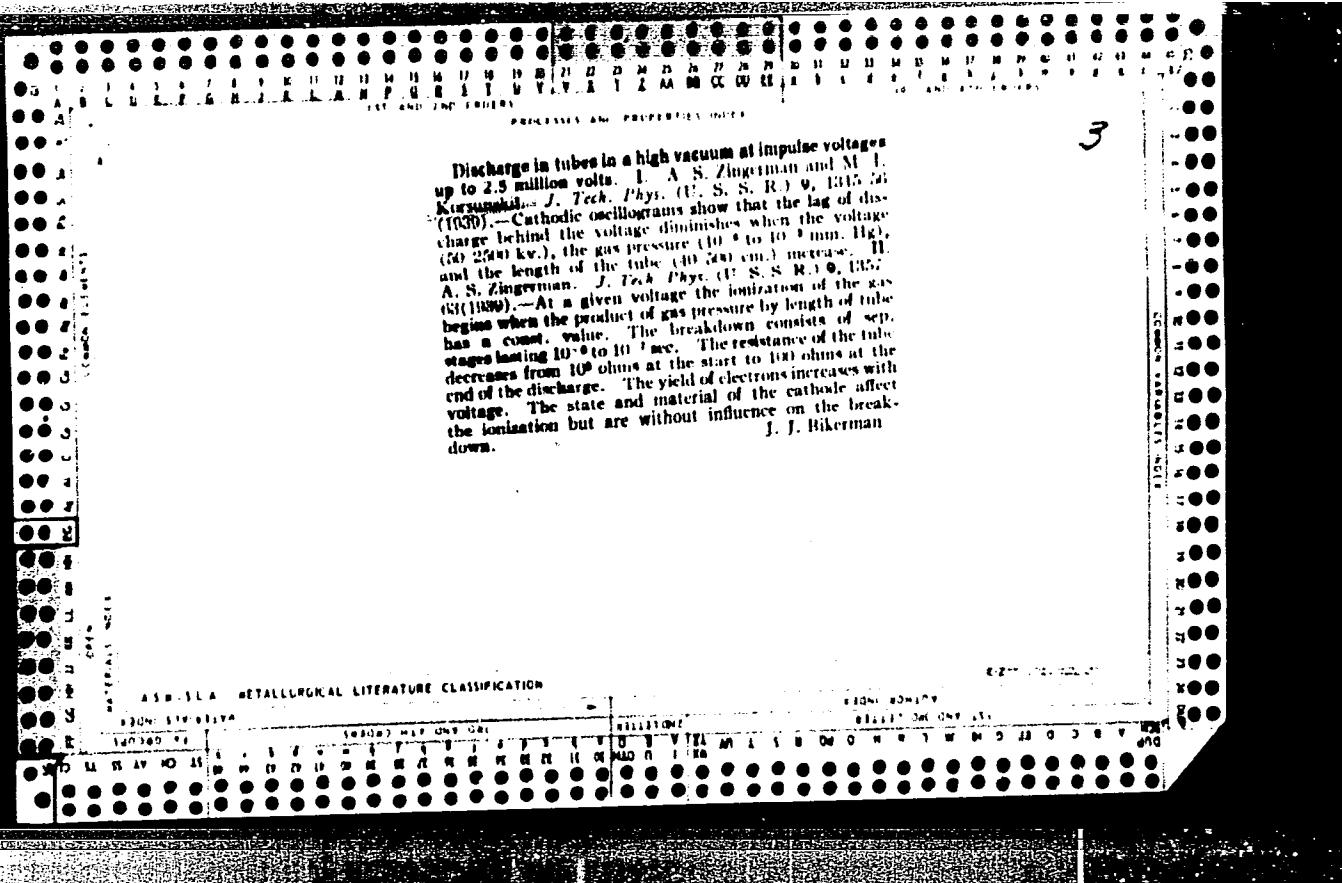


KORSUNSKII, M. I.

104. Discharge tube for impulse voltages up to 2 700 000 V. A. SINGERMAN,  
M. KORSUNSKII, M. NEKRASOV AND A. EISENBET. J. Techn. Phys. U.S.S.R., 9, 10,  
pp. 883-889, 1939. In Russian. -- Using Lange and Brasch's idea of erecting a  
tube of discs the authors employed discs of micalex and steel alternately. By  
pasting the discs together with an insulating varnish it becomes possible to erect  
a monolithic tube of sufficiently good electric and vacuum-sealing qualities. It  
was shown that the sparking distance in air of a valve designed for a certain  
impulse voltage depends on the form of the electrodes. These latter being of a  
suitable size the length of the tube is only determined by the breakdown strength  
of the air. Thus a tube with 2 m. between electrodes of the Rogowski type will  
stand an impulse voltage of 2 700 000 V if there is no gas discharge within the tube.  
A gas discharge spoils the potential distribution in the tube and causes surface  
leakages covering portions comprising several elements of the tube. F.B.K.



PROCESSING AND PROPERTY INDEX

3

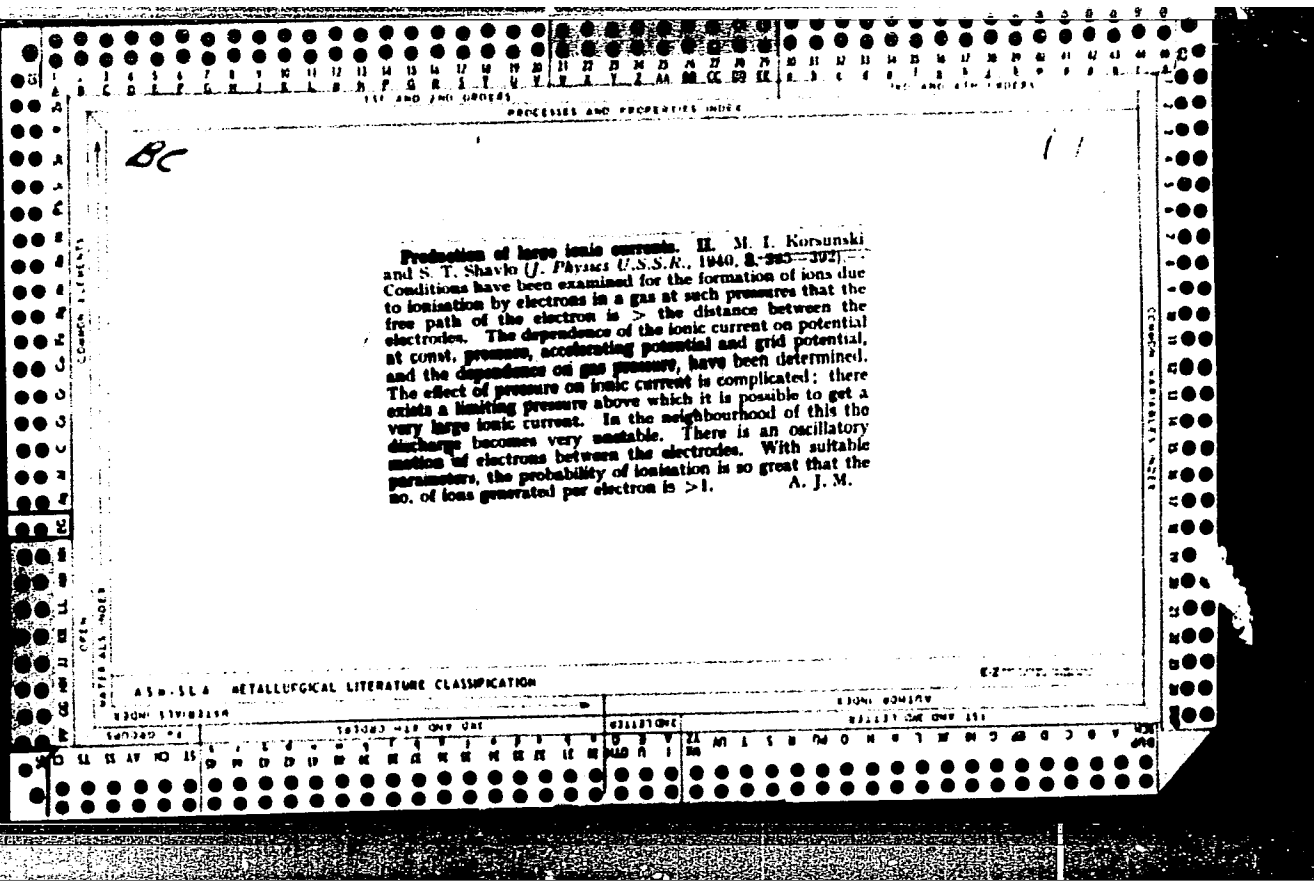
*ca*

Multiply repeated acceleration of electrons. V. M. Kel'man, M. I. Kursumskii and V. F. Lange. *J. Exptl. Theoret. Phys. (U. S. S. R.)* 9, 944-6(1939).—K., K. and L. give a theoretical-math. discussion of the necessary conditions to be fulfilled by a cyclotron system, and describe a relatively simple app. for obtaining electrons with energies of up to 48 m. e. v. F. H. Rathmann

ASME S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

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100 AND 4TH ORDERS  
1ST AND 2ND ORDERS  
PROCESSES AND PROPERTIES INDEX

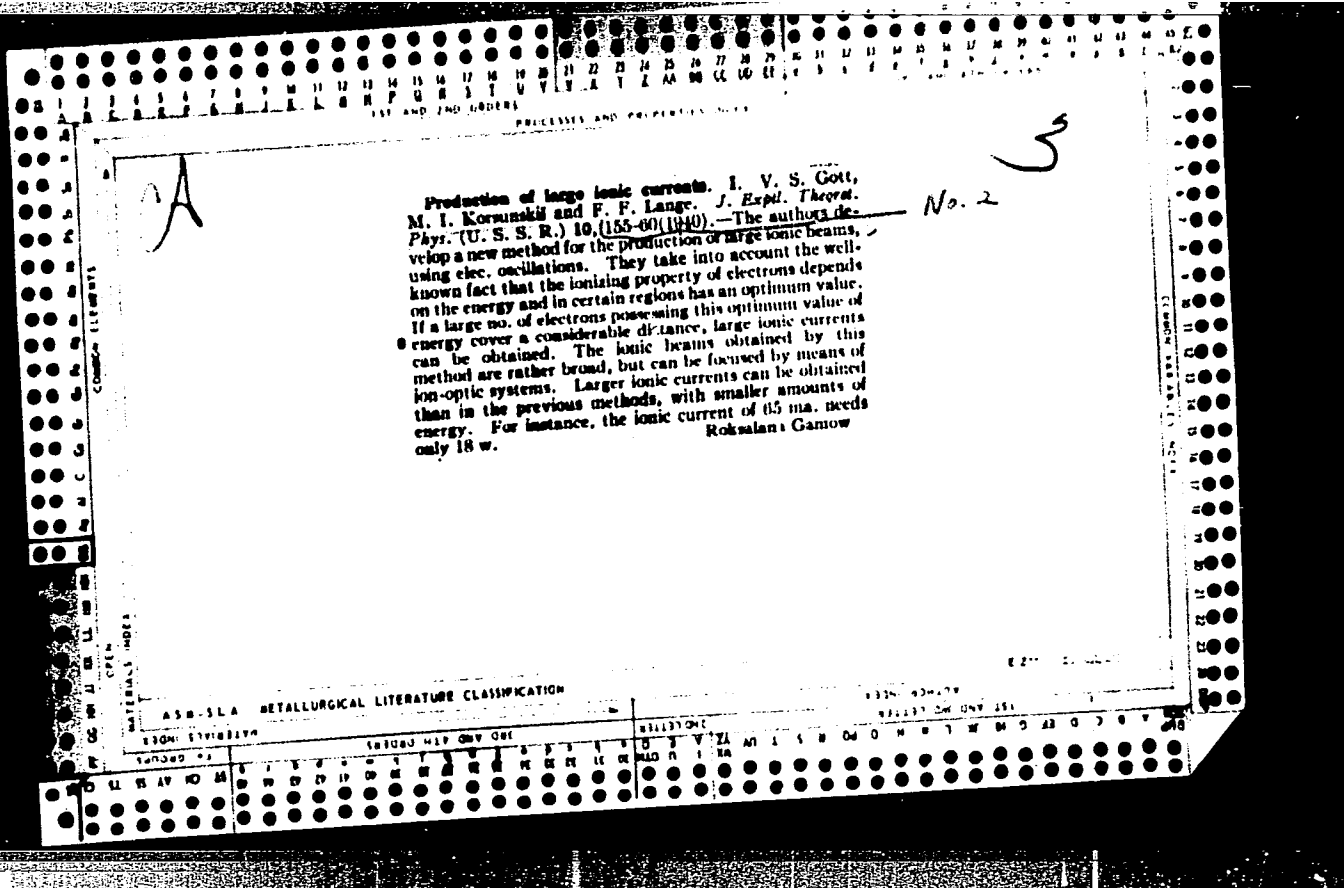
CA 3

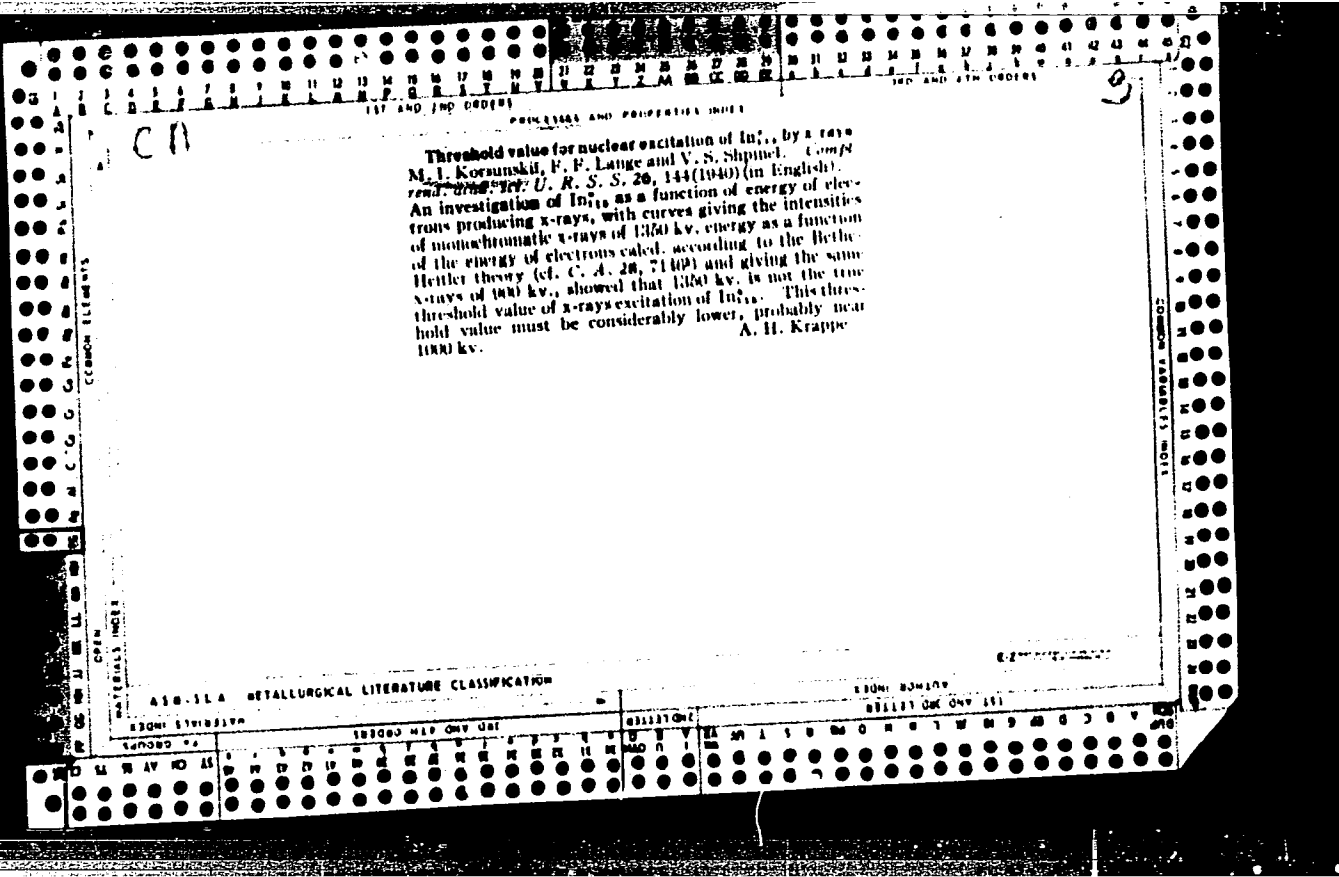
Method for obtaining strong ionic currents. V. S. Gott,  
M. J. Korminskii and F. F. Lange. *Bull. acad. sci.*  
*U. R. S. S., Ser. Phys.* 6, 389-91 (in English, 392) (1940).  
See *C. A.* 34, 7724. C. L. R.

