S/109/60/005/008/012/024
E140/E355

Kinetics of Electron Motion in Secondary Emission from Thin Metal and Semiconductor Films

the present authors (Ref. 1). The results of this and subsequent studies are now explained as follows: the first characteristic depth is connected with the conditions of motion of secondary electrons. The second characteristic depth is related to the reflection of secondary electrons from the layer and the base. By suitable choice of pairs of base and film materials, information on kinetic factors of secondary electrons can be obtained. The fraction of back-diffusing electrons increases with increase of mean atomic number of the material, which facilitates the choice of pairs of materials for the various cases which may arise in these studies. Differences in secondary-emission factor measurements by other authors can be explained by the existence of these two characteristic depths. With d greater than the first characteristic depth, the film structure does not determine the shape of the secondary-emission factor versus depth curve.

S/109/60/005/008/012/024
E140/E355

Kinetics of Electron Motion in Secondary Emission from Thin Metal and Semiconductor Films

To determine the first characteristic depth it is necessary to take base and film materials with differing secondary emission factors but equal back-diffusion factors. To determine the second characteristic depth, materials with differing back-diffusion factors should be chosen.
Acknowledgments are made to M.T. Kostyshin for his assistance.
There are 8 figures and 41 references: 22 Soviet and 19 non-Soviet.

ASSOCIATION: Kiyevskiy gosudarstvennyy universitat imeni T.G. Shevchenko Kafedra elektroniki
(Kiev State University imeni T.G. Shevchenko, Department of Electronics)

SUBMITTED: December 21, 1959

Card 3/3

9.4300 (3005, 1164, 1385)
26.2421

21590
S/109/60/005/010/013/031
E032/E114

AUTHORS: Nakhodkin, N.G., and Nemtsev, V.P.

TITLE: Electron properties of thin films of germanium

PERIODICAL: Radiotekhnika i elektronika, Vol.5, No.10, 1960, pp. 1669-1671

TEXT: This paper was read at the 9th All-Union Conference on Cathode Electronics in Moscow, October, 1959.
The aim of the present work was to investigate the electrical conductivity of thin germanium films of various thicknesses and changes in the electrical conductivity due to heat treatment, oxidation, etc. In distinction to previously published work, the present authors state that they have carried out their measurements in "ultra-high vacuum" ($p \leq 1.10^{-8}$ mm Hg). In ordinary vacua one always obtains p-type germanium films (owing to contamination by residual gas), while in ultra-high vacua n-type germanium films can be obtained. In the present experiments, n-type germanium films with $\rho = 26.2$ ohm cm were obtained. A special glass envelope was made which was used to measure the resistance of 12-13 films obtained in a single evaporation run. Silver contacts

Card 1/4

were employed and the thickness of the films was determined by calculation from the geometry and weight of the specimens. Fig.1 shows the logarithm of the resistivity as a function of thickness (microns). In this figure, curve 1 refers to a freshly evaporated layer, curve 2 is for a specimen a few days old, curve 3 was obtained after heating at 300 °C for one hour, curve 4 after heating at 450 °C for one hour, and curve 5 after exposure to air. Fig.2 shows dependence of 1/ρd on log d (1 - fresh deposit of Ge; 2 - oxygen atmosphere at 5×10^{-7} mm Hg for 15 min; 3, 4, 5 - further exposure to oxygen). It is seen that a linear relationship is obtained between these two quantities for the freshly deposited film. It is concluded (in accordance with the J.Thomson theory, Ref.4) that freshly deposited germanium films are continuous and uniform right up to 10 mμ, since the change in the resistivity with thickness can be explained by the scattering of current carriers at the surface. This is confirmed by the fact that heating, oxygenation, etc. lead to a departure from the linear relationship. The mean free path of the current carriers in freshly deposited films of Ge was found to be approximately 100 mμ, which is in agreement with the value calculated from the mobility. Card 2/4

21590
S/109/60/005/010/013/031
E032/E114

Electron properties of thin films of germanium

There are 2 figures, 1 table and 5 references: 3 Soviet and 2 non-Soviet.

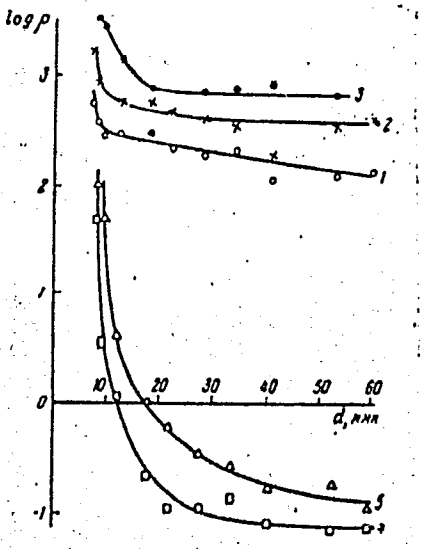
ASSOCIATION: Kiyevskiy gosudarstvennyy universitet im. T.G. Shevchenko
(Kiyev State University imeni T.G. Shevchenko)

SUBMITTED: December 21, 1959

Card 3/4

S/109/60/005/010/013/031
E032/E114

Electron properties of thin films ...



Card 4/4 Fig.1

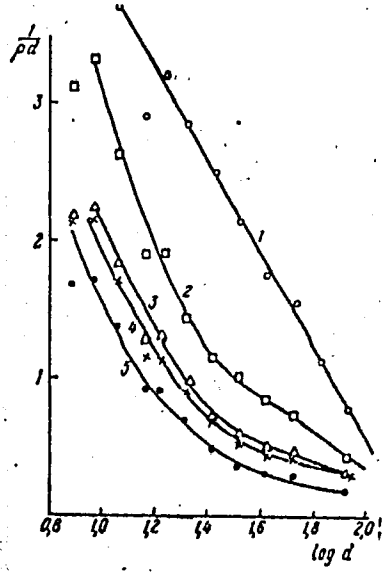


Fig.2

9,4110 (1140, 1144, 1331)
26.2351

S/181/61/003/005/016/042
B136/B201

AUTHORS: Nakhodkin, N. G. and Zykov, G. A.

TITLE: Effect of oxygen on the electrical properties of an oxide cathode at low pressures

PERIODICAL: Fizika tverdogo tela, v. 3, no. 5 , 1961, 1436 - 1444

TEXT: Insufficient attention has been paid in previous studies to the composition of residual gases in vacuum apparatus. The authors have therefore conducted a thorough investigation, in which the sealed apparatus has repeatedly been filled with oxygen and evacuated to pressures 10^{-8} - 10^{-6} mm Hg. The gas residue has been analyzed by means of an omegatron. First of all, two peaks have been observed at m = 16 and m = 32, accounting for 94% of the total amount. Comparative measurements with the 60° mass analyzer by G. Ya. Pikus have shown the m = 32 peak to be higher. A small nickel tube filled with barium peroxide served as an oxygen source. Two 3μ thick platinum probes were introduced into the oxide layers which had a thickness from 80 to 100μ . In addition to the cathode current, the measurements comprised conductivity, thermo-emf, and other electrical parameters. The cathode cur-

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S/181/61/003/005/016/042
B136/B201

Effect of oxygen ...

rent was measured at normal cathode temperatures with exponential pulses (f = 1 cycle), and at higher temperatures in d-c operation. Resistivity was determined from the potential drop between probe and core, depending upon the cathode current. The cathode temperature was determined by a calibration curve and by means of a thin thermocouple. Experiments have shown that both conductivity and thermionic emission current change almost in parallel and without delay during poisoning and reduction, i.e., almost all the oxide layers participate in both processes. Two mechanisms are referred to for an explanation: first, the oxygen is adsorbed on all exposed and fully developed grain surfaces of the oxide-layer, and splits into atoms, whereby the negative surface charge of the grains is augmented; this is accompanied by a decrease of the work function, and, consequently, of all other electrical parameters as well. Secondly, the diffusion of the oxygen ions or atoms into the grains, which is directly proportional to their surface concentration, reduces the number of oxygen vacancies which may act as donor centers. Taking account of diffusion provides an explanation for the experimental findings. N. D. Morgulis, Corresponding Member AS USSR, is thanked for his interest in the work. There are 7 figures and 34 references: 11 Soviet-bloc and 23 non-Soviet-bloc. The three most recent

references to English-language publications read as follows: G. Higginson, Brit. J. Appl. Phys., 8, 148, 1957; 9, 106, 1958; N. A. Surplice, Brit. J. Appl. Phys., 10, 359, 1959.

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet imeni T. G. Shevchenko, Kafedra elektroniki (Kiyev State University imeni T. G. Shevchenko, Department of Electronics)

SUBMITTED: August 18, 1960 (initially) December 9, 1960 (after revision)

Card 3/3

NAKHODKIN, N.G.; NEMTSEV, V.P.

Device for investigating the relationship between the electric properties of thin condensed films and their thickness.
Prib. i tekh.eksp. 6 no.4:113-116 Jl-Ag '61. (MIRA 14:9)

1. Kiyevskiy gosudarstvennyy universitet.
(Solid film--Electronic properties--Measurement)

NAKHODKIN, N.G.; MEL'NIK, P.V.

Photoeffect in the region of soft X rays. Radiotekh.i elektron. 6 no.7:1209-1210 Jl '61. (MIRA 14:6)

1. Kiyevskiy gosudarstvennyy universitet im. T.G.Shevchenko.
(Photoelectricity) (X rays)

38914

S/181/62/004/006/021/051
B104/B112

24.6610

AUTHORS: Nakhodkin, N. G., Ostroukhov, A. A., and Romanovskiy, V. A.