NO. 2

Translation U-1346, 5 Jun 51

COMMON ELEMENTS  
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1ST AND 2ND LETTERS  
1ST AND 2ND ORDERS







1ST AND 2ND GROUPS

PROGRAMS AND PROPERTIES INDEX

Production of isomerism in  $In^{115}$  by electronic impact.  
 M. L. Karasinski, V. B. Ganenko and S. I. Tsypkin.  
*Doklady Akad. Nauk S. S. S. R.* 30, 401 2 (1941)

No. 5 9

The authors investigated the nuclear excitation of  $In^{115}$  by an electron beam of approx. 1.0 m. e. v. monochromatized by  $10^\circ$  rotation in a magnetic field. After allowing for the  $\gamma$ -ray effect, evidence for nuclear excitation by the electrons was beyond expl. error. G. M. Kosolapoff

COMMON ELEMENTS

OPEN

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3RD AND 4TH GROUPS

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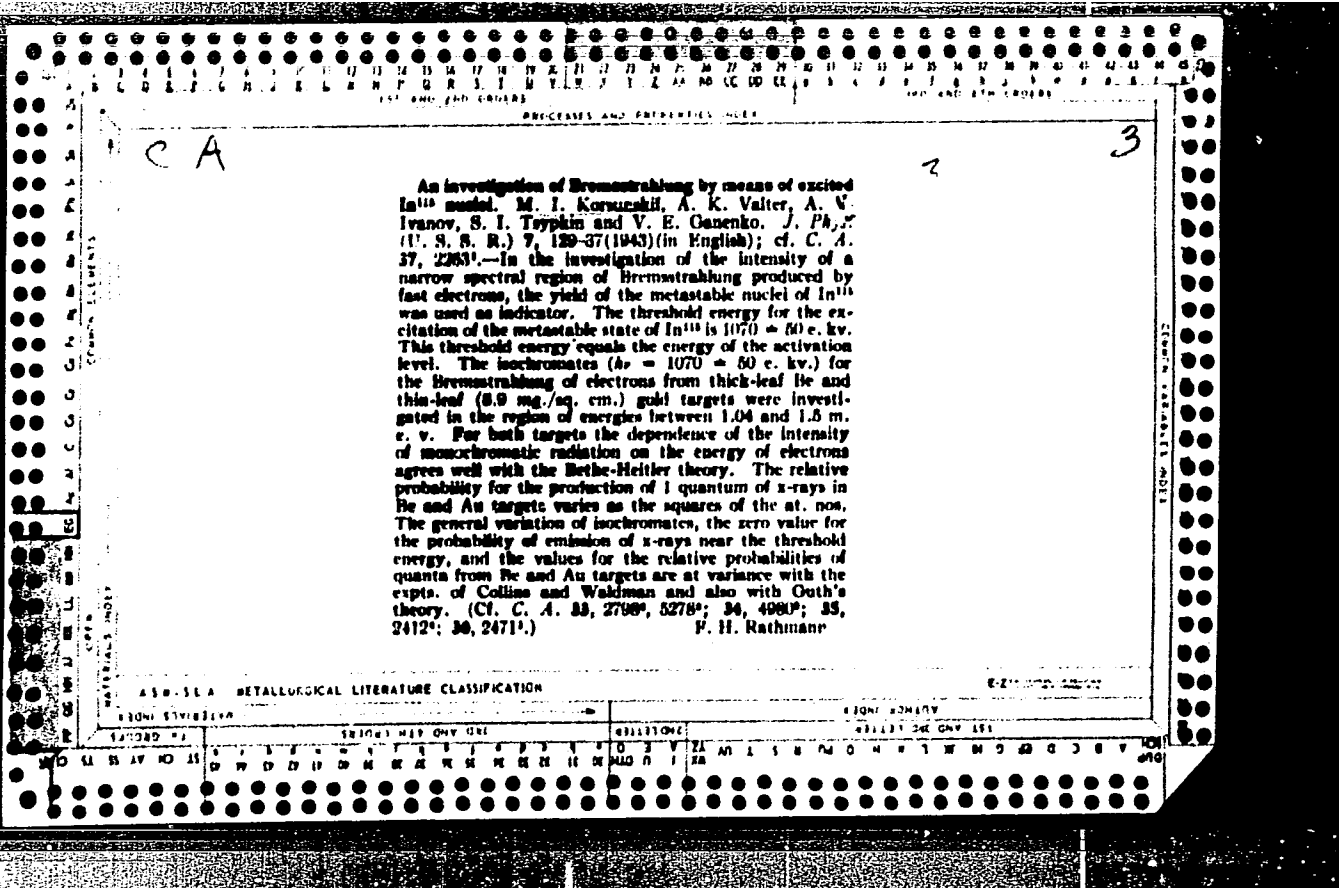
999TH AND 1000TH GROUPS

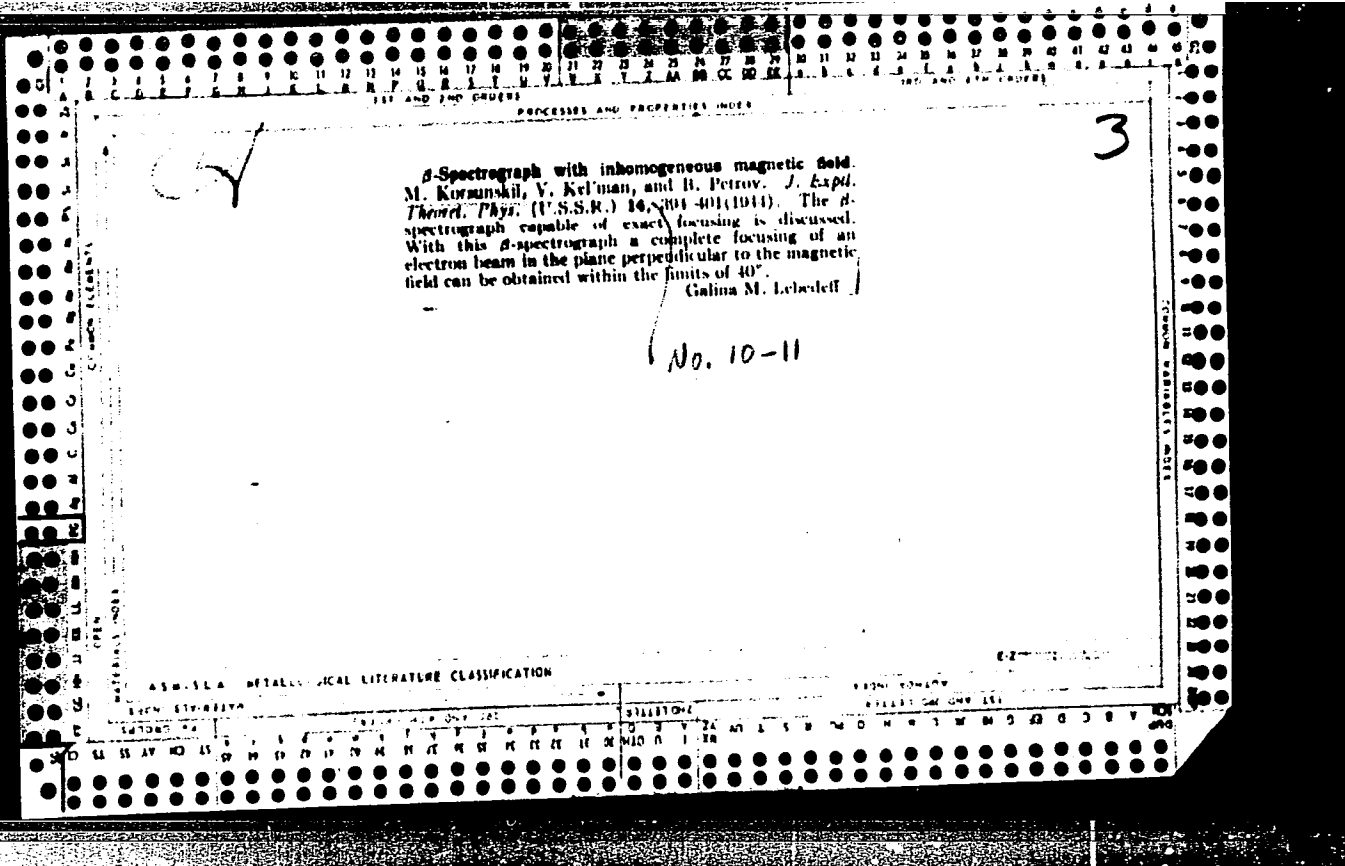
Induced activity in  $^{110}\text{mIn}$  by electron impact. M. I. Kersunski, V. E. Gansko, and S. I. Zilkin (*Compt. rend. Acad. Sci., U.R.S.S.*, 1941, **20**, 403-404).—Monochromatized electrons (~1.6 Me.v.) bombarded two foils of In (0.05 cm.) separated by an Al plate (0.055 cm.). Thus the second In foil was exposed to  $\gamma$ -rays only and the difference in activities excited in the two foils was measured by a counter. Electron excitation occurs, and the effective cross-section for the electron effect is  $\sim 2 \times 10^{-20}$  sq. cm. W. R. A.

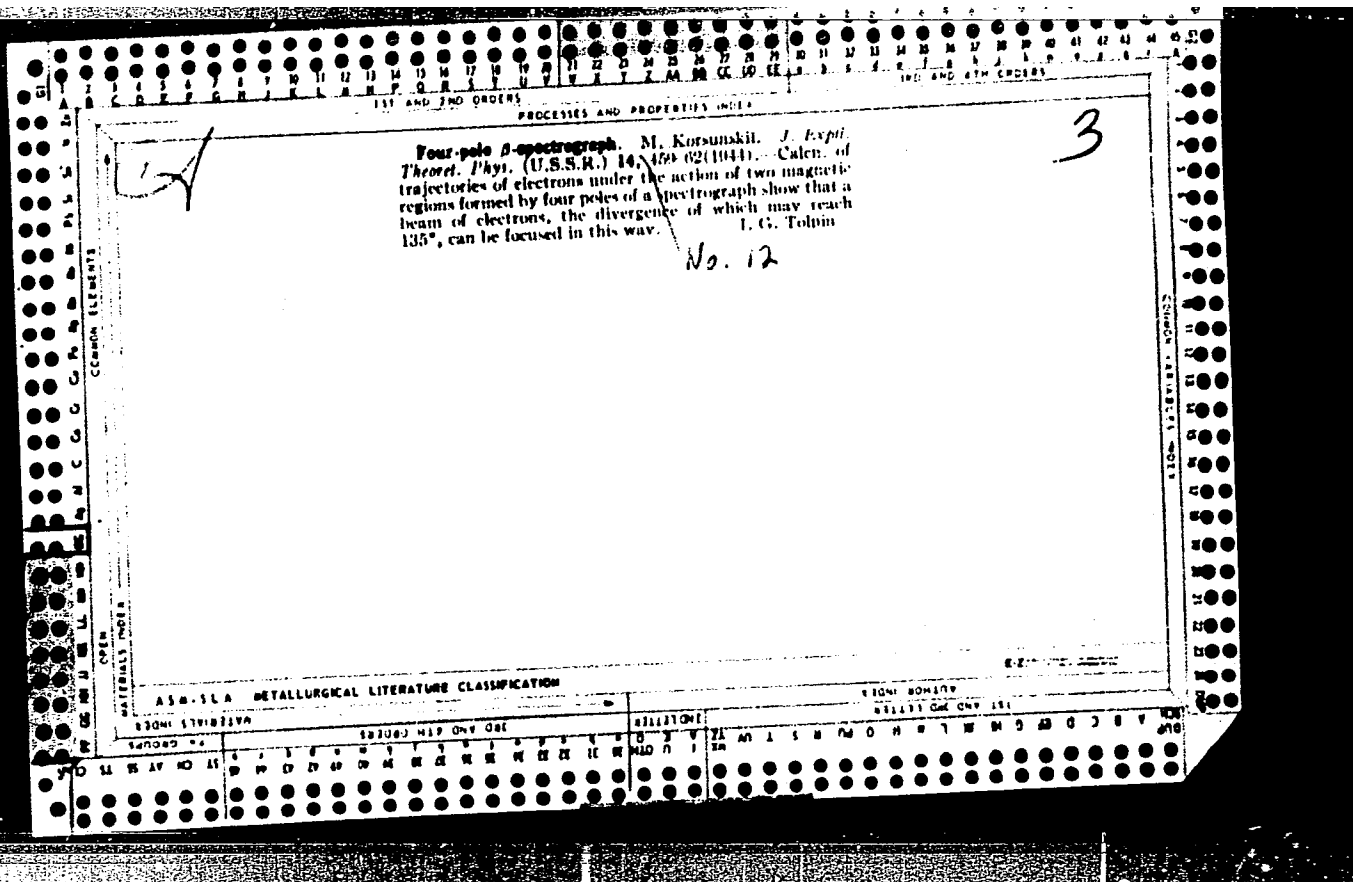
No. 5

KORSUNSKIY, M. I.

"Investigation of 'Bremsstrahlung' by means of the Indium Isomer," Zhur. Eksper.  
i Teoret. Fiz., 12, No. 1-2, 1942. Physico-Tech. Inst., Acad. Sci., Kharkov, -1941-.



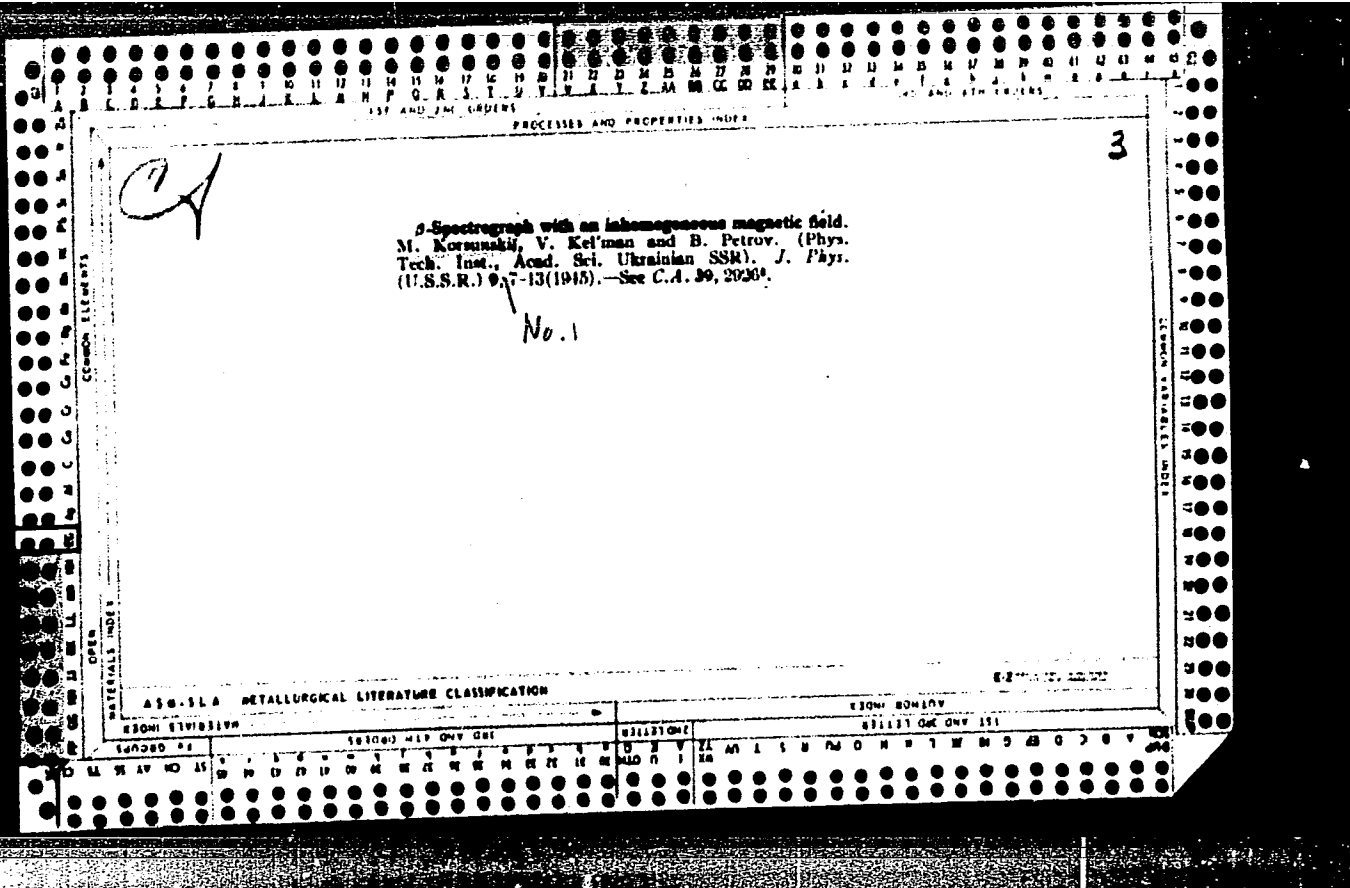




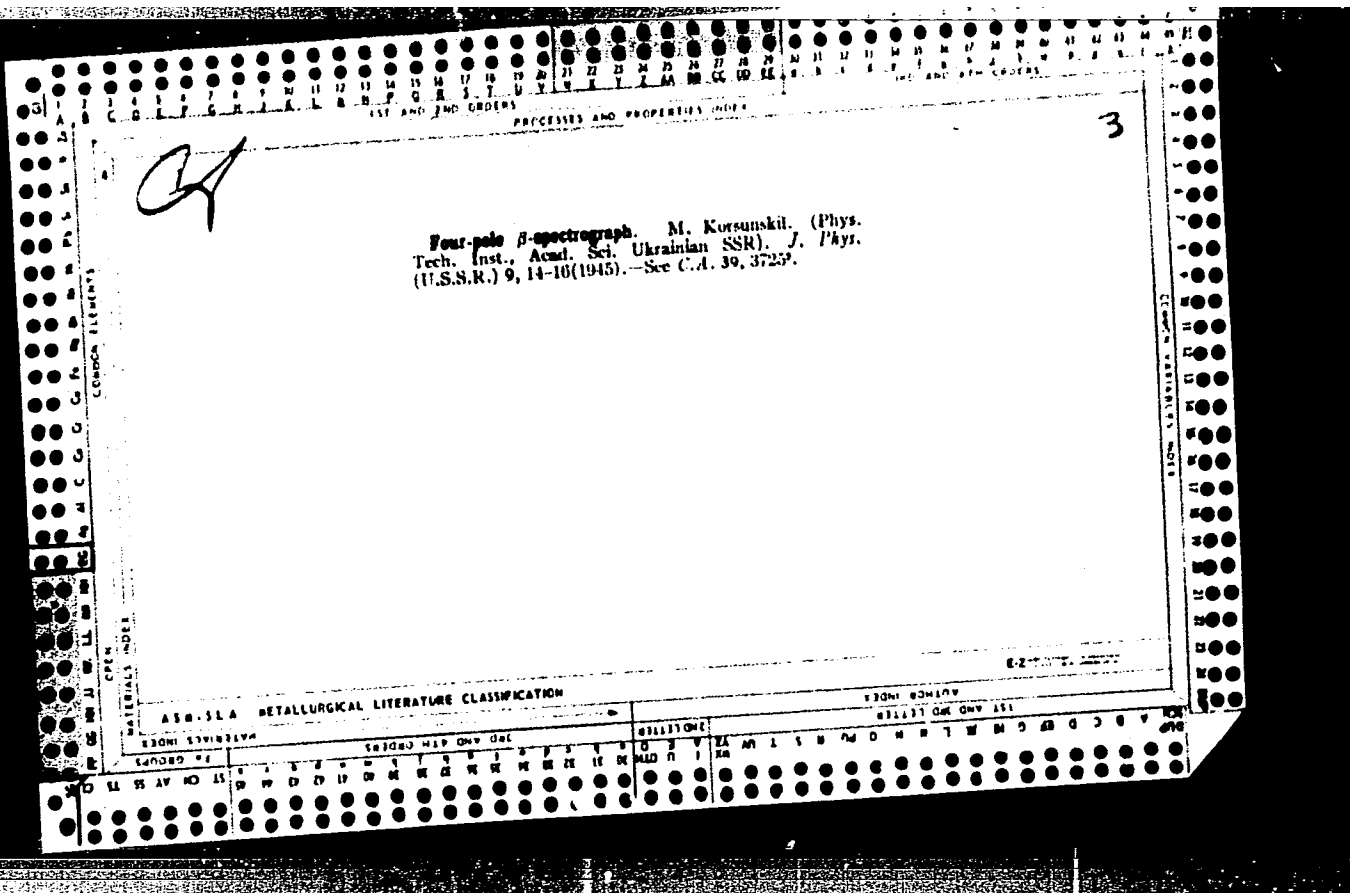
KORSUNSKIY, M. I.

"Focusing Properties of the Axial Field  $E_r$ --ar" and "On the Molecular Mass Spectrograph," in Journal of Experimental and Theoretical Physics, Vol. XVI, No. 1, 10 Jul 44. (Identified with Phys-Tech. Inst., Acad. Sci., USSR, 14 Dec. 44.

SO: CIG Documents Branch Translation No. 82, 3 Jul 47.







KORSUNSKIY, M.

"Focusing Properties of the Axial Field Epsilon sub r-ar," Zhur. Phys., 501,  
No. 6, Vol. IX, 1945. Phys. Tech. Inst., Acad. of Sci. of the Ukrainian SSR -1945-.

1ST AND 2ND ORDERS      3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

2

No. 10

The flow of gas into vacuum through a long narrow pipe. M. I. Korzunskii and S. A. Vekshinskii (Khar'kov Physico-Tech. Inst.). *J. Exptl. Theoret. Phys. (U.S.S.R.)* 15, 503-504 (1945) (English summary); *J. Phys. (U.S.S.R.)* 9, 300-304 (1945).—The effusion of a mol. beam from a long narrow pipe into vacuum is calcd. under the following conditions: (1) The length of the pipe is large as compared with its diam. (2) The mean free path of the mols. in the pipe is larger than the length of the pipe. The equations give the angular distribution of mols. in a solid angle and on a plate perpendicular to the axis of the tube at the distance  $h$  from its opening. Exptl. data on the distribution of the d. of Ag evapd. from a pipe on a glass plate in high vacuum agree well with calcd. figures. The dist. of deposit in this case has a sharp max. in the center as compared with the broader distribution in an effusion through a hole in a thin plate. S. Pakawer

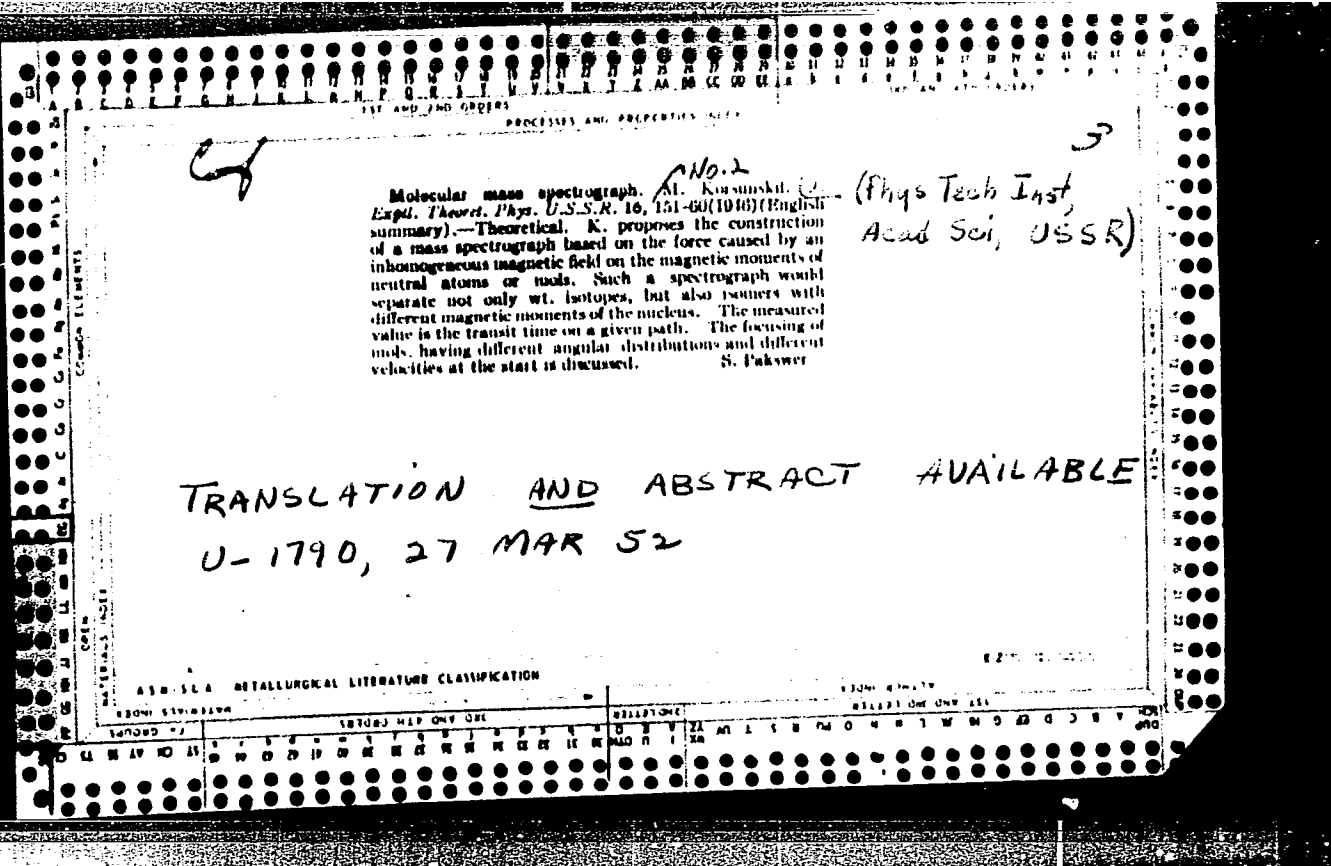
ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

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OPEN MATERIALS INDEX

FROM BOWLING      FROM BOWLING

TABLED \* 2      TABLED ONE ONE 101



4

MOLECULAR MASS SPECTROGRAPH. A.I. Korusnik. *Exptl. Theoret. Phys. U.S.S.R.* 16, 131-60(1948) (English summary).—Theoretical. K. proposes the construction of a mass spectrograph based on the force caused by an inhomogeneous magnetic field on the magnetic moments of neutral atoms or mols. Such a spectrograph would separate not only wt. isotopes, but also isomers with different magnetic moments of the nucleus. The measured value is the transit time on a given path. The focusing of mols. having different angular distributions and different velocities at the start is discussed. S. Pakover

No. 2  
 (Phys Tech Inst,  
 Acad Sci, USSR)

TRANSLATION AND ABSTRACT AVAILABLE  
 U-1790, 27 MAR 52

KORSUNSKIY, M. I.

Nov 1946

USSR/Geiger-Mueller Counters  
X-rays - Measurements

"A Study of the Operation of Geiger-Mueller Counters Under Intensive Radiation from an Impulse Source," F. F. Lange, V. S. Shpinal', M. I. Korsunskiy, 8 pp.