TITLE: Inelastic scattering of electrons in thin layers

PERIODICAL: Fizika tverdogo tela, v. 4, no. 6, 1962, 1514 - 1524

TEXT: Using a generalized model of continuous losses (T. Everhart. J. Appl. Phys., 31, 1483, 1960), a theory was developed for the inelastic single scattering of fast electrons within a double-layer target. The slowing down of the electrons in the target is described by $v^n(x) = v_0^n - cgx(1)$, where v_0 is the electron velocity at the surface of the target, v(x) is the electron velocity after a distance x, g is the target density, and c is a slowing-down factor. The coefficient of inelastic scattering

$$\eta(y, a, p) = \frac{(a+p^2)a-2p^4}{(a+2p^2)(a+p^2)} - a\left(1-\frac{y}{p}\right)^{\frac{a}{p^2}}\left[\frac{1-p^2}{a+2p^2}\left(1-\frac{y}{p}\right)^2 + \right.$$
$$\left. + \frac{2p^2}{a+p^2}\left(1-\frac{y}{p}\right) - \frac{p^2}{a}\right], \qquad (8)$$

Card 1/3

and the energy distribution of the inelastically reflected electrons

$$\frac{d\eta}{d\left(\frac{E}{E_0}\right)} = \frac{4}{a+1}\frac{E}{E_0}\left\{1-\left[1+\frac{a}{2}\left(1-\frac{E^2}{E_0^2}\right)\right]\times \right.$$
$$\left.\times\left(\frac{1+\frac{E^2}{E_0^2}}{2}\right)^a\right\}\left(1-\frac{E^2}{E_0^2}\right)^{-2}. \qquad (19)$$

are derived. Here, $y = x/R$; x is the thickness of the target; R is the distance determined by (1) with $n = 4$ and $p = \cos\vartheta$; ϑ is the angle of incidence; and $a = \pi Z^2 e^4 N_A/m^2 Ac$. The theory is applicable to light elements ($Z \leq 30$). In high-density substances it is necessary to allow for multiple collisions. Experimental results agree well with estimates using the above formulas. There are 8 figures.

Card 2/3

Inelastic scattering of... S/191/62/004/006/021/051
B104/B112

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet im. T. G. Shevchenko
(Kiyev State University imeni T. G. Shevchenko)

SUBMITTED: January 25, 1962

Card 3/3

44495
S/181/63/005/001/006/064
B102/B186

AUTHORS: Nakhodkin, N. G., Ostroukhov, A. A., and Romanovskiy, V. A.

TITLE: Scattering of electrons passing through thin films

PERIODICAL: Fizika tverdogo tela, v. 5, no. 1, 1963, 41-47

TEXT: Using the model of continuous energy losses (cf. T. Everhart, J.Appl.Phys.,31,1438,1960), the authors have already studied the inelastic reflection of electrons. Here the same method is followed in order to study the passage of fast electrons through free films, and to calculate the transmissivity coefficients η, assuming single elastic scattering through a large angle. η is the flux ratio of electrons passing through to incident electrons. In the simplest case of Rutherford scattering $\eta = (1-d)^{-a}\exp(-2ad)/(1-d)$ is obtained, where $a = \pi Z^2 e^4 N_a/m^2 Ac$, and N_a is Avogadro's number. Putting $a = 0.045Z$ gives a close approximation. $d = t/R$ is the dimensionless thickness of the film. For films of equal thickness, but with different incident electron energies E_o, the expression

Card 1/3

Scattering of electrons passing through ...

$$\eta=\left[1-\left(\frac{E_{0k}}{E_0}\right)^2\right]^{-a}\exp\left[-\frac{2a\left(\frac{E_{0k}}{E_0}\right)^2}{1-\left(\frac{E_{0k}}{E_0}\right)^2}\right]. \qquad (9)$$

holds. These energies are expressed in terms of E_o/E_{ok}, where E_{ok} is the energy of electrons with a range equal to the thickness of the film. The function I(y) (cf. Phys.Rev.,98,1597,1955) is given near $y\sim1$ by $I(y)\sim(1-y)^{\gamma}\exp(-A/(1-y))$, where γ and A are constants depending on the shape of the source and on the initial electron energy; $y = x/R$, $R = v_o^4/cQ$. The following holds near $y\sim d\sim1$: $I(y)\sim(1-y)^{-a-3/4}\exp(-2a/(1-y))$. η was measured as a function of various parameters for various metals and for electrons of various energies in the kev range, and the curves obtained were compared with the theoretical values. It follows from the results that the theoretical principles obtained are general, i.e. that the curves are normalizable. The dependence of the η of a two-layer film on its 180° orientation relative to the electron beam was detected experimentally using an Al-Au film. The ratio of the extrapolated range to the total

Card 2/3

range depends on the material. The total range R can be determined by linear extrapolation of the $\eta(t)$ curves to the abscissa ($\eta=0$). There are 5 figures and 1 table.

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet im. T.G. Shevchenko (Kiyev State University imeni T.G. Shevchenko)

SUBMITTED: July 16, 1962

L 18576-63 EPR/EWA(h)/EWT(1)/EWG(k)/BDS AFFTC/ASD/ESD-3/IJP(C) Ps-4/Pz-4
WW/AT
ACCESSION NR: AP3001300 S/0181/63/005/006/1732/1734

70
69

AUTHORS: Nakhodkin, N. G.; Mel'nik, P. V.

TITLE: Effective depth of the photoelectric effect produced by soft x-rays

SOURCE: Fizika tverdogo tela, v. 5, no. 6, 1963, 1732-1734

TOPIC TAGS: photoelectric effect, x-rays, Be, Ag, Au, Ge, KCl, quantum, mean free path, electron, photoemission

ABSTRACT: This study was undertaken because no known direct experimental measurements of this pehnomenon have yet been made. The investigated material (Be, Ag, Au, Ge, and KCl) was sprayed in wedge form upon a base within the experimental device at a vacuum of about 5 x 10^{-8} mm of Hg. The thickness of the wedge was computed at each point and controlled by means of an MII-4 microinterferometer. The relations of effective depth to energy of quanta are shown in Table 1 (see Enclosure 1). It is concluded that the observed results may be explained if it is assumed that the effective depth is associated with the mean free path of fast photoelectrons generated within the target. Investigation of

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L 18576-63
ACCESSION NR: AP3001300

the thickness dependence of the photoelectric effect produced by soft x-rays thus permits the determination of the emergent region of slow secondary electrons coming from fast photoelectrons, and also the effective depth of photoemission, which is established by the mean free path of fast photoelectrons. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: Kiyevskiy gosudarstvenny*y universitet (Kiev State University)

SUBMITTED: 29Dec62 DATE ACQ: 01Jul63 ENCL: 01

SUB CODE: PH NO REF SOV: 009 OTHER: 002

Card 2/3

NAKHODKIN, N.G.; MEL'NIK, P.V.

Energy distribution of secondary electrons and photoelectrons generated by soft X rays. Fiz. tver tela 5 no.9:2441-2447 S '63. (MIRA 16:10)

1. Kiyevskiy gosudarstvennyy universitet, kafedra elektroniki.

S/109/63/008/002/015/028
D266/D308

AUTHORS: Nakhodkin, N.G. and Mel'nik, P.V.

TITLE: Kinetics of electron motion in solids excited by soft X-rays

PERIODICAL: Radiotekhnika i elektronika, v. 8, no. 2, 1963, 303-310

TEXT: For the energy range 100 to 600 ev, monochromatic incident radiation was obtained with the aid of a diffraction grating. For larger energies ($h\nu$ > 1000 ev) filters were used resulting in an incident radiation at $h\nu$ = 1.2, 4 and 8 kev. The samples investigated were of Au, Ag, Ge, Be, and KCl. In order to avoid attenuation in air both the X-ray sources and the detector (photomultipliers) were in vacuum, in a common envelope. Measuring the photocurrent for thin layers of KCl and Au by applying a retarding field it was found that most of the electrons were slow, as in secondary electron emission. The mean energy of electrons emitted from KCl was smaller than for Au. These conclusions qualitatively agreed

Card 1/3

Kinetics of electron motion ...

for different input energies. The dependence of photocurrent on the thickness of Au evaporated on to a carbon base is shown graphically. It can be seen that the photocurrent first increases and reaches a saturation level at a certain thickness which is called the effective thickness. With a 50 v retarding voltage at the cathode the total photocurrent decreases but saturation occurs at the same thickness. The authors make the hypothesis that the effective thickness is determined by the path of the fast photoelectron. For beryllium, which has no absorption band for $h\nu > 200$ ev, the energy of the fast electron very nearly agrees with $h\nu$ for sufficiently large $h\nu$. Therefore the effective thickness corresponds to that obtained from secondary electron emission data. For other substances the effective thickness is given by the semi-empirical formula

$$d_{1\ eff} = A(h\nu - \varepsilon_i)^n$$

where $n < 2$ and ε_i is the excitation energy of an electron, dependent in general on $h\nu$. There are 6 figures.

Card 2/3

Kinetics of electron motion ... S/109/63/008/002/015/028
D256/D308

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet im. T.G. Shevchenko (Kiyev State University im. T.G. Shevchenko)

SUBMITTED: March 19, 1962

Card 3/3

L 12922-65 EWT(l)/EWG(k)/EWT(m)/EEC(t)/EWP(t)/EWP(b) Pz-6 IJP(c)
ID/JG/AT SSD/AFWL/ASD(a)-5/AFETR/ESD(gs)/SSD(t)
ACCESSION NR: AP4045296 S/0048/64/028/009/1436/1443

AUTHOR: Nakhodkin, N.G.; Mel'nik, P.V.

TITLE: Rear photoeffect excited by 1.5 to 8 keV photons /Report, Tenth Conference on Cathode Electronics held in Kiev, 11-18 Nov 1963/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.9, 1964, 1436-1443

TOPIC TAGS: photoelectric effect, x-ray, photoelectron, electron absorption

ABSTRACT: The photoelectric current from the rear face of beryllium and gold films, excited by x-rays incident on the front face and traversing the film was measured as a function of the thickness of the film. These measurements of the "rear" photo-electric effect were undertaken to clarify discrepancies between conclusions concerning the mean paths of photoelectrons within the metal previously drawn from frontal photoelectric effect measurements by the authors (Radiotekhnika i elektronika [illegible],1209,1961, Fiz.tverdogo tela [illegible] 1963) and by M.A.Rumsh and collaborators (Fiz tverdogo tela [illegible]) [illegible] filtered Kα radiation from various substances was employed to provide monochromatic x-rays with quantum energies from 1.5 to 8 keV. The x-rays were incident on a 5 micron thick aluminum

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L 12922-
ACCESSION NR

measurements and germanium for the gold measurements. The pr oelectrons were de-
tected by photomultiplier, and measurements were made with and without a 50 V re-
tarding potential to exclude slow electrons. Provision was made to measure the

the beryllium
ness of the film beyond which no further decrease of the photoelectric current
could be produced was taken as the effective depth for photoelectron production.
In the case of
ness, reached a maximum, and decreased with further increase in the thickness
the film. The continued decrease beyond the maximum was due to absorption of the
x-rays by the gold. The thickness of the film for maximum current was taken as the
effective depth
rough agreement with
aspect to the plane normal to

2/3

L 12922-65
ACCESSION NR: AP4045296

that the photoelectrons are exponentially absorbed, and values were derived for the absorption coefficient. The reciprocal absorption coefficient thus obtained did not always agree with the mean depth defined above. It is concluded that both quantities are useful for describing photoelectric phenomena, but that the mean depth as defined by the authors is physically the more meaningful. Orig.art has: 2 formulas, 5 figures and 2 tables.