"Zhur Eksp i Teor Fis" Vol XVI, No 11

Investigation of combined operation of an impulse set and of Geiger-Mueller counters, showing that under conditions of intensive impulse X-ray radiation falling on the counter the installation is capable of measuring short-period activities as low as  $5 \cdot 10^{-4}$  10-3 sec.

PA 13754

CA

A

Кремний и алюминий в атомном ядре (The Atomic Nu-  
cleus). Математ. (MATH. TECH.) 1940. 30М 140. Н. Д.  
Reviewed in Uspehi No. Nash 26, 614 (1940).

1951

KORSUNSKIY, M. I.

Author: Korsunskii, M. I.

Title: The steric nuclea. issue #2. (Atomnoe iadro. Izd. 2.)

City: Moscow

Publisher: State Printing House of Technical and Theoretical Literature

Date: 1950

Available: Library of Congress

Source: Monthly List of Russian Accessions, Vol. 3, No. 11, p. 750





KORSUNSKIĬ, M. I.

Korsunskii, M.I. The atomic nucleus Izd. 3., ispr. i dop. Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1951.

347 p. (52-31219) QC778.K6 1951

KORSUNSKIY, M. I.

PA 174781

USSR/Physics - Molecular Beams  
Magnetic Field, Nonhomo-  
geneous  
Jan 51

"Focusing of a Molecular Beam by a Nonhomogeneous  
Magnetic Field," M. I. Korsunskiy, Ya. M. Fogel',  
Physicotech Inst, Acad Sci Ukrainian SSR

"Zhur Ekspier i Teoret Fiz" Vol XXI, No 1, pp 25-37

Indicates various types of nonhomogeneous magnetic  
fld which permit one to realize double focusing of  
mol beam, and considers motion of mol in these fld  
taking into account action of gravitatonal force.

174781

USSR/Physics - Molecular Beams  
(Contd) Jan 51

Shows that with aid of 2-dimensional nonhomo-  
geneous magnetic fld discussed here one can  
realize lenses for mol beams. Submitted  
18 Aug 50.

174781

KORSUNSKIY, M. I.

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)

<u>Name</u>	<u>Title of Work</u>	<u>Nominated by</u>
Korsunskiy, M. I.	"The Atomic Nucleus"	Khar'kov Polytechnic Institute imeni V. I. Lenin

*TAB CON with comment available -  
control no. CD 1039, 16 Jul 49. of AT1-330-53, 6 Feb 53*

SO: W-30604, 7 July 1954

KORSUNSKIY, M. I.

PHASE I

TREASURE ISLAND BIBLIOGRAPHICAL REPORT

AID 596 - I

Call No.: ATIC 101536 D

BOOK

Author: KORSUNSKIY, M. I.

Full Title: ATOMIC NUCLEUS. (4th ed., cor. and supp.)

Transliterated Title: Atomnoye yadro. (Izd. 4-e, isp. 1 dopol.)

PUBLISHING DATA

Originating Agency: None

Publishing House: State Publishing House of Technical and Theoretical Literature

Date: 1952

No. pp.: 407

No. of copies: 50,000

Editorial Staff: None

PURPOSE: Popular presentation of fundamentals of nuclear physics intended for students of advanced classes of pre-college schools, physics teachers, students in natural science, faculties and technical schools, and also technical workers.

TEXT DATA

Coverage: The book represents a general review in popular descriptive form of the major stages in the development of nuclear physics, beginning with the discoveries of Curie and Becquerel up to the present study of chain reaction of uranium and neptunium, including work with Wilson chamber, Betatron, Cyclotron, Varitron, etc. The fourth edition contains many corrections and additions on recent basic accomplishments in the physics of the atomic nucleus.

1/2

KORSUNSKIY, M. I.

(RML)

7296  
ISOMERY OF ATOM NUCLEI, M. I. Korsunskiy, Moscow, NU  
Gostekhizdat, 1964. 327p. (in Russian) (Book on display  
at Geneva Conference)  
A monography on theoretic investigations and experi-  
mental data on isomeric nuclei, their origin and behavior.  
Investigations of the structure of atomic nuclei. A summary  
table of isomeric nuclei indicating their properties and  
numerous diagrams of isomeric transformations are given  
at the end of the book. (publisher's note)

*Print*

KORSUNSKIY, M. I.

USSR/Nuclear Physics - Nuclear Shells Jan 54

"The Experimental Foundations of the Model for Nuclear Shells," M. I. Korsunskiy

Usp Fiz Nauk, Vol 52, No 1, pp 3-82

A survey of the literature (1932-1953). Lists 82 references, 30 USSR and 52 Western. Refers to recent (1952-1950) works of: D. Ivanenko, N. Kolesnikov, A. Sokolov, L. V. Groshev, I. S. Shapiro, V. Rodichev, V. A. Kravtsov, B. S. Dzhelepov, L. N. Zyryanova, M. L. Chepelevetskiy, M. M. Venkov,

276T92

I. A. Vaysman, M. A. Levitskaya. Treats: the magic numbers; binding energy of nucleons; distribution of the isotopes; quadrupole moment of nuclei vs magic numbers; classification of nuclear levels; nuclear spin; magnetic moments of nuclei; beta-spectra and nuclear shells; isomery of atomic nuclei; investigation of excited nuclear levels; angular distribution for (d,p) and (d,n).

KROSTINSKIY M.L.

2  
18ML

The Atom Nuclear





activation energy of diffusion of O into the PbS layer. The  
of  $\alpha$  is 0.2-0.3 e.v.

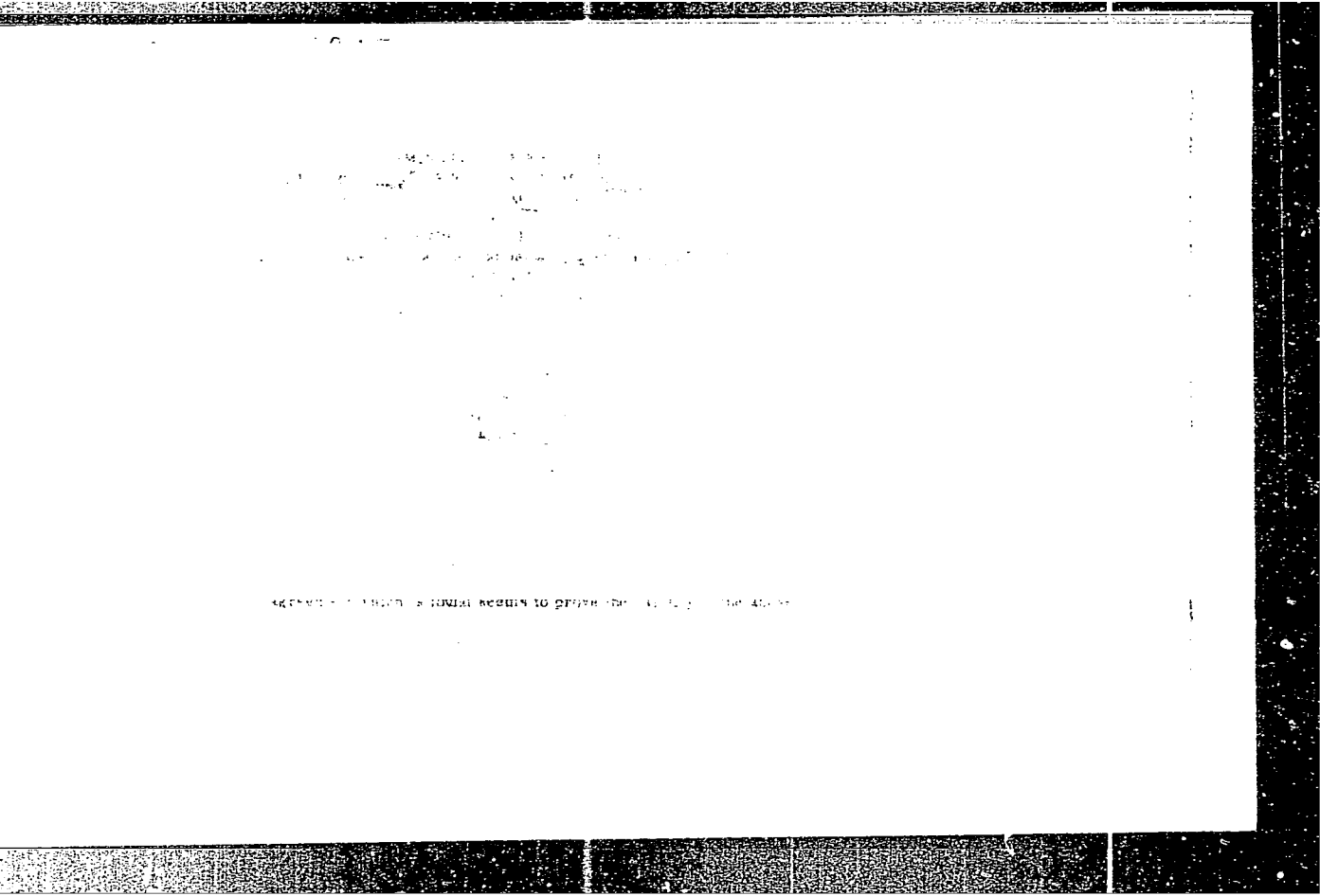
0.2-0.3

KORSUNSKIY, M.I.

USSR ]

2591. Mercury compression manometer. M. I. Korsunskii and S. G. Ilin (Zavod. Lab., 1936, 21 (4), 501-502).—The manometer is designed for pressures of 0.05 to 1 mm of Hg. It is constructed so that there is no additional volume due to a capillary, as in most instruments. Pressure is calculated from scale values that can be read directly, and no preliminary calibration is required.  
G. S. SMITH

*llms*





KORSUNSKIY, M. I.

Atomnoye Yadro (The Atomic Nucleus), by Moysey Izraylevich Korsunskiy, Moscow, Gostekhizdat, 1956, 428 pp, 5th edition (revised)

This book is a popular presentation of problems of nuclear physics. It is intended for the use of upper classes in secondary schools, physics instructors, students of natural sciences and technical schools, and engineering and technical personnel.

"Numerous changes and additions have been made in the fifth edition, covering advances in the field of atomic physics since publication of the fourth edition."

The chapter headings and pages devoted to each chapter follow: Radioactivity (7-60), Nuclear Model of the Atom (61-84), Mass of Atomic Nuclei (85-110), Splitting of Atomic Nuclei (111-141), Discovery of the Positron (142-164), Artificial Transformation of Atomic Nuclei (165-209), Artificial Radioactivity (210-231), Mesons (232-268), The Neutrino (269-285), Structure of Atomic Nuclei and Forces Acting Between Nuclear Particles (286-308), Nuclear Fission (309-337), Nuclear Chain Reactions (338-355), Peaceful Uses of Atomic Energy (356-379), and Thermonuclear Reactions (380-394). Appendix (figures) are on pages 395-428. (U)

54M.1391

KORSUNSKIY, M. I.

Category : USSR/Magnetism - Experimental methods of magnetism

F-2

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000825010010

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 1389

Author : Korsunskiy, M.I., Fogel', Ya.M., Bykova, G.A., Livshits, L.I., Lozovskiy, N.S., Chovnik, A.A.

Title : Investigation of the Topography of the Inhomogeneous Plane Magnetic Field of a Six-Pole Electromagnet.

Orig Pub : Zh. tekhn. fiziki, 1956, 26, No 2, 1222-1232

Abstract : A procedure is described for the investigation of the topography of an inhomogeneous plane magnetic field of a six-pole electromagnet, used to focus particles that have a magnetic moment. The cited measurement results show that the above field can be produced without substantial distortion in a circle 10 cm in radius.

Card : 1/1

*KORSUNSKIY, M.I.*  
Category : USSR/Nuclear Physics - Origin of Charged and neutral particles through matter C-6

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 585

Author : Korsunskiy, M.I., Leviant, Kh.L., Pivovar, L.I.,

Inst : Khar'kov Polytechnic Inst., USSR

Title : Applicability of the Ratio  $(\sigma_{12}\sigma_{31}\sigma_{23}/\sigma_{21}\sigma_{13}\sigma_{32}) = 1$ , which Holds for Detailed Equilibrium, to a Beam of Ions with a Stationary Composition

Orig Pub : Dokl. AN SSSR, 1956, 107, No 5, 664-667

Abstract : An analysis of the experimental data, obtained by various investigators, is used to show that the following equality holds with an accuracy to within 5%:

$$\frac{d}{dn} \left( \frac{1}{N_i} \frac{dN_i}{dn} \right) = \sigma_{12} \frac{N_1}{N_2} + \sigma_{13} \frac{N_1}{N_3} + \sigma_{14} \frac{N_1}{N_4} + \dots (1)$$

where  $N_1, N_2, \dots$  is the number of ions in the beam having charges 1, 2, etc., and  $N_1^*, N_2^*, \dots$  is the number of ions in the stationary case. Equation (1) is obtained if the relationship

$$\frac{\sigma_{12} J_2 J_1}{\sigma_{21} J_1 J_2} = 1 \quad (2)$$

is valid and is obtained for cross sections that characterize the charge exchange between a beam of fast ions and a substance at room temperature;

Card : 1/2

KORSUNSKIY, M. I.

AUTHORS: Korsunskiy, M. I., and Bazakutsa, V. A. 120-5-2/35  
 TITLE: An Electrostatic Analyser with a Non-uniform Field  
 Produced by a System of Plate Electrodes (Elektrostaticheskiy analizator s neodnorodnym polem obrazovannym sistemoy plastichatykh elektrodov)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1957, No. 5,  
 pp. 11 - 17 (USSR).

ABSTRACT: An electrostatic analyser of the differential type is described. It is designed to produce a non-uniform field which has the following components:

$$E_r = E_1/r - E_2 r, \quad (1)$$

$$E_z = 2E_2 z. \quad (2)$$

For such a field, the ion-optical properties depend on the coefficient of non-uniformity  $\eta$  given by:

$$\eta = 2 - 2kr_0^2/(1 - kr_0^2) \quad (3)$$

Card 1/2 where  $r_0$  is the radius of the equilibrium trajectory and

AVAILABLE: LIBRARY OF CONGRESS  
 Card 2/2

KORSUNSKIY, M.I., doktor fiziko-matematicheskikh nauk, professor; LAGUNOV, A.S.,  
kandidat tekhnicheskikh nauk; BAYVEL', L.P., kandidat tekhnicheskikh  
nauk; SINEL'NIKOV, A.N., kandidat tekhnicheskikh nauk.