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet Kafedra elektroniki (Electronics Department, Kiev State University)

SUBMITTED: 00 ENCL: 00

SUB CODE: OP,EM NR REF SOV: 006 OTHER: 003

3/3

OSTROUKHOV, A.A.; NAKHODKIN, M.G. [Nakhodkin, M.H.]

Approximate calculation of the paths of relativistic electrons from the stopping power of a substance. Ukr. fiz. zhur. 9 no.10: 1151-1153 O '64 (MIRA 18:1)

1. Kiyevskiy gosudarstvennyy universitet im. Shevchenko.

NAKHODKIN, N.G.

Some problems of the physics of thin films. Vych. sist. no.15: 3-38 '65. (MIRA 18:6)

1. Kiyevskiy gosudarstvennyy universitet.

MAZHODKIN, M.G.; OSTROUKHOV, A.A.; ROMANOVSKIY, V.A.

Inelastic electron scattering in thin films. Fiz. tver. tela 7 no.1:210-216 Ja '65. (MIRA 18:3)

1. Kiyevskiy gosudarstvennyy universitet imeni Shevchenko.

L 62776-65 EWT(l)/EPR(w)-2/EEC(t)/EWA(m)-2 Pz-6/Pi-4 IJP(c) AT
ACCESSION NR: AP5010733 UR/0181/65/007/004/1256/1259

AUTHOR: [illegible], T. G.; Ostroukhov, A. A.; Romanovskiy, V. A.

TITLE: Effect of atomic screening factor on inelastic reflection of electrons

SOURCE: Fizika tverdogo tela, v. 7, no. 4, 1965, 1256-1259

TOPIC TAGS: screening factor, inelastic reflection, electron reflection, electron energy distribution

ABSTRACT: This is a continuation of earlier work by the authors (FTT v. 4, 1514, [illegible]

Card 1/2

L 52776-65
ACCESSION NR: AP5010753

ing does not change essentially the previous results for the angular dependence of the elastic reflection coefficient, and the discrepancy at large angles still remains. Even if further calculations show that the effective cross section at small scattering angles must be modified, the influence of the atomic form factor on the angular dependance of the elastic reflection coefficient should not be large.
Orig. art. has: 2 figures and 3 formulas.

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet im. T. G. Shevchenko (Kiev State University)

SUBMITTED: 17Nov64 ENCL: 00 SUB CODE: NP

NR REF SOV: 005 OTHER: 005

182
Card 2/2

OSTROUKHOV, A.A.; NAKHODKIN, N.G.

Approximate analytic expression for the run of particles retarded according to Bethe's law. Radiotekh. i elektron. 10 no.3:522-529 Mr '65. (MIRA 18:3)

1. Kiyevskiy gosudarstvennyy universitet im. T.G. Shevchenko.

L 46710-66 EWT(1)/EWT(m)/EWP(j)/T/EWP(t)/ETI IJP(c) GG/RM/JD/GD

ACC NR: AT6020703 (N) SOURCE CODE: UR/0000/65/000/000/0004/0039

AUTHOR: Nakhodkin, N. G.

ORG: Kiev State University im. T. G. Shevchenko (Kiyevskiy gosudarstvennyy universitet)

TITLE: Some problems in the physics of thin films

SOURCE: AN UkrSSR. Fizika metallicheskikh plenok (Physics of metal films). Kiev, Naukova dumka, 1965, 4-39

TOPIC TAGS: metal film, crystallization, polycrystalline film, film growth, dielectric coating

ABSTRACT: This is a review article dealing with the present state of the art in the production of thin films (10 - 1000 Å thick) and the study of their physical properties. The subjects covered are: 1. Control of the growth and crystallization of films to obtain prescribed structure and dimensions, including the influence of factors such as condensation and crystallization centers, substrate temperature, impurities and adsorbed gases, catalytic processes, and the effect of electrons and other particles. 2. Problems in the kinetics of electrons in thin films (electric conductivity of thin films and the size effect, electric conductivity of superthin films, metal-dielectric film systems, and possible use of polymer materials in film electronics). Orig. art. has: 5 figures, 6 formulas, and 2 tables.

SUB CODE: 20/ SUBM DATE: 15Dec64/ ORIG REF: 056/ OTH REF: 160

Card 1/1

NAKHODKIN, V.M.; GORCHAKOVA, O.D., red.; NIKOL'SKAYA, K.G., tekhn. red.

[Forces acting on the train; lecture on the subject "Electric train traction" for students of the advanced special courses of the "Electrification of railroad transportation"] Sily, deistvuiushchie na poezd; lektsiia po distsipline "Elektricheskaia tiaga poezdov" dlia studentov starshikh kursov spetsial'nosti "Elektrifikatsiia zheleznodorozhnogo transporta." Moskva, Vses. zaochnyi in-t inzhenerov zhel-dor transporta, 1963. 23 p. (MIRA 17:4)

NAKHODKINA, L. G.

"Vegetative Innervation Characteristics of Animals Suffering From Transinjected Cancer." Cand Biol Sci, Leningrad State Pedagogical Inst, Leningrad, 1954.
(KL, No 1, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

NAKHODKINA, L.G.

T-5

USSR/General Problems of Pathology - Tumors.

Abs Jour : Ref Zhur - Biol., No 3, 1958, 12691

Author : Nakhodkina, L.G.

Inst : Not given

Title : On Peculiarities of the Autonomic Reactions in Animals With Transplanted Cancer.

Orig Pub : Uch. zap. Leningr. gos. ped. in-t, 1956, 19, 117-139

Abstract : During the first period of development of the Brown-Peerce tumor in rabbits there was hypotension and sinus bradycardia; this attests to the increased excitability of the vagus centers. At the same time there was an increased tonus, but to a lesser degree, of the sympathetic division. The latter's tonus became greatly increased during the second period (tachycardia, hypertension and an elevated skin temperature). During this period

Card 1/2

NAKHODKINA, L.G.; YEVDOKIMOV, S.A.

Apparatus for the intracellular lead off of electrical potentials. Fiziol.zhur.. 45 no.6:716-717 Je '59. (MIRA 12:8)

1. From the department of physiology and anatomy, A.I.Herzen Paedagogical Institute, Leningrad.
(NEUROPHYSIOLOGY, appar. & instruments
appar. for intracellular derivation of
electrical potentials (Rus))

KATS, V.M.; NAKHODKINA, V.A.; KO[illegible], L.A. [illegible]

Chemical and microbiological impurities [illegible] [illegible]
no.1:21-25 Ja-Mr '65.

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R00113602

NAKHODKINA, Ye.N.

Standards nave metal. Standartizatsiia 29 no.5:30-31 My '65.
(MIRA 19:1)

NAKHODKINA, Ye.N.

The hero of the day is 100 years old and always gets younger. (MIRA 18:12)
Standartizatsiia 29 no.6:38-39 Je '65.

NAKHODNOVA, A. P

Name: NAKHODNOVA, A. P.

Dissertation: The electric conductivity, dielectric permeability, and dielectric losses of oxides and haloid compounds of elements of group II and the energy of the crystal lattice

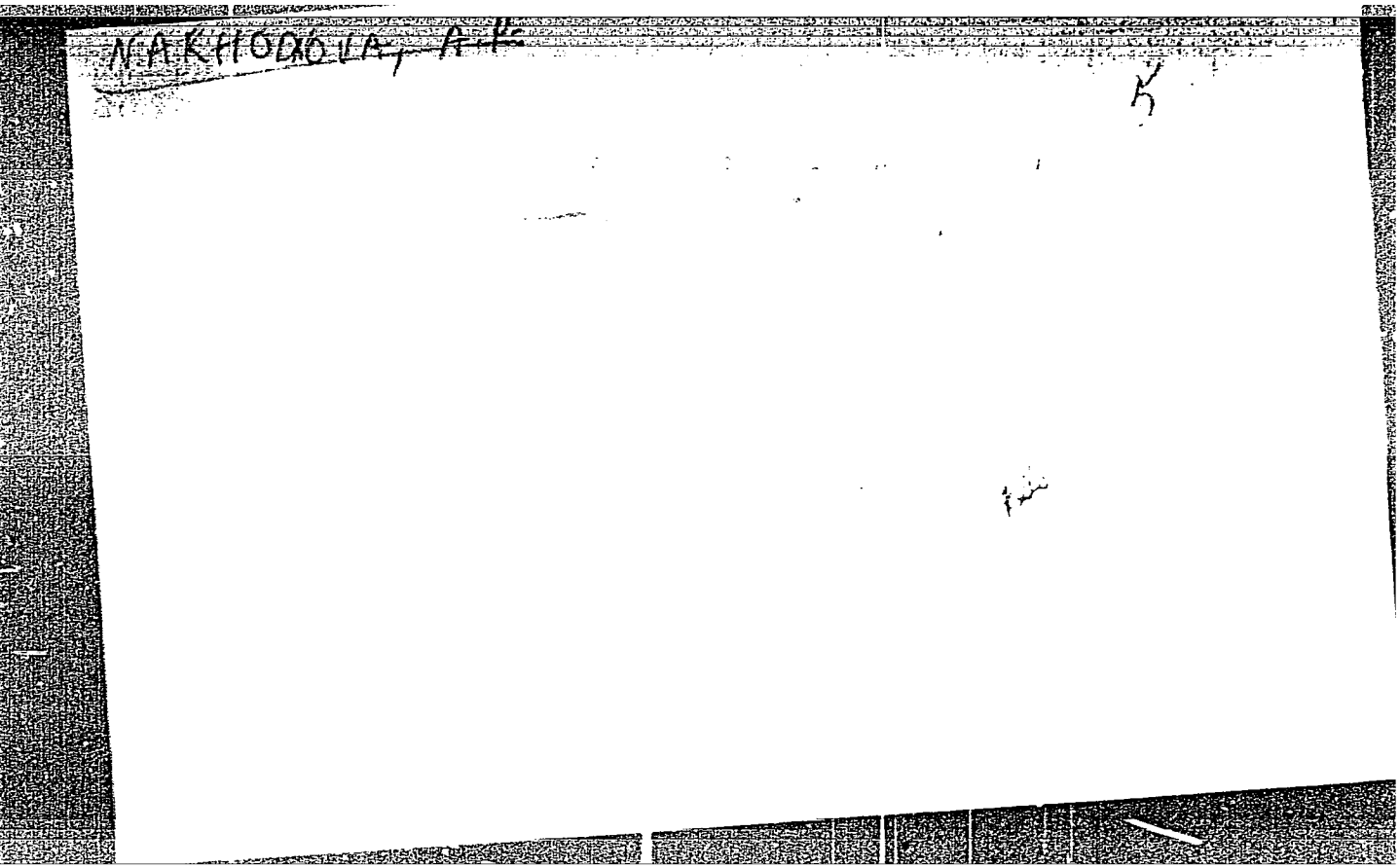
Degree: Cand Tech Sci

Defended at Publication

Defense: Min Higher Education USSR, Tomsk Order of Labor Red Banner Polytechnic Inst imeni S. M. Kirov