Indicator for registering changes in clearances in steam turbines.  
Energomashinostroenie 3 no.5:26 My '57. (MIRA 10:6)  
(Steam turbines)



*Korsunskiy, M. I.*

**AUTHOR:** Rumyantsev, I.A., Korsunskiy, M.I. 48-10-15/20

**TITLE:** The  $L_{\beta 6}$ - and  $L_{\gamma 5}$ -Lines in Cu- and Zn-Spectra (Linii  $L_{\beta 6}$  i  $L_{\gamma 5}$  v spektrakh Cu i Zn)

**PERIODICAL:** Izvestiya AN SSSR Seriya Fizicheskaya, 1957, Vol. 21, Nr 10, pp. 1435-1437 (USSR)

**ABSTRACT:** The first results obtained by tests carried out in the L-series of Cu- and Zn X-ray spectra are described. This paper was intended to find out whether in Cu and Zn in the solid state the  $L_{II}, III-N_I$  transitions exist. The line  $L_{\beta 6}$  corresponds to the  $L_{III-N_I}$  transition and the line  $L_{\gamma 5}$  to the  $L_{II-N_I}$  transition. The investigations of the spectra were carried out in a powerful vacuum X-ray spectrograph with bent mica crystal and photorecording. The dependence of the appearance of Cu- and Zn spectra on the conditions of excitation was investigated. It is shown that the appearance of the L spectrum in the case of Cu and Zn depends to a considerable extent on the conditions of the excitation of the spectrum. Therefore all data for the L-series of elements with an average atomic number (about 26 Fe to 35 Br) must be re-examined. In the Cu- and

Card 1/2

The L<sub>6</sub>- and L<sub>5</sub>-Lines in Cu- and Zn-Spectra

48-10-15/20

Zn-spectra L<sub>β6</sub>- and L<sub>γ5</sub>-lines were found, which correspond to the transitions from the N<sub>I</sub>-level to the L<sub>III</sub>- and L<sub>II</sub>-levels respectively. There are 5 figures, and 6 references, 1 of which is Slavic.

ASSOCIATION: Khar'kov Polytechnic Institute (Khar'kovskiy politekhnicheskiy institut)

AVAILABLE: Library of Congress

Card 2/2

*Korsunskiy, M.I.*AUTHOR: Borovikova, G.P., Korsunskiy, M.I.

48-10-16/20

TITLE: X-Ray Spectrum of the Germanium L-Series (Rentgenovskiy spektr L-serii germaniya)

PERIODICAL: Izvestiya AN SSSR Seriya Fizicheskaya, 1957, Vol. 21, Nr 10, pp. 1438-1444 (USSR)

ABSTRACT: The X-ray spectrum of the germanium-L-series was obtained by means of a tube of the Krasnikov type (Zavodskaya Laboratoriya, 1939, 4-5). The investigation of  $L_{\beta_3}$ - and  $L_{\beta_4}$ -lines in the germanium spectrum gave the following results: The microphotograph shows that the short-wave line is more intense than the longwave line. As the most intense with 9561X was assumed as  $L_{\beta_3}$  and that with the wavelength of 9620 X as  $L_{\beta_4}$  (on the strength of published data). The ratio of intensities at  $L_{\beta_1}$  and  $L_{\beta_4}$  is difficult to determine and to be obtained only by re-calculating the intensity of the  $L_{\beta_1}$ -line. The ratio  $IL_{\beta_3} : IL_{\beta_1}$  was found to be equal to 0.13. Herefrom it may be seen that the intensity of the  $L_{\beta_3}$ - and therefore also of the  $L_{\beta_4}$ -line is very low. Furthermore, investigations were carried out

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## X-Ray Spectrum of the Germanium L-Series

48-10-16/20

in order to determine the presence of  $L_{III-N_I}$ ,  $L_{II-N_I}$  and  $L_{I-N_{II-III}}$ -transitions in solid germanium.  $L\alpha_{1,2}$  and  $L\beta_1$ -recordings were made at different conditions of excitation and exposure. The microphotograph shows that the double line is symmetric. It follows therefrom that the satellites are broader than the base lines. Such a strong intensity of  $L\alpha_x$  and  $L\beta_x$  justifies the statement that these lines cannot be satellites but that they are diagram lines. It was found that the ratio between the intensities of the satellites and those of the base lines depends in a considerable degree upon whether the sample was subjected to an electron bombardment or not. On the strength of all factors determined it may be said with justification that the line  $L\alpha_x$  is the line  $L\beta_6$ , and that the  $L\beta_x$ -line is the  $L\gamma_5$ -line. As a result of the investigations carried out the hypothesis is set up that the lacking of the  $L\beta_6$ - and  $L\gamma_5$ -lines

Card 2/3

KORSUNSKIY, M.I.

## AUTHOR:

KORSUNSKIY, M.I., BAZAKUTSA, V.A.

20-5-23/67

## TITLE:

On the Application of an Electrostatic Field of the Differential Type to the Spectroscopy of the Bundles of Charged Particles. (Obiqpel'sevanii elektrestaticheskogo pelya raznostege tipa v spektroskopii saryashennykh chastits . Russian).

## PERIODICAL:

Deklady Akademii Nauk SSSR, 1957, Vol 113, Nr 5, pp 1e29 - 1e31 (U.S.S.R.)

## ABSTRACT:

First of all the present state of the above problem is briefly discussed and several relevant preliminary papers are quoted. A special case of the differential field is defined by a radial and an axial component of the form  $E_r = (E_1/r) - E_2$  and  $E_z = 2E_2$ . Here  $E_1$  and  $E_2$  are certain constants which are in the following way connected with the inhomogeneity coefficient  $\eta$  and with the radius of the path of equilibrium:

$$\eta = 2 - \left( 2 \frac{E_2}{E_1} r_0^2 \right) / \left( 1 - \frac{E_2}{E_1} r_0^2 \right), \quad \eta = 3 + (\partial E / \partial r)(r/E) /$$

$$r = r_0$$

The differential field focusses in radial and axial direction, and it is possible to apply the WEBER rule in its generalised form: the source S, the side of the effective sector angle  $\Phi_\eta$  and the pre-

Card 1/3

**AUTHORS:**

Borovikova, G. P., Korsunskiy, M. I.

20-114-6-15/54

**TITLE:**

The  $L\beta_3$ - and  $L\beta_4$ -Lines in the Spectrum of Germanium (Linii  $L\beta_3$  i  $L\beta_4$  v spektre germaniya)

**PERIODICAL:**

Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 6, pp. 1192-1194 (USSR)

**ABSTRACT:**

The present paper shall find the lines which correspond to the transitions  $L_I \rightarrow M_{III}$  and  $L_I \rightarrow M_{II}$ , i. e. the lines  $L\beta_3$  and  $L\beta_4$ . The wave lengths of these lines shall be measured and their intensity estimated.

The apparatus and the method of investigation: The X-ray spectrum of germanium was obtained by means of a Krasnikov type tube. In the here described experiments the temperature of germanium remained below 50°C. The primary anode of the tube was covered by an aluminum plate. The main exciting radiation was the  $K\alpha_1$ ,  $K\alpha_2$ -radiation of Al with the wave lengths 8321,37 and 8323,82 X. The entire focal spot participated in the production of the spectrum.

Measuring results: The possible value of the wave length of

Card 1/2

АВРОСОВСКИЙ - М.И.

AUTHOR: Borovikova, G.P., Korsunskiy, M.I. 20-1-19/54

TITLE The Satellites of the  $L\alpha_{1,2}$  and  $L\beta_1$  Lines in the Spectrum of Germanium  
(O sputnikakh liniy  $L\alpha_{1,2}$  i  $L\beta_1$  v spektre germaniya)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 115, Nr 1, pp. 75 - 77 (USSR)

ABSTRACT: The authors refer to a respective earlier work. They continue the study of the L-series of the spectrum of germanium in order to determine the existence of lines not observed hitherto, especially of the lines  $L\beta_6$  (transition  $L_{III} \rightarrow M_I$ ),  $L\gamma_5$  (transition  $L_{II} \rightarrow N_I$ ) and  $L\gamma_{2,3}$  (transition  $L_I \rightarrow N_{II,III}$ ). The experimental arrangement described by G.P. Borovikova and M.I. Korsunskiy, Doklady Akad. Nauk SSSR, 1957, Vol. 114, Nr 6 is used. The obtained x-ray spectra of the L-series of Ge within the range of wavelengths of from 10150 - 10400 Å (which contains the lines  $L\alpha_{1,2}$  (transition  $L_{III} \rightarrow L_{IV-V}$ ) and  $L\beta_1$  (transition  $L_{II} \rightarrow M_{IV}$ )) differ greatly from the spectra known from literature. On the pictures taken by the authors bright lines were observed on the short-wave part next to the lines  $L\alpha_{1,2}$  and  $L\beta_1$ . A picture of this spectral range as well as a corresponding micro-

Card 1/2

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.X811

Korsunskiy, Moysey Israyl'yevich

The atomic nucleus. Moscow, foreign languages Publishing House  
1958.

412 p. illus., diags., graphs, tables.

Translated from the Russian: Atomnoye Yadro.



KORSUNSKIY, M.I.; RUMYANTSEV, I.A.

~~Lys~~ and Lys lines in copper and zinc spectra. Issl. po zharopr.  
oplav. 3:249-251 '58. (MIRA 11:11)  
(Copper--Spectra) (Zinc--Spectra)

82792

S/058/60/000/004/008/016  
A003/A001

24.2500

Translation from: Referativnyy zhurnal. Fizika, 1960, No. 4, p. 224, # 9169

AUTHORS: Bazakutsa, V.A., Korsunskiy, M.I.

TITLE: Some Aberrations of an Ion Beam When Passing Through an Electric Field of the  $E_r = -E_0 r^{-1} (1 - kr^2)$  Type

PERIODICAL: Tr. Khar'kovsk. politekhn. in-ta, 1958, Vol. 14, pp. 83-101

TEXT: The motion of ions in an electrical field of the difference type with the components  $E_r = -E_0 r^{-1} (1 - kr^2)$ ,  $E_z = -2kE_0 z$ , where  $E_0$  and  $k$  are parameters of the field, was considered in the 2nd approximation. The 1st approximation was discussed by M.I. Korsunskiy (Abstract # 9168). In so far as the motion of the ions is considered near the equilibrium trajectory, the method of perturbations is applied to the solution of the problem. The calculation of the side shift of the ion beam from the equilibrium trajectory made it possible to establish its dependence on the inconstancy of the value of the ion energy ( $\beta$ ), their angle of divergence ( $\psi_r$ ) and the width of the input slit ( $\Delta r_0$ ). The aberration coefficients have the highest value at  $\beta^2$  and  $\psi_r^2$ . The aberration coefficients of a difference-type field were compared to the corresponding co-

Card 1/2

3/058/60/000/004/009/016  
A003/A001

Translation from: Referativnyy zhurnal. Fizika, 1960, No. 4, pp. 224-225, # 9170

AUTHOR: Korsunskiy, M.I.

TITLE: The Motion of Ions in an Axial Magnetic Field of the  $H_z = H_1 r^{2s} - H_2 r^{2s+2}$  Type

PERIODICAL: Tr. Khar'kovsk. politekhn. in-ta, 1958, Vol. 14, pp. 103-110

TEXT: The motion of ions in axial magnetic difference-type fields of the  $H_z = H_1 r^{2s} - H_2 r^{2s+2}$  type was investigated in order to find magnetic fields with a high dispersion and resolution power. The components  $H_z$  and  $H_r$  of the difference-type field were determined. Conditions for focusing a diverging ion beam were established. At the focusing spot the beam is decomposed into spectrum with a dispersion exceeding by one order the dispersion in a homogeneous magnetic field. A high degree of dispersion can be obtained for a difference-type field with various values of the  $s$  parameter. A difference-type field with parameters  $s=0$  has a minimum aberration for ions moving outside of the plane  $z=0$ . Difference-type fields have the property of double focusing in direction (in  $z$  and in  $r$ ). ✓B

Card 1/2

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SOV/81-59-12-41476

Translation from: Referativnyy zhurnal. Khimiya, 1959, No. 12, p 35 (USSR)

AUTHORS: Pastushuk, N.S., Litvinov, L.B., Reznik, M.V., Korsunskiy, M.I.

TITLE: The Negative Photoconductivity of Thin Layers of Selenium With  
Admixtures of Tellurium

PERIODICAL: Tr. Khar'kovsk. politekhn. in-ta, 1958, Vol 14, pp 111-115

ABSTRACT: The photoconductivity  $\sigma$  of thin layers of amorphous Se with an admixture of Te dusted in vacuum on glass backing at room temperature has been investigated. The darkness conductivity  $\sigma_0$  of the studied layers is extremely low. It has been shown that the investigated samples have a noticeable negative photoconductivity observed at very weak electric fields ( $10^{-2}$  v/cm). The ratio of the dark current to the light current is 1.2-2. The time of establishing the stationary value of  $\sigma$  is equal to 15 - 20 minutes, and the time of relaxation of the "negative"  $\sigma_0$ , determined from the moment of switching off the light to establishing the equilibrium value, is 12 - 16 hours. It has been pointed out that there is no theory which can explain the described phenomena.

Card 1/1

V. Ostroborodova

AUTHORS: Korsunskiy, M. I., Bazakutsa, V. A. 30V57-28-7-24/35

TITLE: Investigation of Ion Optical Properties of a Sector Electrostatic Field of a Difference Type (Issledovaniye ionno-opticheskikh svoystv sektornogo elektrostatischeeskogo polya raznostnogo tipa)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Vol. 28, Nr 7, pp.1510-1525 (USSR)

ABSTRACT: The results of the investigation of ion optical properties of an electrostatic sector field of the difference type produced by electrodes of the shape of equipotential planes are given. The authors discuss a special case of a difference field; viz. a simple superposition of the field of a cylindrical condenser and of an axial field, as described in Ref 17. First the focusing in the difference field is investigated and it is shown that a use of the difference fields can practically increase the resolving power also in those cases where the dimensions of the picture are mainly fixed by the dimensions of the sources. An experimental determination of

Card 1/4

SOY57-28-7-24/35

Investigation of Ion Optical Properties of a Sector Electrostatic Field  
of a Difference Type

the ion-optical characteristics of an electrostatic sector field of the difference type and especially a determination of the aberration factors is carried out in order to solve the problem of the usefulness of an application of difference fields in the spectroscopy of beams of charged particles. This field was produced by condenser-type coatings to which the corresponding potentials were applied. It was found that such a field just as well as the field of a cylindrical condenser is equivalent to a thick lens combined with a prism, and that in the case of good focusing it shows a considerably greater dispersion (by one order of magnitude). The experimental determination of the values of the aberration factor coincides well with those calculated theoretically. In the determination of the ion-optical characteristics of the difference-sector field the authors started from the applicability of the geometric parameters  $q$  and  $p$  of the systems and from the parameters  $\Delta r$ ,  $\psi$  and  $\delta$  characterizing the beam of charged particles. When such a set of variable magnitudes is at hand the wanted characteristics may be determined. - The description of the experimental

Card 2/4

SOV/57-29-7-24/35

Investigation of Ion Optical Properties of a Sector Electrostatic Field of a Difference Type

apparatus follows. Based on the carried-out investigation the following is said: 1) The theoretical investigation of the ion-optical properties of a difference-field of the sector type carried out proves the possibility to use it in the spectroscopy of the beams of charged particles. 2) This was proved by the experimental checking of the theoretical conclusions. The experimental data obtained well agree with those from theory. The dispersion of first order in the difference analyzer amounts to the 12-fold of that in the analyzer with an electric field of a cylindrical condenser. 3) The method worked out permits to determine experimentally the ion-optical system parameters. 4) By realizing the difference fields by means of a heterogeneity factor which is as small as possible (where no focusing takes place yet) an important dispersion can be obtained. 5) The dispersion of the energy field depends on the magnitudes  $\delta$ ,  $\Delta r_0$  and  $\psi_0$  which demands an earlier calibration of the analyzer. 6) It is useful to use the electrostatic sector field of the difference type for the construction of the compact spectral

Card 3/4

Investigation of Ion Optical Properties of a Sector Electrostatic Field  
of a Difference Type SOV/ 57-28-7-24/35

apparatus with great resolving power.