Defense Date, Place: 1956, Tomsk

Source: Knizhnaya Letopis', No 47, 1956



SOV/112-58-2-1859

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1958, Nr 2, p 9 (USSR)

AUTHOR: Nakhodnova, A. P.

TITLE: Electric Properties of Ionic Compounds of the Second-Group Elements in Connection with the Crystal-Lattice Ionic Interaction Energy (Elektricheskiye svoystva ionnykh soyedineniy elementov II gruppy v svyazi s energiyey vzaimodeystviya ionov v kristallicheskoy reshetke)

PERIODICAL: Izv. Tomskogo politekhn. in-ta, 1956, Vol 91, pp 209-218

ABSTRACT: Conductivity σ of sintered polycrystalline specimens of chemically pure oxides and haloid compounds of Mendeleyev's second group of elements and also ε and $tg\delta$ have been measured in a vacuum of 10^{-5}mm of mercury column. The specimens, disks 10-16 mm diameter and 0.35-0.8 mm thick, were calcined for two hours in a silit furnace. Platinum and silver electrodes were used. Conductivity σ has been measured on DC, ε and $tg\delta$ at 450-900 kc. Measurements of ε and $tg\delta$ of oxides have been made at 155°-480°C, of halogen compounds at 25°-255°C. All compounds have shown an increase (characteristic to ionic conduction) in electric conductivity with temperature. Electrical

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SOV/112-58-2-1859

Electric Properties of Ionic Compounds of the Second-Group Elements in . . . .

properties of Mendeleyev's second group of elements, viz., σ, current-carrier activation energy, $\mathcal{E}$, and tgδ, are all closely associated with physical properties of the substance; σ increases with decreasing energy of crystal lattice. Bibliography: 10 items. Tomskiy politekhnich. in-t (Tomsk Polytechnic Institute), Tomsk.

A.A.V.

Card 2/2

24(6)
AUTHORS: Vorob'yev, A. A., Nekhodnova, A. P. SOV/57-28-10-11/40

TITLE: High-Frequency Dielectric Losses and the Lattice Energy in Compounds of Second Group Metals (Dielektricheskiye poteri na vysokoy chastote i energiya reshetki dlya soyedineniy metallov vtoroy gruppy)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, Vol 28, Nr 10, pp 2173 - 2174 (USSR) 1958

ABSTRACT: This paper gives an account of the investigation of the temperature and frequency dependence of the tg δ (loss angle) of sintered polycrystalline samples of oxides, fluorides and chlorides of second group metals. BeO, MgO, CaO, SrO, and BaO were investigated in a temperature range of 25÷480°C, Ca-, Sr-, Ba-fluorides and Ca-, Sr-, Ba-chlorides in a temperature range of 25 to 260°C. The samples were produced from chemically pure substances. The density of the samples amounted to 65-70% and 95%, respectively, of the density of the monocrystals, tg δ decreases in all polycrystalline sintered samples of all compounds in the

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total range of frequencies and temperatures employed with an increase of the lattice energy. The growth of the cation radius under otherwise equal conditions is accompanied by a relaxation of the lattice and by a modification of the $tg\delta$ which proceeds according to certain regularities. The variation of the $tg\delta$ in halide compounds of alkaline earth metals corresponds to the fundamental physical and chemical properties of the substance in porous and in dense samples. It is determined by the energy of the thermochemical interaction of the ions of the crystal lattice. The information gained in the investigation of the frequency dependence of the dielectric losses in the oxides and halide compounds of the elements of the second group indicates that in the range of 450 to 900 kc the losses are reduced, when the frequency rises. The dielectric losses in porous polycrystalline samples of compounds of the second group of elements in air are considerably in excess of those in vacuum. In samples prepared of chemically pure substances the $tg\delta$ varies as the cation dimensions, the

polarizability and inversely as the point of fusion of the substance. The smaller the energy of the crystal lattice the higher will be the losses at a given temperature and frequency. G.V.Krivoshchekov, Candidate of Technical Sciences, assisted with the work. There are 2 figures.

SUBMITTED: November 4, 1957

24(6)
AUTHORS: Vorob'yev, A. A., Nakhodnova, A. P. SOV/57-28-10-14/40

TITLE: Electric Conductivity and Lattice Energy of Compounds of the Metals of the Second Group of D.I.Mendeleyev's System (Elektroprovodnost' i energiya reshetki soyedineniy metallov vtoroy gruppy sistemy D.I.Mendeleyeva)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, Vol 28, Nr 10, pp 2192 - 2193 (USSR), 1958

ABSTRACT: This paper gives an account of the study of the problem, whether the laws derived for monocrystals are applicable also to polycrystalline bodies used in engineering. The temperature dependence of the electric conductivity of oxides and halide compounds of the second group elements in the temperature range of 250 to 900°C was measured. The polycrystalline samples were prepared by pressing and subsequent baking in the air. The measurements were carried out in vacuum with direct current in weak fields (2.5 to 75 V/cm) at a pressure of $p = 10^{-5}$ mm of mercury column. Platin electrodes were evaporated onto the samples. It appears that at high temperatures the

Card 1/3

electric conductivity of sintered oxides of second group metals decreases with an increase of the lattice energy, whereas the activation energy increases. Identical phenomena were also observed with other compounds. The specific electric conductivity of the second group metal oxides, of the calcium-, strontium-, and barium fluorides, and of the calcium-, strontium-, and barium chlorides varies as the atomic volume of the metal, the polarizability of the cation, the decrease of the point of fusion of the compound, the dissociation energy and the magnitude of the isobaric potential. Hence the most simple compounds of the second group elements exhibit, besides the modification of the principal thermochemical features, a variation of the specific electric conductivity, which is governed by definite rules. In the range of low temperatures the activation energy of all compounds is considerably deficient of that in the range of high temperatures and lies within the limits of 0.15 to 0.58 eV. The variation of the specific conductivity and of the activation energy in

the range of relatively small temperatures does not show a course which is distinctively governed by definite rules. Hence the activation energy and the specific conductivity in the range of high temperatures are determined by the binding energy of the ions in the lattice and can be used as a characteristic feature of the electrophysical properties of the substances. G.V. Krivoshchekov, Candidate of Technical Sciences, assisted with the work. There are 2 figures.

SUBMITTED: November 4, 1957

Electric Conductivity and Lattice Energy of Compounds of the Metals of the Second Group of D.I.Mendeleyev's System SOV/57-28-10-14/40

Card 4/4

VOROB'YEV, A.A.; NAKHODNOVA, A.P.

Dielectric losses in oxides and of elements of the 2d group. Izv. TPI 95:306-313 '58. (MIRA 14:9)
(Halides--Electric properties) (Oxides--Electric properties)

15.2210
5.4100

SOV/112-60-1-1156

Translation from: Referativnyy zhurnal Elektrotekhnika, 1960, Nr 1, p 15 (USSR)

AUTHORS: Vorob'yev, A.A., Nakhodnova, A.P.

TITLE: Electroconductivity of Oxides and Haloid Compounds of the II Group Elements

PERIODICAL: Izv. Tomskogo politekhn. in-ta, 1958, Nr 95, pp 325 - 330

ABSTRACT: The study of specific conductivity σ was carried out on caked polycrystalline disks 10 mm in diameter and 0.35 - 0.8 mm thick. The relative density of samples was 65 - 75%. The samples were ground and platinized. Measurement of temperature dependence of σ was carried out by the residual current at 10^{-5} mm Hg. In the weak field region (E = 2.5 - 75 v/cm) σ of the compounds under study increases with an increase of E. With an increase in the density of samples σ increases. For a given temperature,

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SOV/112-60-1-1156

Electroconductivity of Oxides and Haloid Compounds of the II Group Elements

6 of oxides and haloid compounds increases with a decrease in the energy of the crystalline lattice. The activation energy of charge carriers decreases with a decrease in the energy of the crystalline lattice. 9 references.

A.A.V.