$\delta$  denotes the magnitude characterizing the scattering according to energy.

$\Delta r$  denotes the initial deviation from the path of equilibrium of any ion.

$\psi_0$  denotes the initial angle of the inclination to the trajectory of equilibrium.

$q$  and  $p$  are the magnitudes in the scheme of the generalized rules by N. F. Barber (Ref 22). There are 10 figures, 3 tables, and 25 references, 10 of which are Soviet.

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

SUBMITTED: May 3, 1957

1. Electric fields--Optical properties

Card 4/4



KOR SUNSKiy, M. J.

18(7) PHASE I BOOK EXPLOITATION SOV/3355  
 Akademiyi nauk SSSR. Institut metallurgii. Nauchnyy sovet po  
 probleme sharoprochnykh splavov  
 Issledovaniya po sharoprochnym splavam, t. IV (Studies on Heat-resistant Alloys, vol. 4). Moscow, Izd-vo AN SSSR, 1959. 400 p.  
 Errata slip inserted. 2,200 copies printed.  
 Ed. of Publishing House: V. A. Klimov; Tech. Ed.: A. P. Guseva;  
 Editorial Board: I. P. Bardin, Academician; G. V. Kurdymov,  
 Academician; M. V. Apyev; Corresponding Member, USSR Academy of  
 Sciences; I. A. Odintsov, I. M. Pavlov, and I. P. Zudin, Candidate  
 of Technical Sciences.

PURPOSE: This book is intended for metallurgists concerned with  
 the structural metallurgy of alloys.  
 COVERAGE: This is a collection of specialized studies of various  
 problems in the structural metallurgy of heat-resistant alloys.  
 Some are concerned with theoretical principles, some with descriptions  
 of new equipment and methods, others with properties of  
 specific materials. Various problems concerning under  
 specified conditions are studied and reported for details,  
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 of references, both Soviet and non-Soviet.

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Archarov, V. I., S. M. Klotsman, and A. M. Tsvetkov. The Effect of Small Additives on the Coefficient of Diffusion in Polycrystalline Materials	170
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KORZANSKIY, M. I.

24(4)

PHASE I BOOK ABSTRACTS 30V/110  
Akademiya nauk Ukrainy SSR, Institut fiziki

Fotoelektricheskiye i opticheskyye yavleniya v poluprovodnikakh i opticheskoy elektronike: sbornik nauchnykh i tekhnicheskikh rabot, vyshlyy v svet v Kiyev, 20-26 noyabrya 1957 g. (Photoelectric and Optical Phenomena in Semiconductors and Optoelectronics: First Conference on Photoelectric and Optical Phenomena in Semiconductors...) Kiyev, 1959. 403 p. 4,000 copies printed.

Additional Sponsoring Agency: Akademiya nauk SSSR, Prezidium, Komissiya po poluprovodnikam.

M. of Publishing House: I. V. Kistina; Tech. Ed.: A. A. Matveychuk; Resp. Ed.: V. Ye. Lashkarev, Academician, Ukrainian SSR, Academy of Sciences.

PURPOSE: This book is intended for scientists in the field of semiconductor physics, solid state spectroscopy, and semiconductor devices. The collection will be useful to advanced students in universities and institutes of higher technical training specializing in the physics and technical application of semiconductors.

COVERAGE: The collection contains reports and information bulletins (the latter are indicated by asterisks) read at the First All-Union Conference on Optical and Photoelectric Phenomena in Semiconductors. A wide scope of problems in semiconductor physics and technology are considered: photoconductivity, photoelectromotive elements, optical properties, photoelectric cells and photoresistors, the properties of thin films of semiconductors, etc. The materials were prepared by the following authors: Korzun, O. V., Shitko, K. B., Tolpigo, A. P., Lukin, Ya. S., and Sheynman. References and discussion follow each article.

Photoelectric and Optical Phenomena (Cont.)	30V/110
Yerofeichev, V. G., and I. M. Esh-batov. Recording the Photoconductivity of Lead Sulfide According to the Absorption of Microwaves	213
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Litvin, M. F., V. M. Marasid, and N. G. Tsvetikh. Optical Properties of Thin Films of Some Semiconductors	227
Babayev, G. D., M. I. Alkoz, A. I. Babayev, G. D. Babayev, and Z. Seleznev. Investigation of the Optical Properties of Selenium With Additives of Iodine, Bromine, and Chlorine	237

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05432

SOV/120-59-3-3/46

AUTHORS: Korsunskiy, M. I., and Zashkvara, V. V

TITLE: On the Possible Reduction of Aberration Coefficients  
in Non-uniform Field Analyzers  
(O vozmozhnosti umen'sheniya aberratsionnykh  
koeffitsiyentov v analizatorakh s neodnorodnymi  
polyami)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 3,  
pp 21-25 (USSR)

ABSTRACT: Contemporary charged particle spectroscopy uses electro-  
static and magnetic analyzers with non-uniform, axially  
symmetric fields. The use of a non-uniform electro-  
static field which falls off along the radius more  
rapidly than the field in a cylindrical condenser and  
also of a non-uniform magnetic field, enables one to  
increase considerably the dispersion of analyzing devices  
(Refs 1 to 5). However, such fields have the disadvantage  
that they have relatively large aberration effects  
(Ref 3). The aim of the present paper is to investigate  
the possibility of removing or minimising these aberra-  
tion effects, which are due to the non-uniform field,  
while preserving the large dispersion. It is shown that

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SOV/120-59-3-3/46

### On the Possible Reduction of Aberration Coefficients in Non-uniform Field Analyzers

this can be done by using a number of electrostatic or magnetic non-uniform fields slightly different from each other. Such a multisector analyzer is analogous to a collection of lenses correcting the principal aberrations of an optical system. The particular set-up considered is shown in Fig 1 and consists of a number of non-uniform electrostatic fields in series. In Fig 1 the sources on the left and the detector on the right. The field components in the neighbourhood of the main orbit (a circle of radius  $r_0$ ) may be represented as power series in the small quantities  $\rho = (r - r_0)/r_0$  and  $\xi = z/r_0$  (Eqs (1) and (2)). Expressions (1) and (2) satisfy Maxwell's equations and the symmetry requirement with respect to the plane  $z = 0$ . It is assumed that on the boundary between two neighbouring sectors there is a jump within the field from a value  $E^{(n)}$  to  $E^{(n+1)}$ . At the input and output of the analyzer the field changes discontinuously from zero to the values given by Eqs (1) and (2). The equations of motion of an ion with a mass  $m$

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On the Possible Reduction of Aberration Coefficients in Non-uniform  
Field Analyzers

and charge  $e$  in the  $n$ th sector are given by Eq (3). This equation is solved by the method of successive approximations and the first order focussing condition and energy dispersion are derived and are given by Eqs (10) and (11). Next, an analysis is given of the aberrations. It is shown that by suitable choice of the geometry the aberration coefficients may be reduced to zero. This analysis can be extended to magnetic fields. In particular, second order double focussing and high dispersion may be obtained by using a three-sector electrostatic analyzer in conjunction with a sector producing a non-uniform magnetic field. There are 4 figures and 6 references, 5 of which are Soviet and 1 German.

ASSOCIATION: Khar'kovskiy politekhnicheskii institut  
(Khar'kov Polytechnical Institute)

SUBMITTED: April 14, 1958

Card 3/3

BOROVIKOVA, G.P.; KORSUMSKIY, M.I.

L-series spectrum of germanium. Issl. po zharopr.splav. 4:  
140-146 '59. (MIRA 13:5)

(Germanium--Spectra)

27758  
S/058/61/000/007/062/086  
A001/A101

26.2322

**AUTHORS:** Korsunskiy, M.I., Zashkvara, V.V., Bazakutsa, V.A.

**TITLE:** On the joint action of electric and magnetic difference-type sector fields on an ion beam

**PERIODICAL:** Referativnyy zhurnal. Fizika, no. 7, 1961, 299, abstract 7Zh49 ("Tr. Khar'kovsk. politekhn. in-ta", 1959, v. 25, 61 - 71)

**TEXT:** It was established that a system of consecutively arranged electric and magnetic difference-type fields ensures double focusing of a divergent ion beam. Moreover, in this system it is possible to bring about, by a correspondingly selected shape of the magnetic field, also additional focusing along the z-axis. Conditions are derived for automatic compensation of variation of one field by varying the other, which ensures a high stability of the ion-optical system. As a result of theoretical investigation of the ion motion, optimum values of parameters were selected for obtaining high dispersion at small image width. The ion-optical system studied can be utilized for designing a powerful mass-spectrograph with a high resolving power. There are 11 references. V. Bazakutsa  
[Abstracter's note: Complete translation]

Card 1/1

RUMYANTSEV, I.A.; KOPINSKIY, M.I.

L-spectra of Zn in alloys of the Cu-Zn system. Opt. i spektr.  
7 no. 6:350-352 D '59. (MIRA 14:2)  
(Zinc--Spectra) (Copper-zinc alloys--Spectra)



SOV/48-23-5-6/31

24(7)

AUTHORS:

Borovikova, G. P., Korsunskiy, M. I.

TITLE:

Investigation of L-Series of Germanium (Issledovaniye L-serii germaniya). Influence of Impurities (Vliyaniye primesey)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 5, pp 564 - 568 (USSR)

ABSTRACT:

The transition of matter into another physical or chemical state causes, as is known, a change of the electron state in the atoms, and these changes are revealed in the structure of the X-ray spectral lines. The comparison of the spectra shows that the spectrum change occurring in metallic germanium takes place, as if the sample surface were oxidized. In the investigations under review, the intensity of the lines was measured with a microphotometer. The classical dispersion curve formula is then written down, and a diagram shows the measured intensities of the L-lines as well as their splitting up into individual maxima. Table 1 summarizes the half widths of the individual maxima, and table 2 the interval between the maxima (both in eV). The intensity of all lines is computed with the abovementioned formula. Germanium rectifiers are investigated

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Investigation of L-Series of Germanium. Influence of  
Impurities

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next, and their frontal and lateral spectra are shown in two diagrams. Finally, the influence of small iron impurities (0.002%-0.05%) on form and position of maxima is investigated, and results are summarized in four tables. Special samples serving for these investigations were prepared by the Institut poluprovodnikov AN USSR (Institute of Semiconductors AS USSR) and gratitude is expressed to V. Ye. Lashkarev. There are 3 figures, 10 tables, and 3 Soviet references.

ASSOCIATION: Khar'kovskiy politekhnicheskii institut im. V. I. Lenina  
(Khar'kov Polytechnic Institute imeni V. I. Lenin)

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*KORSUNSKIY, M.I*

PHASE I BOOK EXPLOTTATION

SOV/4347

Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov.  
Seminar po zharostoykim materialam

Trudy, vyp. no. 5 (Transactions of the Academy of Sciences, Ukrainian SSR,  
Institute of Metal Ceramics and Special Alloys, Seminar on Heat Resistant  
Materials, No. 5) Kiyev, Izd-vo AN Ukrainskoy SSR, 1960. 63 p. 2,000 copies  
printed.

Ed. of Publishing House: I.V. Kisina; Tech. Ed.: A.A. Matveychuk; Editorial  
Board: G.V. Samsonov (Resp. Ed.), I.N. Frantsevich, V.V. Grigor'yeva,  
A.Z. Men'shikov, and M.I. Korsunskiy.

**PURPOSE:** The book is intended for engineers, scientific workers and students  
specializing in refractory metals and their compounds, powder metallurgy,  
electronics, machine building and physical metallurgy in schools of higher  
technical education.

**COVERAGE:** This collection of papers, originally presented at the Seminar on Heat  
Resistant Materials in Kiyev on June 13-June 17, 1958,

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Transactions of the Academy of Sciences (Cont.)

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discusses the physical properties and production technology of refractory metals and their metal-like compounds with boron, carbon, nitrogen, and silicon. The results of investigations of the absorption and emission spectra of niobium and chromium compounds, processes of joint diffusion of two elements in metals, and data on phenomenological studies of physical properties of metal-like phases are presented. Methods of processing rare metals and refractory compounds in making powders and various articles used in many fields of modern technology are analyzed in detail. Several articles discuss the particular problems of powder metallurgy of ordinary metals and alloys. The papers reflect work performed at the following institutions: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Metal Ceramics and Special Alloys, Academy of Sciences UkrSSR), Gosudarstvennyy institut prikladnoy khimii (State Institute of Applied Chemistry) Leningrad, Khar'kovskiy politekhnicheskii institut (Khar'kov Polytechnic Institute), Institut fiziki metallov AN SSSR (Institute of the Physics of Metals, Academy of Sciences USSR), Sverdlovskiy gosudarstvennyy universitet (Sverdlovsk State University), VIAM; TsNIICHERMET, VNIILASh, Institut metallurgii AN USSR (Institute of Metallurgy, Academy of Sciences UkrSSR) VNIITS, NIIGRE, MKIS, Gor'kovskiy politekhnicheskii institut (Gor'kiy Polytechnic Institute), and Moskovskiy elektrolampovyy zavod (Moscow Electric Bulb Plant). References accompany individual articles.

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Nemmonov, S.A., and A.Z. Men'shikov. K $\alpha$ spectra of Chromium	21
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Frantsevich, I.N., and A.N. Pilyankevich. Comparative Brittleness	28
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Arkharov, V.J., and V.N. Konev. Joint Diffusion of Two Elements in Hard Metal.