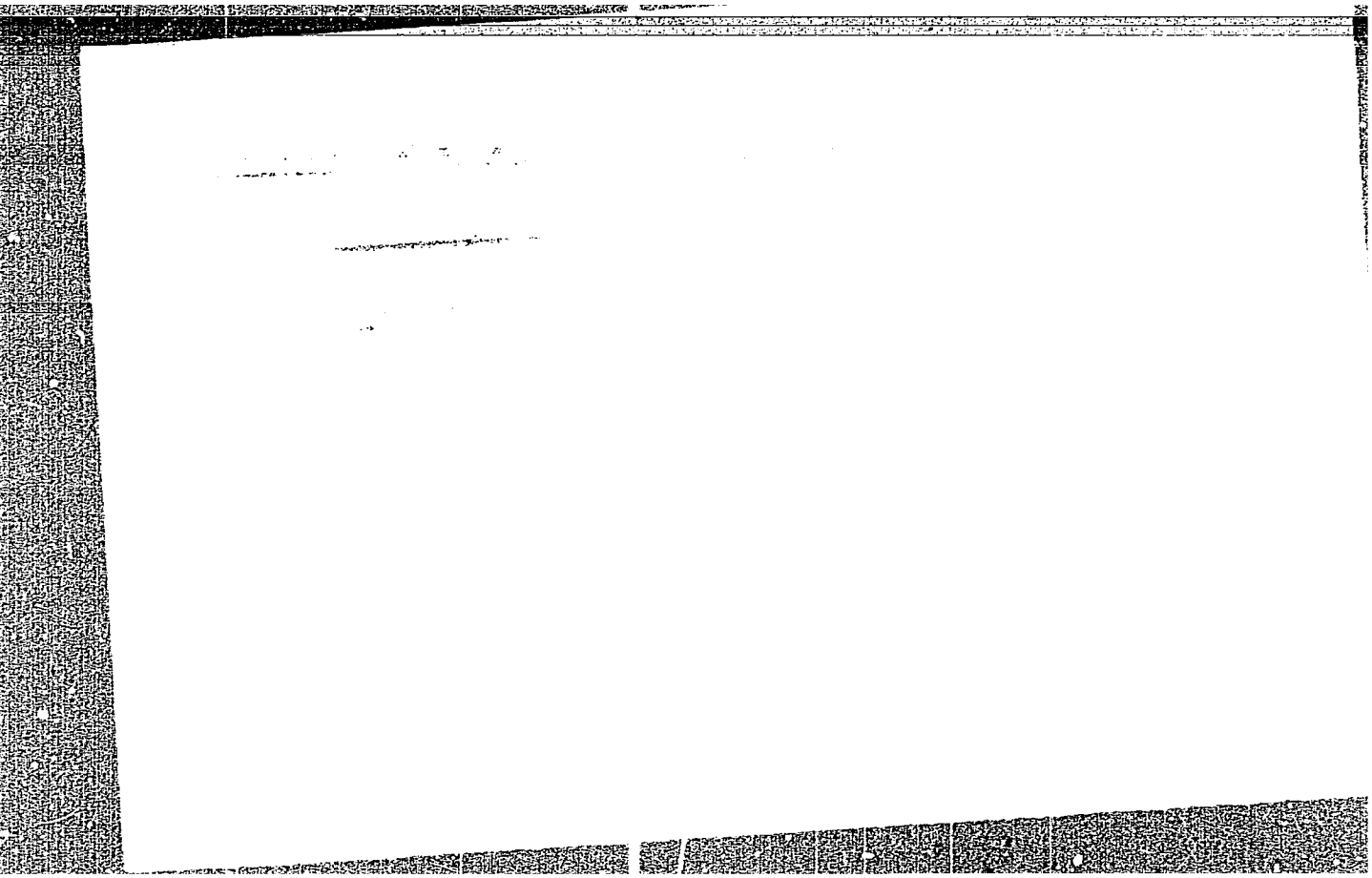
Card 2/2

NAKHODNOVA, A.P.; KRIVOBOK, V.I.

Preparation of barium oxide with a high content of main substance. Trudy IREA no.25:461-464 '63.
(MIRA 18:6)

NAKHODNOVA, A.P.; KRIVOBOK, V.I.

Purification of barium compounds with trilon B. Trudy IREA no.25: 479-482 '63. (MIRA 18:6)



APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R001136020

2 tables. [illegible] Orig. art. has: 6 figures and

L 7846-66 EWP(e)/EPA(s)-2/EWT(m)/EWP(i)/EPA(w)-2/EWP(t)/EWP(b) IJP(c)
ACC NR: AP5028119 JD/WB SOURCE CODE: UR/0048/65/029/011/2055/2058

AUTHOR: Klimov,V.V.; Nalchodnova,A.P.; Zhabkina,G.M.; Morgacheva,N.I.; Bronnikov,A.N.

ORG: none

TITLE: Ferroelectric properties of barium, lead, and calcium titanate base solid solutions /Report, Fourth All-Union Conference on Ferro-electricity held at Rostov-on-the Don 12-16 September 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 11, 1965, 2055-2058

TOPIC TAGS: ferroelectric material, solid solution, barium, lead, calcium, titanate, Curie point, lattice parameter

ABSTRACT: The authors have determined the Curie points of 17 barium titanate-rich solid solutions of the barium titanate - lead titanate - calcium titanate system; the study was undertaken in view of the technical importance of the materials and the discordance of the available data on them. Uniform mixtures for synthesis were obtained by spray-drying solutions of barium, lead, calcium, and titanium nitrates. The resulting powders were roasted for 2-3 hours at 1000°C, compressed into 20 mm diameter 1.5-1.8 mm thick disks, and sintered at 1260-1340°C for 1-2 hours. Specimens for which the water absorption was less than 0.55% and the porosity less than 2-3% were selected for investigation. The selected specimens were analyzed, x-ray powder photographs were recorded, and their Curie points were determined within 2°C by di-

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L 7846-66

ACC NR: AP5028119

electric constant measurements. It was found that the Curie point increased with decreasing barium content when either the calcium content, the lead content, or their ratio was held constant. When the barium content was held constant the Curie point increased with increasing lead content. The variation of the Curie point with composition in the region of relatively high calcium content differed from that found by McQuarry (J.Amer.Ceram. Soc., 40, No. 2, 35 (1957)) and T.Ikeda (J.Phys.Soc. Japan, 3, No. 4, 335 (1958)), the present measurements giving the higher Curie points in this region. The solid solutions with the higher Curie temperatures had unit cells with larger volumes and, in agreement with the findings of McQuarry and Ikeda (loc.cit. supra), higher degrees of lattice tetragonality. The increase of the Curie temperature with increasing calcium, decreasing barium, and constant lead content contradicts the current opinion that the Curie temperatures of ferroelectrics with the perovskite structure are increased by increasing the volume and polarizability of the ions at the A-sites in ABO_3 crystals. The discrepancy between the present results and those obtained by other authors with single compounds and binary systems is obviously to be explained by the fact that the laws governing the behavior of three-component systems containing A-type ions with different electronic structures are more complex than those applicable to binary systems. The discovery of these laws will require further investigation. Orig. art. has: 5 figures and 1 table.

SUB CODE: SS, EM SUBM DATE: 00/ ORIG. REF: 003 OTH REF: 006

Card 2/2

ACC NR: AP6029031 SOURCE CODE: UR/0413/66/000/014/0042/0042

INVENTORS: Klimov, V. V.; Androyov, A. Ya.; Nakhodnova, A. P.; Kozachenko, V. N.; Akhkozov, Ye. A.; Ivanov, D. G.; Didkovskaya, O. S.; Zvonik, V. A.

ORG: none

TITLE: A method for obtaining a piezoceramic material. Class 21, No. 183812 [announced by Donets Branch of All-Union Scientific Research Institute of Chemical Reagents and of High Purity Chemicals (Donetskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv)]

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 42

TOPIC TAGS: piezoelectric ceramic, barium compound, lead compound, calcium compound, titanium compound, sintered alloy

ABSTRACT: This Author Certificate presents a method for obtaining a piezoceramic material from a mixture of barium, lead, calcium, and titanium compounds by sintering this mixture. To lower the temperature of sintering this material, the above compounds are used in the form of nitric acid solutions of barium, lead, calcium, and titanium. This solution is atomized in a stream of air at the temperature of 400--500C. After this, the powder is sintered at the temperature of 800--1000C.

SUB CODE: 11/ SUBM DATE: 21May64

Card 1/1 UDC: 621.315.612:537.226.33

4447

S/181/62/004/010/037/063
B102/B112

24,1580

AUTHORS: Yeliseyev, P. G., K'ang Ch'ang-ho, and Nakhodnova, I. A.

TITLE: "Inherent" dislocations and the recombination in p-type germanium

PERIODICAL: Fizika tverdogo tela, v. 4, no. 10, 1962, 2880-2884

TEXT: The recombination properties of what are called "inherent" dislocations are studied. These dislocations are understood to have formed during the growth of the Ge single crystal. They limit the surplus carrier lifetime $\tau = 1/\sigma_R N$; wherein σ_R is the recombination efficiency of the dislocations depending on the type and genesis of the dislocations and on the position of the Fermi level. If foreign recombination centers exist then $1/\tau = \sigma_R N + 1/\tilde{\tau}_f$. The recombination properties of p-type Ge single crystals grown according to the Czochralski method and having dislocation densities between 0 and $10^6 cm^{-2}$ were studied by measuring the temperature dependence of τ. The dislocation density was determined by counting the etching grooves ($KOH+K_3Fe(CN)_6$ etching agent), τ was measured by a

Card 1/3

"Inherent" dislocations and the ...

compensation method according to the photogalvanometric effect and the photoconductivity. No adhesion effects were observed. The measurements were made in two series. The mean resistivities of the crystals in the first series were 7.7 ohm·cm, those of the second series 1.8 ohm·cm. For these two resistivities σ_R = 0.17 and 0.33 cm^2/sec. Crystals without dislocations and crystals with dislocation densities up to $10^3 cm^{-2}$ showed notably different curves $\tau(T)$ curves. $\tau = \tau_1 + \tau_2 \exp(-E/kT)$ can be written where $\tau_{1,2}$ and E are constants. E denotes the depth of recombination level position, i. e., 0.10 - 0.12 ev. The recombination properties of the inherent dislocations are proved to be closely similar to the dislocations produced by deformations. At room temperature, σ_R is in agreement with the data given in FTT, 2, 1542, 1960. With decreasing temperature it increases, however, according to a law somewhat different from those found earlier. At low temperatures the temperature dependence of τ in crystals with dislocation densities below $10^3 cm^{-2}$ is only slight. There are 3 figures and 1 table.

Card 2/3

"Inherent" dislocations and the ... S/181/62/004/010/037/063
B102/B112

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: June 2, 1962

Card 3/3

ACCESSION NR: AP4039689 S/0181/64/006/006/1900/1902

AUTHOR: Yunovich, A. E.; Yeliseyev, P. G.; Nakhodnova, I. A.; Ormont, A. B.; Osadchaya, L. A.; Stuchebnikov, V. M.