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Samsonov, G.V., and N.N. Zhuravlev. Structure and Properties of Borides of Rare-Earth Metals

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Kudryavtsev, V.I., and G.V.Sofronov. Precision Determination of Lattice Intervals of Boron Carbide of  $B_{2,75}C--B_{1,75}C$  Composition According to Roentgenograms Obtained in the Region of Large Scattering Angles ( $0 \rightarrow 90^\circ$ )

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KORSUNSKIY, M.I.

TABLE I BOOK REFERENCE NO/4902

Scientific work 888. Summary some problems intermetallic splav  
 Intermetallics for intermetallic splav, see 6 ( Investigations of Inter-  
 metallic Alloys, Vol. 6) Moscow, 1960. 319 p. Price 14p 100000.  
 5,000 copies printed.

Special Agency Summary some 888. Intermetallic splav  
 Intermetallic splav: L. P. Bartin (Moscow), G. V. Gurevich, E. V.  
 Gurevich, Corresponding Member, Academy of Sciences USSR (Mosc., M.I.), L. A.  
 Gurevich, L. E. Nevskiy, and I. P. Radin (Mosc., M.I.), M. I. Korsunskiy,  
 M. G. Polakovich, E. M. Y. E. Elmsley, Mosc. M.I. 20, 1960.

Abstract: This book is intended for research workers in the field of physics of  
 metals and for metallurgists, particularly those working on heat-resistant  
 alloys.

Summary: This collection of 15 articles deals with various problems in the  
 production of heat-resistant alloys. Special attention is paid to the  
 mechanical properties of such metals as aluminum, copper, iron, and nickel.  
 The physical and chemical properties of these metals are analyzed, and means for increasing  
 their strength and plasticity are described. Among the special prob-  
 lems discussed are: electrolytic conductivity of iron-aluminum alloys in the  
 solid state; the stability of grain in intermetallic alloys, depending upon  
 the structure of their crystalline structure; the kinetics of change in lattice  
 defects of their thermal transformation of solid bodies, etc. In general,  
 these are mentioned. References follow each article.

Gurevich, E. V., Gurevich, L. E., Gurevich, L. E., Gurevich, L. E., Gurevich, L. E.,  
 and Gurevich, L. E. Investigation of the  
 Role of the Kinetics of Intermetallic Transformation in the  
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24.7500  
AUTHORS: Reznik, M.V. and Korsunskiy, M.I.

TITLE: On the Diffusion of Mercury Atoms Into Selenium ↗

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1960, Nr 3, pp 107 - 111 (USSR)

ABSTRACT: The effect of mercury impurities on the conductivity of selenium is well known (Refs 1, 2, 4). The mercury impurity increases the conductivity of selenium by millions of times and alters its photo-conductivity. It has been found experimentally that the change in the photo-conductivity of selenium depends on its electrical conductivity and consequently on the amount of impurities introduced into the selenium. Depending on the concentration of the mercury-impurity atoms, the photo-conductivity of selenium can be either positive or negative. Hence, in order to obtain a definite concentration of mercury atoms in selenium and consequently a given type of conductivity, it is important to have information about the diffusion of mercury into selenium. Published data on this subject are claimed to be not very consistent. The present paper reports results of

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82336

S/139/60/000/03/018/045

EQ32/E314  
Selenium

On the Diffusion of Mercury Atoms Into Selenium

measurements of the rate of diffusion of mercury into thin ( $10^{-4}$  cm) films of amorphous and crystalline selenium. The selenium was deposited onto circular glass plates, 16 mm in dia, or rectangular glass plates, 14 x 26 mm, with grooves cut into them. Wire electrodes, 0.45 mm in dia, were fixed in these grooves and were covered with a layer of gold or silver. The selenium was then deposited on these discs and placed in a vacuum.

The thickness of the selenium deposit was  $10^{-4}$  -  $10^{-5}$  cm. The form of the discs and plates is illustrated in Figures 1 and 2. Depending on the temperature of the base, the selenium was in an amorphous or crystalline state. The structure of the deposits was investigated by X-ray methods and also metallographically. The mercury atoms were introduced into the selenium with the aid of the apparatus illustrated in Figure 3. This simply consists of a perspex holder B into which the specimen 4 could be inserted and subjected to the effect of mercury vapour, the mercury being held in the adjustable reservoir A.

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E032/E314

## On the Diffusion of Mercury Atoms Into Selenium

While the selenium was in the mercury-vapour atmosphere, its electrical conductivity was continuously measured. Mercury atoms entering the selenium increase conductivity. After a certain time  $\tau$  after the beginning of the penetration of mercury into the selenium, a measurable conductivity could be observed. At room temperature  $\tau = 10-20$  min for amorphous selenium and 3-5 hours for crystalline selenium. The conductivity rapidly increases after this time and a typical graph of conductivity versus time is shown in Figure 4. When the specimen was removed from the mercury-vapour atmosphere the resistance of the specimen increased by a factor of 2 - 3 and then remained constant. It was found that  $\tau$  decreases with increasing temperature ( $\tau = 10, 3.5$  and 1 min when  $t = 36, 48$  and  $58^\circ\text{C}$ , respectively). The experiments indicate that the diffusion of mercury into selenium takes place both at room and higher temperatures. The rate of diffusion in amorphous selenium is greater than in crystalline selenium. The rate of diffusion in crystalline

Card3/4

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9.4177

S/139/60/000/004/020/033  
E201/E591

24.3600

AUTHORS: Korsunskiy, M.I., Pastushuk, N.S. and Mokhov, G.D.

TITLE: Photoconductivity Kinetics of Amorphous Selenium Layers  
Treated with Mercury Vapour

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika,  
1960, No.4, pp.167-172

TEXT: The paper deals with photoconductivity of amorphous selenium layers treated with mercury vapour and exhibiting both positive and negative photoconductivity (positive means here enhancement of the electrical conductivity by illumination, negative means reduction of the electrical conductivity). Selenium layers were produced by vacuum deposition (at  $10^{-5}$  mm Hg) on glass plates. The layers were from  $2 \times 10^{-4}$  to  $3.5 \times 10^{-4}$  cm thick. The electrode positions are shown in Fig.1. The experiments extended over the following wavelength ranges: 360-460, 530-580, 600-720, 740-1000 mμ. Figs. 2 and 3 give typical oscillograms showing the dependence of the change in the conductance ( $\Delta \sigma$ ) with time (t) under illumination with light of  $10^{-4}$  W/cm<sup>2</sup> intensity. The oscillograms show that illumination raised the conductivity

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E201/E591Photoconductivity Kinetics of Amorphous Selenium Layers Treated  
with Mercury Vapour

irrespective of the polarity of the applied voltage. Initially the photoconductivity rose very sharply, reached a maximum ( $\Delta\sigma_{\max}$ ) and then decreased slowly reaching a steady-state value ( $\Delta\sigma_c$ ) in 4-5 min. A family of oscillograms representing the dependence  $\sigma = \sigma_d + \Delta\sigma = \varphi(t)$ , where  $\sigma_d$  is the dark conductivity, is shown in Fig. 4. Figs. 5-10 show, as a function of the intensity of illumination,  $\left(\frac{d\sigma}{dt}\right)_{t \rightarrow 0}$  (Figs. 5 and 6),  $\Delta\sigma_{\max}$  (Figs. 7 and 8),

$\Delta\sigma_c$  (Figs. 9 and 10). It was found that the photoconductivity kinetics of mercury-treated selenium layers depended strongly on the wavelength of illumination, on its intensity and on the polarity of the applied electric field. The negative photoconductivity was observed under illumination with short-wavelength light of sufficient intensity. The positive photoconductivity decay became less pronounced with increase of wavelength at a fixed illumination intensity. There are 10 figures and 5 references: 4 Soviet and 1 French.

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83362

S/139/60/000/004/020/033  
E201/E591

Photoconductivity Kinetics of Amorphous Selenium Layers Treated  
with Mercury Vapour

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

SUBMITTED: June 29, 1959 (initially)  
March 26, 1960 (after revision)

Card 3/3

5 2200 1043, 1160, 1273

23332 S/058/61/000/006/017/063  
A001/A101

AUTHORS: Korsunskiy, M.I., Genkin, Ya. Ye.

TITLE: Niobium emission bands  $I\beta_2$  and  $I\gamma_1$  in NbN, NbC and NbB<sub>2</sub>

PERIODICAL: Referativnyy zhurnal. Fizika, no. 6, 1961, 151, abstract 6V114 ("Tr. Seminara po zharostoykim materialam", (In-t metallokeramiki i spets-splavov AN UkrSSR, no. 5), Kiyev, 1960, 15 - 20)

TEXT: The authors investigated the L-series of Nb in the compounds NbN, NbC and NbB<sub>2</sub>. It was found out that intensities and shapes of lines  $L\alpha_{1,2}$ ,  $L\beta_1$ ,  $L\beta_4$ ,  $L\beta_3$  and others varied insignificantly, whereas those of bands  $L\beta_2$  and  $L\gamma_1$  suffer sharp changes. The bands  $L\beta_2$  and  $L\gamma_1$  of Nb in compounds are only parts of the corresponding bands of pure Nb. The "cutting-off" of band parts is a consequence of escaping of a part of electrons in the mentioned compounds from d-state of Nb. The measurements performed are insufficiently accurate for reliable quantitative conclusions, but in the NbB<sub>2</sub> compound this phenomenon is more pronounced than in NbN and NbC.

[Abstracter's note: Complete translation]

Card 1/1

S/115/60/000/05/25/034  
B007/B011

AUTHORS: Korsunskiy, M. I., Lagunov, A. S., Bayvel', L. P.,  
Sinel'nikov, A. N.

TITLE: Use of Radioactive Isotopes for the Measurement of Vapor  
Moistness 19

PERIODICAL: Izmeritel'naya tekhnika, 1960, No. 5, pp 50-52

TEXT: A method of measuring vapor moistness is offered here. It bases on the determination of vapor density after absorption of  $\beta$ -particles. A radioactive sulfur isotope was used for the purpose. Investigations were first conducted in the laboratory. Source activity and counter were selected, the optimum distance between isotope and counter as well as the absorption coefficient were determined. The experimental setup shown in Fig. 1 served for the investigations. The setup is briefly described along with the investigation course. An aluminum vessel prepared for the purpose and shown in Fig. 2 was used as source. Radiometer Б-2 (B-2) served as recording device. To determine the vapor density it was necessary to determine the mass absorption coefficient of

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Use of Radioactive Isotopes for the  
Measurement of Vapor Moistness

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B007/B011

irrespective of the state and the drop size of the moistness contained  
in the vapor. There are 3 figures and 1 table.

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Card 3/3



KORSUNSKIY, M.I.; GENKIN, Ya.Ye.

Possible determination of electron distribution by their  $d_{3/2}$  and  
 $d_{5/2}$  states in relation to the intensity of L-series lines. Issl.  
po' sharopr. splav. 6:165-168 '60. (MIRA 13:9)  
(Electrons--Emission) (X-rays--Diffraction)

29409

S/081/61/000/017/002/166  
B102/B138

/18.1152

5.5310

AUTHORS: Korsunskiy, M. I., Genkin, Ya. Ye.

TITLE: X-ray L spectra of niobium in the diboride, nitride and carbide, and the nature of the bond in these compounds

PERIODICAL: Referativnyi zhurnal. Khimiya, no. 17, 1961, 11 - 12, abstract 17B65 (Sb. "Issled. po zharoprochn. splavam", M., AN SSSR, v. 6, 1960, 169 - 173)

TEXT: X-ray fluorescence L spectra of metallic Nb and of NbC, NbN and NbB<sub>2</sub> (lines L<sub>α<sub>1</sub></sub>, L<sub>α<sub>2</sub></sub>, L<sub>β<sub>1</sub></sub>, L<sub>γ<sub>1</sub></sub>, L<sub>β<sub>2</sub></sub>, L<sub>β<sub>3</sub></sub> and L<sub>β<sub>4</sub></sub>) have been obtained.

When passing from metallic Nb to compounds, the intensity and shape of the lines L<sub>α<sub>1</sub></sub>, L<sub>β<sub>1</sub></sub>, L<sub>β<sub>3</sub></sub>, L<sub>β<sub>4</sub></sub> change very little, while in the L<sub>β<sub>2</sub></sub> and L<sub>γ<sub>1</sub></sub> lines the change is considerable. The first of these lines, which is of normal shape in metallic Nb, becomes a broad line with two peaks in NbB<sub>2</sub>; the change consists in the "shearing" of part of the band. The same

Card 1/2

*KORSUNSKIY, M. I.*

82550

S/181/60/002/007/030/042  
B006/B060

24.7700

AUTHORS: Korsunskiy, M. I., Pastushuk, N. S., Mokhov, G. D.TITLE: On the Photoconductivity<sup>γ</sup> of Sulfur<sup>γ</sup> Layers Exposed to the  
Action of Mercury Vapor

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 7, pp. 1581-1583

TEXT: In a previous paper (Ref. 1) the authors had already found that layers of amorphous selenium treated with mercury vapor exhibited both positive and negative photoconductivity. The development of photoconduction proved to be complicated and very sluggish. In the present paper the authors examined sulfur layers. The samples were prepared by vacuum sputtering of sulfur ( $10^{-5}$  torr) onto a glass plate 18 mm in diameter. Gold electrodes were applied at intervals of 3 - 4 mm (Fig. 1). The sulfur layer had a thickness of  $(2-3) \cdot 10^{-4}$  cm and a dark resistance of  $10^{12}$  ohms. After it had been treated with mercury vapor, its resistance dropped to  $10^6$  ohms and less, depending on the duration of treatment. At room temperature the treatment took 4 - 5 days; at  $70^{\circ}\text{C}$ , 7 - 8 hours. The authors found a peculiar catalytic action of sunlight: The treatment took no more than

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82550

On the Photoconductivity of Sulfur Layers  
Exposed to the Action of Mercury Vapor

S/181/60/002/007/030/042  
B006/B060

12 - 15 minutes with the use of sunlight. It was further shown that photo-activity differed in various parts of the sample; the differences amounted to almost one order of magnitude. The highest activity was exhibited by the layer at the points over an electrode. A loop oscilloscope with a d-c amplifier and a galvanometer was used for the measurement of photoconductivity, and a projection lamp (400 w) served as light source. Spectral measurements were made on a monochromator of the type УМ-2. (UM-2). Fig. 2 shows  $\Delta\sigma = f(t)$  for a sample irradiated with  $\lambda = 453$  and  $645 \text{ m}\mu$  at room temperature. At  $\lambda = 453 \text{ m}\mu$  photoconductivity rises, passes through a maximum, and drops (below the value of darkness) deeply into the negative range (negative photoconductivity). At  $\lambda = 645 \text{ m}\mu$  a rise is observable with subsequent saturation (sluggish positive photoconductivity). Such a different behavior is also found if the conductivity of the sample whose photoconductivity was effected by  $453$  and  $645 \text{ m}\mu$ , respectively, is measured in the dark (Fig. 3). The dark conductivity is maintained for 2.5 hours in both cases. There are 3 figures and 4 references: 2 Soviet and 1 British.

Card 2/3

86810

S/185/60/005/001/009/018  
A151/A029

1520

1136, 1228, 1273

AUTHORS: Korsuns'kyy, M.I.; Borovykova, H.P.

TITLE: The Effect of Very Small Admixtures of Antimony on the L-Series of the X-Ray Spectrum of Germanium

PERIODICAL: Ukrains'kyy Fizychnyy Zhurnal, 1960, Vol. 5, No. 1, pp. 88 - 93

TEXT: In Ref. 1 the authors reported on the effect of small admixtures of iron, cobalt and gallium on the L-series of the X-ray spectrum of a germanium single crystal. The aim of this investigation is to determine the relationship between the value of the displacement  $\Delta E_{L\beta} - \alpha_{II2}$  and the concentration of admixtures in Ge. The four lines (emission bands) of the L-series of Ge  $L_{\alpha 1,2}$ ,  $L_{\beta 5}$ ,  $L_{\beta 1}$  and  $L_{\gamma 5}$  (Ref. 1) were investigated with the aid of a high-vacuum X-ray spectrograph fitted with a bent crystal of mica, as well as by a mixed method of X-ray spectrum excitation. The curvature radius of the mica crystal was 1 m. The crystal's work surface was 10 x 40 mm. The X-ray tube and the spectrograph had a vacuum. The spectrum recording was effected by a photographic method on the film Agfa Isopan F  $\frac{17}{10}$  DIN. The operation conditions of the tube: tension 3.5 kv, current 4 - 8 ma. The linear dispersion within the reflection angle range was  $32 \text{ Xmm}^{-1}$ , the energy dispersion was  $3.68 \text{ ev} \cdot \text{mm}^{-1}$ . The photometric measure-  
ment  $1/2$

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S/185/60/005/001/009/018  
A151/A029

The Effect of Very Small Admixtures of Antimony on the L-Series of the X-Ray Spectrum of Germanium.

ments of the spectrum were carried out on the MF-4 (MF-4) microphotometer with a magnification coefficient of  $1 \times 8$ . Each spectrogram was photometered three times on a different height of the lines. Three spectrograms were made of each of the germanium single crystals investigated. It is shown that an introduction of antimony in the quantity of  $10^{-3}$  -  $10^{-2}$  atomic percent into the Ge single crystal causes a displacement of the line  $L\alpha_6$  in relation to the line  $L\alpha_{1,2}$ , and a displacement of the line  $L\gamma_5$  in relation to the line  $L\beta_1$  of Ge by the value 1 - 2 ev. The value of the displacement  $\Delta E_{\alpha_6 - \alpha_{1,2}}$  is proportional to the cubic root from the concentration of the admixture atoms. A displacement of the lines  $L\alpha_{1,2}$  and  $L\beta_1$  to the short-wave direction was revealed which points to the displacement of the levels  $M_{IV, V}$  with regard to the levels  $L_{III}$  and  $L_{II}$ . This displacement, however, is considerably smaller than the displacement of the level  $N_1$  with regard to  $M_{IV, V}$ . The width of the lines depends upon the concentration of admixture atoms in the germanium single crystal. A linear relationship was established between the increase in the width of the line and  $\sqrt{n}$ . There are 6 figures, 1 table and 1 Soviet reference.

ASSOCIATION: Kharkiv, Politekhnichnyy Instytut im. V.I. Lenina (Kharkov, Polytechnical Institute imeni V.I. Lenin).  
Card 2/2 SUBMITTED: July 4, 1959

KORSUNSKIY, M.I.; LITVINOVA, L.B.; BOROVIKOVA, G.P.

Influence of small amounts of gallium on the position of the  $L_{\alpha 2}$   
and  $L_{\beta 6}$  emission lines of germanium. Fiz. tver. tela 3 no.1:282-285  
Ja '61. (MIRA 14:3)

1. Khar'kovskiy politekhnicheskii institut im.V.I.Lenina.  
(Germanium—Spectra)

KORSUNSKIY, M.I.; PASTUSHUK, N.S.; MOKHOV, G.D.

Eliminating the effect of nonphotoconducting layers in studying the photoconductivity of layers of amorphous selenium with mercury admixture. Fiz.tver.tela 3 no.5:1366-1370 My '61. (MIRA 14:6)

1. Khar'kovskiy politekhnicheskii institut imeni V.I.Lenina.  
(Photoconductivity) (Selenium--Electric properties)



28084

S/181/61/003/009/016/039  
B102/B1049.4177 (1035)  
26.2421AUTHORS: Korsunskiy, M. I., Pastushuk, N. S., and Mokhov, G. D.

TITLE: A new type of photoconductivity

PERIODICAL: Fizika tverdogo tela, v. 3, no. 9, 1961, 2667-2668

TEXT: The authors discovered a new type of photoconductivity in mercury-doped selenium. They studied the dependence of this photoconductivity on wavelength and intensity of illumination. The specimens were irradiated with monochromatic light in a vacuum chamber ( $10^{-6}$  mm Hg) and the photoconductivity change was recorded by a loop oscilloscope. The curves  $\sigma = f(t)$  for illumination wavelengths between  $0.425\text{-}0.715\mu$  were taken and dark conductivity was measured. It was found that upon illumination with  $\lambda = 0.535\mu$  conductivity did not change, at  $\lambda > 0.535\mu$  it increased and at  $\lambda < 0.535\mu$  it decreased. The transient period of a steady conductivity is much shorter in illumination with short-wave light than in illumination with light of longer wavelengths. On illumination with any monochromatic light (except for  $\lambda = 0.425\mu$ ) the photoconductivity of the specimen

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A new type of photoconductivity

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decreases during 2-3 min. This decrease is the stronger, the longer the wavelength, however, it never exceeds 5%. This new photoconductivity is termed quasisteady dark conductivity and may be regarded as a new effect. Observations made during 2 hr showed that it did not change. It was found by measurements that the strongest conductivity changes occur upon illumination with wavelengths between 0.610-0.490 $\mu$  (intensity  $10^{-4}$  w/cm<sup>2</sup>). In some specimens they were even of one order of magnitude. In the intensity range  $1 \cdot 10^{-4}$  -  $80 \cdot 10^{-4}$  w/cm<sup>2</sup> and in the range of the  $\lambda$  range 0.420-0.715 $\mu$  the amount of the quasisteady photocurrent was independent of the intensity. There are 2 figures, 1 table, and 1 Soviet reference.

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

SUBMITTED: April 7, 1961

Card 2/4

24.2600 (1043, 1138, 1160)

29700

S/181/61/003/010/030/036  
B125/B102

26.2421

AUTHOR: Korsunskiy, M. I.

TITLE: Nature of a new type of photoconductivity

PERIODICAL: Fizika tverdogo tela, v. 3, no. 10, 1961, 3181 - 3186

TEXT: M. I. Korsunskiy, N. S. Pastushuk, and G. D. Mokhov (FTT, III, 9, 1961) reported on a new type of photoconductivity in mercury doped selenium samples. The photo-response is independent of light intensity used but depends on its wavelength. The transient period of the photo-response will decrease with increasing light intensity. This paper tries to explain this phenomenon. This new type of photoconductivity will occur when all other carrier-recombination mechanisms are of such a small probability that the recombination induced by light plays the principal role. The photoconductivity is assumed to be of hole type. Then, the concentration of free carriers is given by  $n_0 = \alpha \mu / h\nu \chi n_g^0$ , where the relation  $(dn/dt)_{excit} = (dn/dt)_{recomb}$  is valid. Eq. (4) yields the expression  $\sigma_0 = eun_0$  for the photoresponse, where  $u$  denotes the carrier

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B125/B102

Nature of a new type of photoconductivity

mobility,  $e$  the carrier charge,  $n_g^0$  the equilibrium concentration of electron traps,  $\alpha$  the quantum yield,  $\mu$  the absorption coefficient,  $\gamma$  the frequency of exciting light, and  $\gamma'$  a coefficient dependent on the wavelength. The author investigated the type of photo-response obtained when changing from a monochromatic light with a wavelength  $\lambda_1$  to such with a wavelength  $\lambda_2$  for the following two cases: a)  $n_g \gg n$  and b)  $n_g = n$ . At the instant of changing the following expressions are valid:

$$\sigma_{01} = eu \frac{\alpha_1 \mu_1}{h\nu_1 \gamma_1 n_g} \quad (8a)$$

$$\sigma_{01} = eu \sqrt{\frac{\alpha_1 \mu_1}{h\nu_1 \gamma_1}} \quad (8b)$$

$\sigma_0 = \sigma_{01}$ . When changing from  $\lambda_2$  to  $\lambda_3$

$$\frac{1}{T} \left( \frac{d\sigma}{dt} \right)_{t \rightarrow 0}^{\lambda_2 \rightarrow \lambda_3} = \gamma_2 n_g (\sigma_{02} - \sigma_{03}), \quad (11a)$$

$$\frac{1}{T} \left( \frac{d\sigma}{dt} \right)_{t \rightarrow 0}^{\lambda_2 \rightarrow \lambda_3} = \frac{\gamma_2}{eu} (\sigma_{02}^2 - \sigma_{03}^2). \quad (11b)$$

KORSUNSKIY, M. I., LOGUNOV, A. S., and BAYVIL, L. P.

"The Application of Radioactive Isotopes for the Control of Parameters of Moving Wet Steam"

paper presented at the All-Union Seminar on Application of Radioactive Isotopes in Measurements and Instrument Building, Frunze (Kirgiz SSR), June 1961)

So: Atomnaya Energiya, Vol 11, No 5, Nov 61, pp 468-470

S/048/61/025/008/009/009  
B104/B202AUTHORS: Korsunskiy, M. I., Genkin, Ya. Ye.

TITLE: Device for correcting the shape of emission spectra

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya,  
v. 25, no. 8, 1961, 1013-1016

TEXT: The present paper was the subject of a lecture delivered at the 5th Conference on X-ray Spectroscopy at Khar'kov, January 30 to February 4, 1961. The authors studied the scheme shown in Fig. 2 for taking account of the distortions of the emission spectra caused by the apparatus and the width of the inner levels. By means of these scheme the authors determine the rectified ordinate  $f_i$  of the spectrum using the relation  $f_i = \sum_{k=1}^n b_{ik} F_k$  ( $i = 1, 2, \dots, s$ ), where  $\|b_{ik}\|$  is a certain transformation matrix and  $F_k$  the ordinate of the experimentally determined spectrum. The elements of the matrix  $\|b_{ik}\|$  are produced in the form of resistors  $r_{ik}$  consisting of manganin wire. The device consists of  $n$

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Device for correcting the shape ...

S/048/61/025/008/009/009  
B104/B202

cells. Each k-th cell contains  $s$  resistors corresponding to the elements of the k-th column of the matrix and which are connected in series. Furthermore, each cell contains a d-c source, a tuning potentiometer, a load resistor, and a resistor having the same resistance as the instrument measuring the amperage in the cells. With the aid of the tuning potentiometer an amperage is tuned in each cell which corresponds to the value of the ordinate at the k-th point. Thus, a voltage drop  $V_{ik} = r_{ik}^j k$

$= \alpha b_{ik} F_k$  occurs in each cell where  $\alpha$  is a constant of the instrument.

Hence, the sum of the voltage drops in all  $i$  resistors of the cells is proportional to the value of the ordinate at the  $i$ -th point of the rectified curve:

$$V_i = \sum_{k=1}^n v_{ik} = \alpha f_i.$$

Fig. 2 shows the scheme of this device. As can be seen, each matrix element is connected with an immobile contact panel which sums the voltage drops at the matrix elements 11, 12, 13, ..., 1,23. I.e., the voltage drop proportional to  $f_1$  is calculated. This voltage at the ends of the resistors 11 and 1,23 is applied to the mobile contact of the compensating

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Device for correcting the shape ...

S/048/61/025/008/009/009  
B104/B202

potentiometer and its central point. If the voltage drop at the potentiometer between the central point and the mobile contact is not equal to that at the ends of the elements 11 and 1,23 the galvanometer needle is deflected to one side or the other. By means of a motor the mobile contact of the potentiometer is adjusted such that the galvanometer needle again indicates zero. In this case the voltage drop at the potentiometer is proportional to  $f_1$ . The position of the mobile contact can be exactly read on a scale. After the determination of  $f_1$  the mobile contact panel is adjusted to position 2, in which the summation of the voltage drops at the resistors 21, 22, 23, ..., 2,23 is made. In this case the voltage at the ends of the resistors 21 and 2,23 is applied to the compensating potentiometer. This voltage is compensated according to the above scheme, with the value of the rectified coordinate being read at point 2 of the scale. A scheme representing a (11,23) matrix and serving for the direct correction of spectra from the microphotographs without transformation with respect to intensity was tested. Fig. 3 shows a comparison of a rectified curve with one calculated directly. The authors thank L. I. Lukashenko for valuable help and V. F. Balditsyn and

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Device for correcting the shape ...

S/048/61/025/008/009/009  
B104/B202

I. A. Belenko for the production of the device described here. There are 3 figures and 2 Soviet-bloc references.

ASSOCIATION: Khar'kovskiy politekhnicheskij institut im. V. I. Lenina  
(Khar'kov Polytechnic Institute imeni V. I. Lenin)



Card 4/7

KORSUNSKIY, M.I.; GENKIN, Ya.Ye.

Corrected  $L\beta_2$  -emission band in pure niobium and its compounds.  
Izv. AN SSSR. Ser. fiz. 25 no.8:1028-1030 Ag '61.

(MIRA 14:8)

(Niobium--Spectra)

(Niobium compounds--Spectra)

KORSUNSKIY, M.I.; GENKIN, Ya.Ye.

Establishing the Fermi boundary from X-ray spectral emission bands.  
Izv. AN SSSR. Ser. fis. 25 no.8:1031-1037 Ag '61.

(MIRA 14:8)

1. Kafedra obshchey i eksperimental'noy fiziki Khar'kovskogo  
politeknicheskogo instituta im. V.I. Lenina.  
(X-ray spectroscopy)

KORSUNSKIY, Moisey Izrailevich; VERES, L.F., red.; KRYUCHKOVA, V.N.,  
tekhn. red.

[Optics, atomic structure, and the atomic nucleus] Optika,  
stroenie atoma, atomnoe iadro. Moskva, Fizmatgiz, 1962. 516 p.  
(MIRA 15:6)

(Optics)

(Nuclear physics)

ion-optical properties is described in first approximation by two families  
of linear distribution functions depending on two field factors and on  
the dimensions of the cylindrical torus. It is shown possible to

Card 1/2