TITLE: Radiative recombination in Zn-diffused GaAs p-n junctions

SOURCE: Fizika tverdogo tela, v. 6, no. 6, 1964, 1900-1902

TOPIC TAGS: recombination radiation, radiative recombination, electroluminescence, p n junction, GaAs laser, GaAs diode, semiconductor laser, laser, junction laser, injection laser

ABSTRACT: Recombination radiation from Be-doped GaAs p-n junctions was investigated with a view toward possible laser application of Be-doped GaAs injection diodes. The GaAs with a carrier concentration between $5 \cdot 10^{17}$ and 10^{18} cm^{-3} was diffused with Be in vacuum at 950C. The junction was about $3 \cdot 10^{-3}$ cm^2. In one of the diodes the junction was 30 μ deep. Two parallel planes were cleaved perpendicular to the junction. The recombination radiation spectra were obtained by injecting carriers with current pulses up to 100 amp. The pulse duration was 1.2 μsec and the repetition rate was 50 cps.

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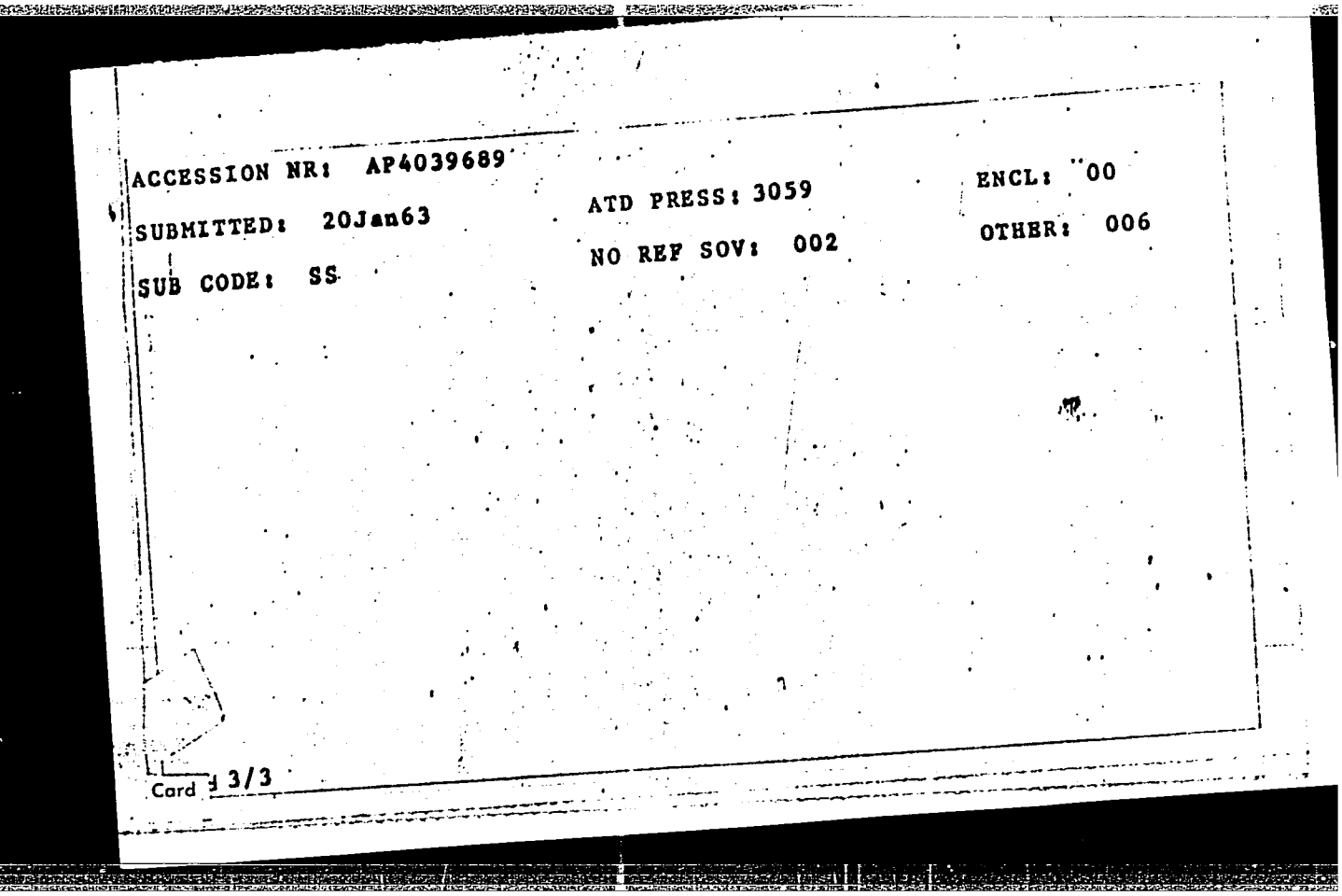
ACCESSION NR: AP4039689

The recombination spectra at 77K show that the intensity of emission is very similar to that of Zn-doped GaAs diodes. The maximum occurs at 1.47 ev. The line width at half maximum and at a current density of $2.8 \cdot 10^3$ amp/cm^2 was 0.014 ev. Some narrowing and nonlinear increase of intensity were observed at high current densities. Analysis of current-voltage characteristics and recombination spectra shows that Be is an acceptor impurity. The maximum solubility of Be in GaAs was found to be greater than 10^{18} cm^{-3}. Radiative recombination in Be-doped GaAs has a higher degree of probability than in GaAs doped with Zn. Assuming that radiative recombination in Zn-doped GaAs is due to transitions between the conduction band and the acceptor levels, the energy level formed by Be is close to that of Zn in GaAs. The narrowing of the line was believed to be caused by stimulated emission, which fact would indicate the possibility of obtaining laser action in degenerate GaAs doped with Be. Orig. art. has: 2 figures.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University)

Card 2/3



ACCESSION NR: AP4039689

SUBMITTED: 20Jan63 ATD PRESS: 3059 ENCL: 00

SUB CODE: SS NO REF SOV: 002 OTHER: 006

Card 3/3

L 45327-66 EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) JD/AT/JG/AT
ACC NR: AP6026678 SOURCE CODE: UR/0181/66/008/008/2330/2335

AUTHOR: Vavilov, V. S.; Nakhodnova, I. A.; Silin', A. R.; Yunovich, A. E.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Radiative recombination of GaSb p-n junctions obtained by crystal pulling from a melt

SOURCE: Fizika tverdogo tela, v. 8, no. 8, 1966, 2330-2335

TOPIC TAGS: gallium antimonide, single crystal growing, recombination spectrum, crystal donor, crystal impurity, p-n junction

ABSTRACT: P-n junctions in single crystals of GaSb were obtained by growing a crystal on a seed containing a donor (Te) (or acceptor) impurity from a melt alloyed with an acceptor (Zn, Cd) (or respectively donor) impurity. The crystals were grown in a hydrogen atmosphere. The seeds were oriented along the direction <111>. Primary attention is devoted to the dependence of the radiative recombination spectra on the concentration of impurities in the area of the p-n junction and on the injection level. In particular, low excitation levels (current density of about 1 a/cm^2) were investigated. The dependence of energy at the emission spectral peak on the voltage across the p-n junction was observed at small currents and large concen-

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L 45327-66
ACC NR: AP6026678

trations of impurities. This dependence is apparently due to the tunnel effect, including electron transitions to the "tail" of the density curve of the states of the conduction band. Orig. art. has: 5 figures.

SUB CODE: 20/ SUBM DATE: 27Dec65/ ORIG REF: 004/ OTH REF: 009

Card 2/2

NAKHRADYAN, A.A., inzh.; BARINSKIY, B.D.

Utilizing the possibilities for curtailing idle time of railroad cars. Zhel. dor. transp. 40 no. 7:72 Jl '58. (MIRA 11:7)

1. Nachal'nik stantsii Bessarabskaya(for Nakhradyan). 2. Zamestitel' nachal'nika stantsii Bessarabskaya(for Barinskiy).
(Railroads--Management)

ACC NR: AP7006472 SOURCE CODE: UR/0415/66/000/004/0100/0102

AUTHOR: Andriyevich, V. V.; Mogilevskaya, S. Ye.; Nakhrov, S. T.; Starkov, G. P.

ORG: Eastern Scientific Research Mining Institute (VostNIGRI), Novokuznetsk (Vostochnyy nauchno-issledovatel'skiy gornorudnyy institut [VostNIGRI])

TITLE: On the relationship between the velocity of a longitudinal ultrasonic wave and the strength of rock and ore in the Sheregesh deposit (Gornaya Shoriya)

SOURCE: Fiziko-tekhnicheskiye problemy razrabotki poleznykh iskopayemykh, no. 4, 1966, 100-102

TOPIC TAGS: ultrasonic wave propagation, compressive strength, mining engineering

ABSTRACT: The article is a report on studies being conducted in the Geological Laboratory of the Eastern Scientific Research Mining Institute to establish the relationship between the velocity of longitudinal ultrasonic waves and the compressive strength of rock and ore. Limestone and porphyrite specimens from the Sheregesh deposit with a fairly constant mineralogical composition and consistent structural characteristics were studied together with skarns and ores. An IPA-59 seismoscope was used for determining the velocity of an ultrasonic wave in cylindrical specimens 100-160 mm long and 32-56 mm in diameter. Rochelle salt piezoelectric pickups with a natural oscillation frequency of 250 kc were used as emitter and receivers of ultra-

Card 1/2 UDC: 552.1:53(571.17)

ACC NR: AP7006472

sonic pulses. The specimens were then cut into cylinders with a height equal to the diameter and tested for uniaxial compression. The results show an increase in compressive strength with the velocity of the ultrasonic wave. The empirical formula relating ultrasonic velocity to strength for porphyrite is $v=1.16\sigma_{comp}+3760$. The corresponding formula for scarns with garnet predominant is $v=3.13\sigma_{comp}+460$. Orig. art. has: 2 figures, 1 table.

SUB CODE: 11, 20, 08/ SUBM DATE: 20Sep65/ ORIG REF: 002

Card 2/2

KAZANTSEV, F.N., kand.med.nauk; NAKHROVA, Z.V.

External respiration in scoliosis. Ortop., travm. i protez. 25 no.5:33-36 My '64. (MIRA 18:4)

1. Iz anesteziologicheskogo otdeleniya (rukovoditel' - F.N. Kazantsev) Kazanskogo instituta travmatologii i ortopedii (dir. - starshiy nauchnyy sotrudnik U.Ya.Rogdanovich). Adres avtorov: Kazan' 15, ul. M.Gor'kogo, d.3, Institut travmatologii i ortopedii.

KAZANTSEV, F.N., kand. med. nauk (Kazan', 61, ul. [illegible], d.5, kv.53), PODOL'SKIY, A.N.; NAKHROVA, Z.V.

Anesthesia in surgery for scoliosis. Ortop., travm. i protez. 26 no.2:70-71 F '65. (MIRA 18:5)

1. Iz Kazanskogo instituta travmatologii i ortopedii (dir. - starshiy nauchnyy sotrudnik U.Ya. Bogdanovich).

RAKHLEVSKIY, I.A., inzh.; NAKHSHEN, M.L.

Using electronic devices for regulating the position of the band in automatic wrapping and packaging machines. Mekh.i avtom.proizv. 14 no.10:48-53 O '60. (MIRA 13:10)
(Electronic control) (Packaging machinery)

NAKHSHINA, Ye.P. [Nakhshyna, O.P.]

Characteristics of the winter gaseous regime in the upper Dnieper basin. Dop. AN URSR no.9:1206-1209 '64.
(MIRA 17:11)

1. Institut gidrobiologii AN UkrSSR. Predstavleno akademikom AN UkrSSR F.D. Ovcharenko.

NAKHTAYLER, D.

Inculcation of group solidarity in students. Politekh. obuch. no.7: 95 Jl '58. (MIRA 11:8)

1. Valya-Perzhskaya srednyaya shkola No.15 Chadyr-Lungskogo rayona Moldavskoy SSR.

(Moral education)

NAKHTMAN, Fedor Vladimirovich; VERDNIKOV, Ya.V., inzh., retsenzent; GREGEL'SKIY, P.Kh., inzh., retsenzent; KOSTINSKIY, I.Ye., nauchn. red.; MISHKEVICH, G.I., red.

[Mechanization of minor operations in the fitting-out of ship hulls] Malaia mekhanizatsiia korpusodostroechnykh rabot. Leningrad, "Sudostroenie," 1964. 114 p. (MIRA 17:5)

NAKHUMOVICH, M.

Experience in coating propeller blades with rubber compositons
Mor.flot 16 no.4:27-28 A '56. (MLRA 9:8)

1. Starshiy tekhnolog mekhanicheskogo tsekha zavoda imeni Parizhskoy Kommuny.

(Propellers--Corrosion)

NAKHUPINA, A. G., Cand of Agric Sci -- (diss) "Russian white chickens pf the Kuchinskiy Fowl Sovkhoz; their productivity and breeding qualities." Moscow, 1957, 22 pp (Moscow Veterinary Academy), 140 copies (KL, 32-57, 95)

L [illegible]
ACCESSION NR: AR5013623 UR/0044/65/000/004/B030/B030
517.912

SOURCE: Ref. zh. Matematika, Abs. 4B149

AUTHOR: Nakhushev, A. M.

TITLE: Concerning the integration of the generalized Riccati equation in quadrature

CITED SOURCE: Uch. zap. Kabardino-Balkarsk. un-t. Ser. fiz.-matem. n., vyp. 19, 1963, 325-328

TOPIC TAGS: Riccati equation, integration, generalized equation, quadrature

TRANSLATION: The author defines a generalized Riccati equation of order λ by means of the formula

$$W' = P(z)W^{\lambda} + Q(z)W + R(z) \qquad (1)$$

The quantity $\varkappa$, defined by the formula

$$\varkappa = (PR' - RP')/PQR$$

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L 58441-65
ACCESSION NR: AR5013623

is called by him the index of Eq. (1). In the case when $\varkappa$ and λ coincide identically, Eq. (1) is called reduced. It is proved that the reduced equation can be solved in quadratures. The conditions for the solvability in quadratures of the same equation are obtained in the case of some particular assumptions concerning [illegible] and concerning the value of λ. Bibliography, 4 titles. [illegible]

SUB CODE: MA ENCL: 00

Card 2/2

L 07175-67 EWT(d), IJP(c)

ACC NR: AP6031642 SOURCE CODE: UR/0020/66/170/001/0038/0040

AUTHOR: Nakhushev, A. M. 18

ORG: Mathematics Institute of the Siberian Department of the Academy of Sciences SSSR (Institut matematiki Sibirskogo otdeleniya Akademii nauk SSSR) B

TITLE: A boundary value problem for a mixed equation having two lines of degeneracy 16

SOURCE: AN SSSR. Doklady, v. 170, no. 1, 1966, 38-40

TOPIC TAGS: partial differential equation, boundary value problem, Fredholm equation, integral equation

ABSTRACT: The following equation is studied

$$y(y-1)u_{xx} + u_{yy} = 0$$

in a specially constructed mixed region containing intervals of the lines of degeneracy $y = 0$ and $y = 1$. A boundary value problem connected with this equation is formulated and the solution sketched. It is shown that the problem of the existence of a solution reduces to the solution of a system of singular integral equations which may be reduced to a Fredholm equation of the second order, and that the solution of the boundary value problem may, after the Fredholm equation is solved, be constructed by solving Trikomi's singular problem. Orig. art. has: 12 formulas.

SUB CODE: 12/ SUBM DATE: 15Dec65/ ORIG REF: 004/ OTH REF: 003

Card 1/1 egh UDC: 517.946

NAKHUTIN, I.

Use all means to improve work in methods. Prof.-tekh.obr. 13 no.9:13-15 S '56. (MLRA 9:10)

1. Zaveduyushchiy uchebno-metodicheskim kabinetom Leningradskogo gorodskogo upravleniya trudovykh rezervov.
(Technical education)

NAKHUTIN, I.

27-4-7/25

AUTHOR: Nakhutin, I., Director of the Leningrad Municipal Methodical-Educational Laboratory

TITLE: A Group of Mechanic Foreman's Experiment in Improving the Work Locale (Opyt usovershenstvovaniya rabochego mesta mastera gruppy slesarey)

PERIODICAL: Professional'no-Tekhnicheskoye Obrazovaniye, 1958, # 4, pp 14-16 (USSR)

ABSTRACT: While inspecting a number of Leningrad factory schools, the author saw that one of the great lacks is still training aids. Last summer, he went to Czechoslovakia and was greatly impressed by the facilities, quality of instruction and the amount and type of training aids and equipment, especially a new teacher's tool cabinet he saw.

There is one table, and a 2-page center-spread.

ASSOCIATION: Leningradskiy gorodskoy uchebno-metodicheskiy kabinet (Leningrad Municipal Methodological-Educational Laboratory)

AVAILABLE: Library of Congress

Card 1/1

AUTHOR: Nakhutin, I., Head of the Workshop SOV/27-59-1-14/31

TITLE: Higher-Quality Training of Construction Workers (Vyshe kachestvo podgotovki stroiteley)

PERIODICAL: Professional'no-tekhnicheskoye obrazovaniye, 1959, Nr 1, pp 19-21 (USSR)

ABSTRACT: The author refers to the 7-year-plan and to the construction projects during that period. He especially deals with the reequipping and modernization of construction and trade schools. Finally he comments on model school workshops and equipment. There is one sketch.

ASSOCIATION: Leningradskiy gorodskoy uchebno-metodicheskiy kabinet (The Leningrad Municipal Methodic-Training Workshop)

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NAKHUTIN, I.; MEKKEL', A., prepodavatel'; NAZARENKO, G., inzh.

New visual aids for the training of plasterers, painters, and glaziers. Prof.-tekh.obr. 18 no.2:14-16 F '61. (MIRA 14:3)

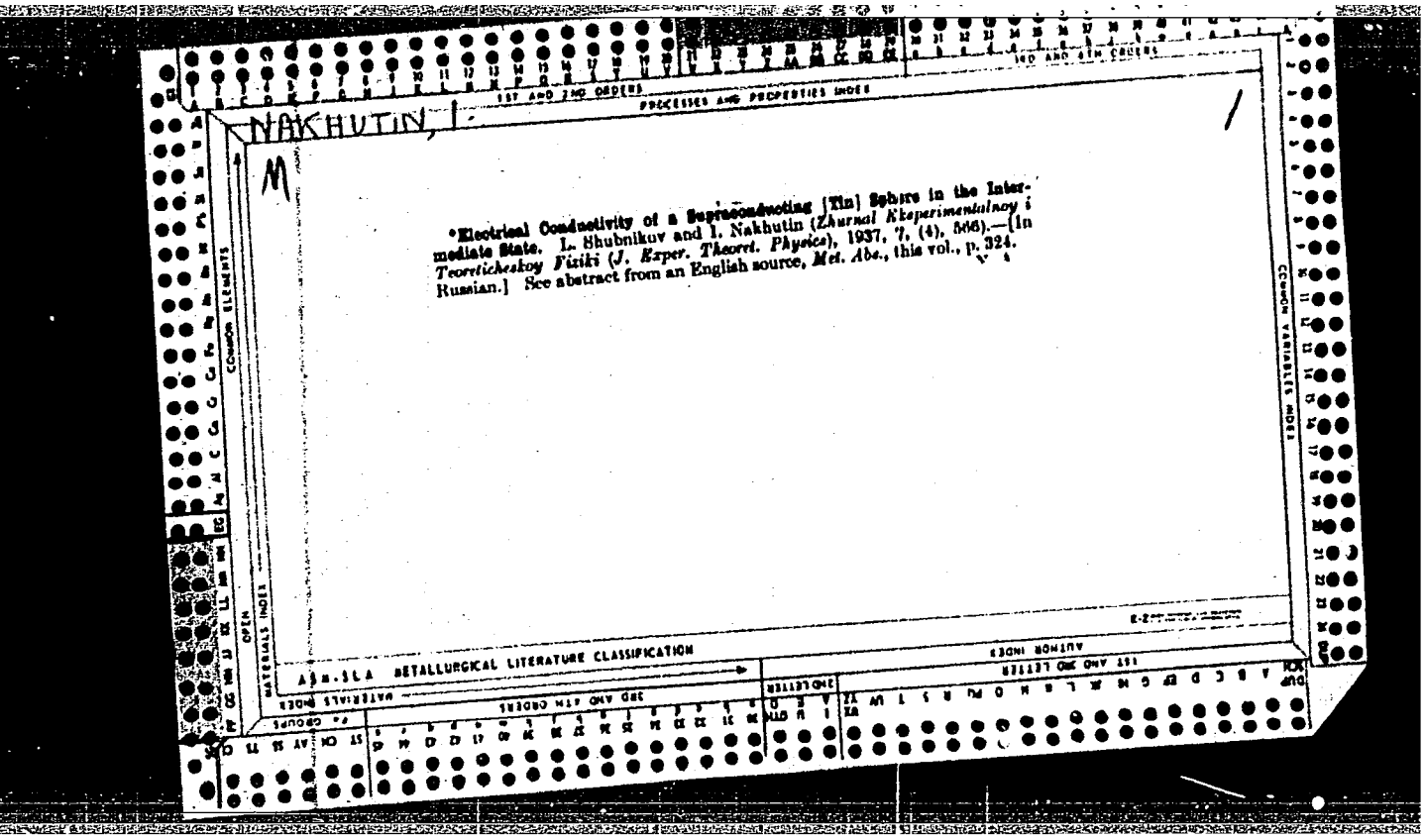
1. Direktor remeslennogo uchilishcha No. 42, Leningrad (for Nakhutin).
2. Remeslennoye uchilishche No.42, Lenigrad (for Nazarenko).
(Building trades--Audio-visual aids)

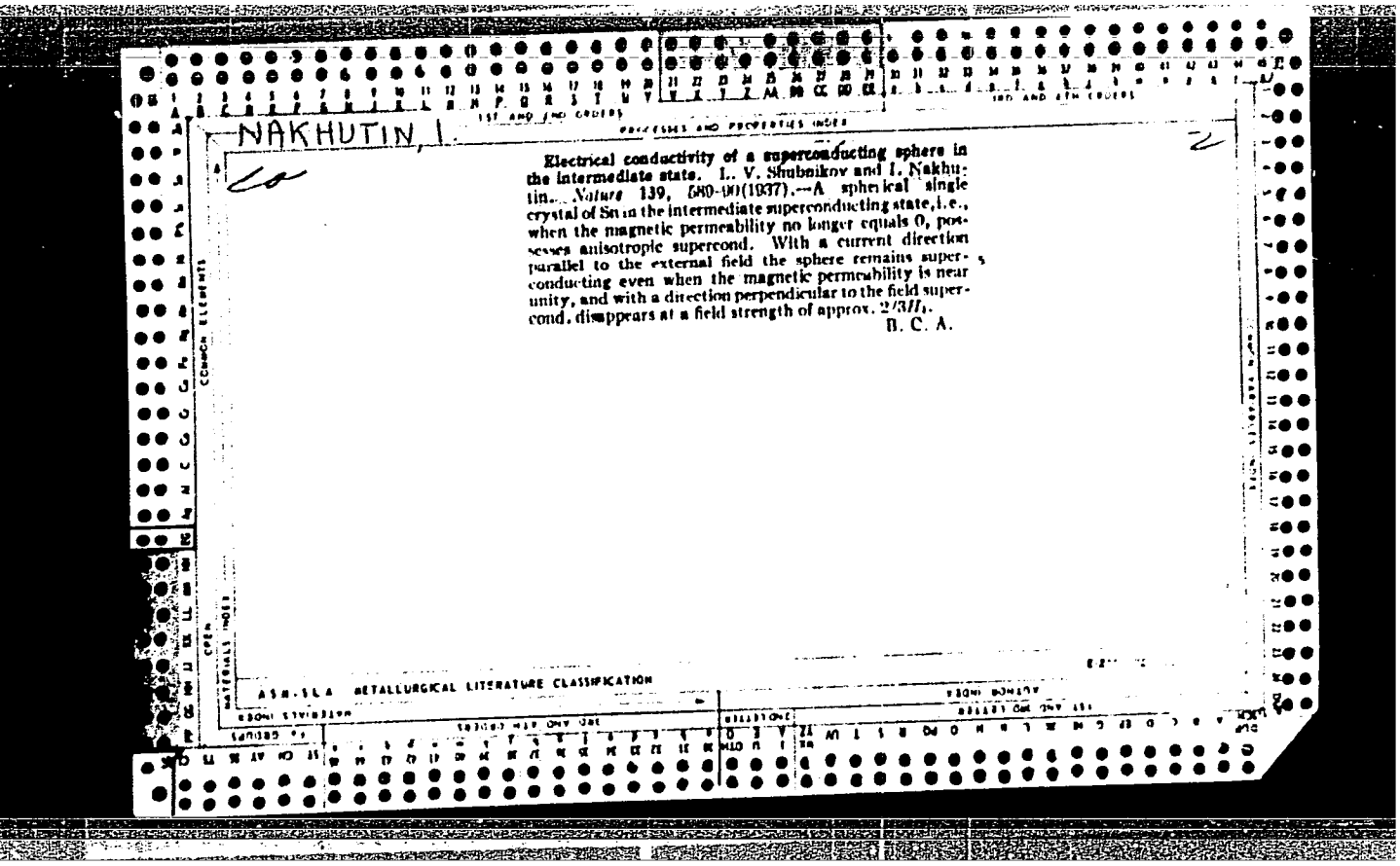
NAKHUTIN, Isaak Pinkhusovich; GAVRILOV, F.P., red.; PERSON, M.N., tekhn. red.

[Equipment of a study room for machining on lathes; album of technical drawings of a special-purpose cupboard and visual aids] Oborudovanie kabinata po tokarnomu delu; al'bom rabochikh chertezhei spetsial'nogo shkafa i nagliadnykh posobii. Moskva, Vses. uchebno-pedagog. izd-vo Trudrezervizdat, 1959. 415 p. (MIRA 14:9)
(Turning--Study and teaching)

NAKHUTIN, Isaak Pinkhusovich; KUZNETSKIY, Gennadiy Ivanovich; SMIRNOV, B.V., nauchnyy red.; KOBRINSKAYA, M.V., red.; NESMYSLOVA, L.M., tekhn. red.

[Manual on practical problems in electrical engineering] Posobie dlia prakticheskikh zaniatii po elektrotekhnike. Moskva, Vses. uchebno-pedagog. izd-vo Proftekhizdat, 1961. 66 p. (MIRA 14:8)
(Electric engineering—Handbooks, manuals, etc.)

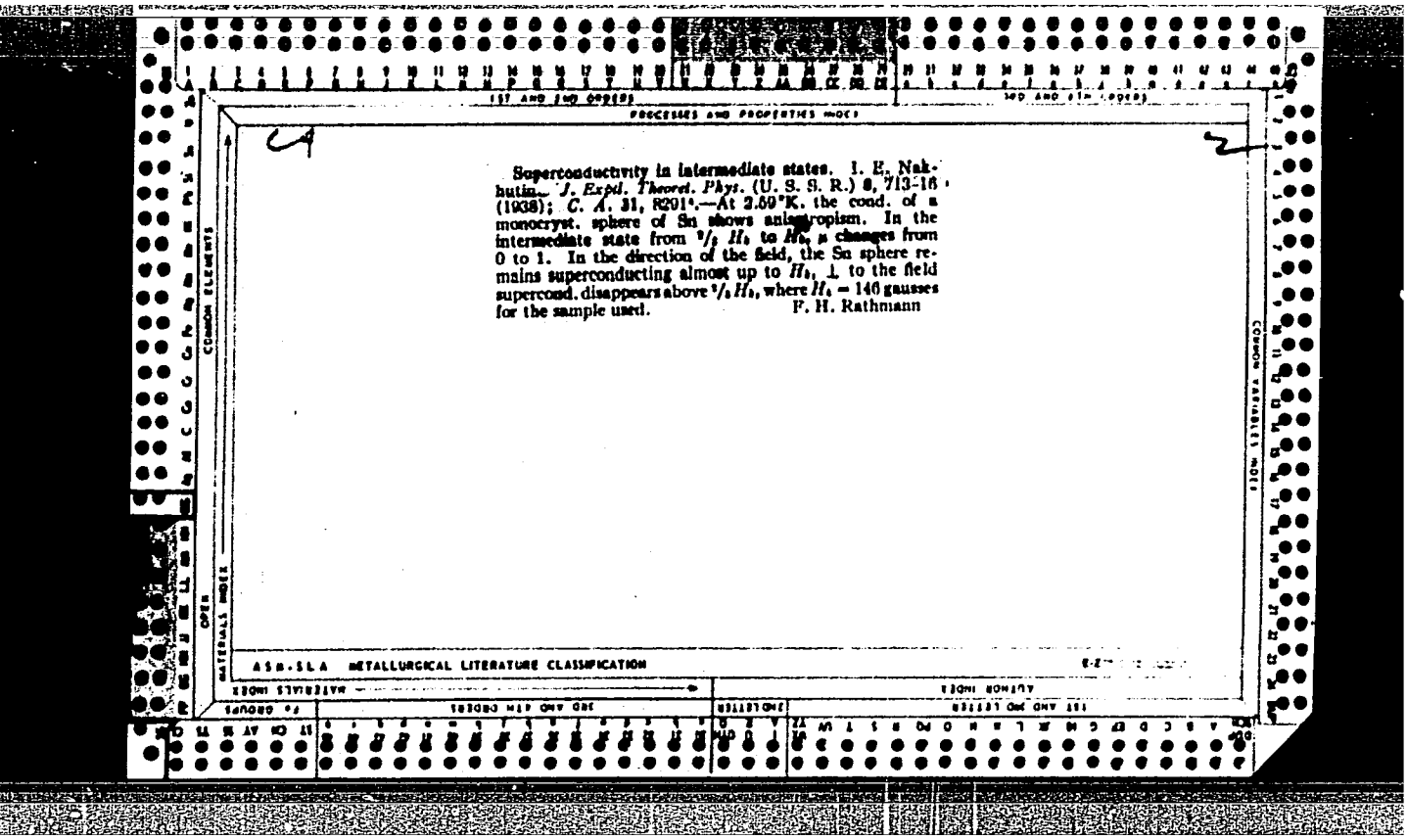




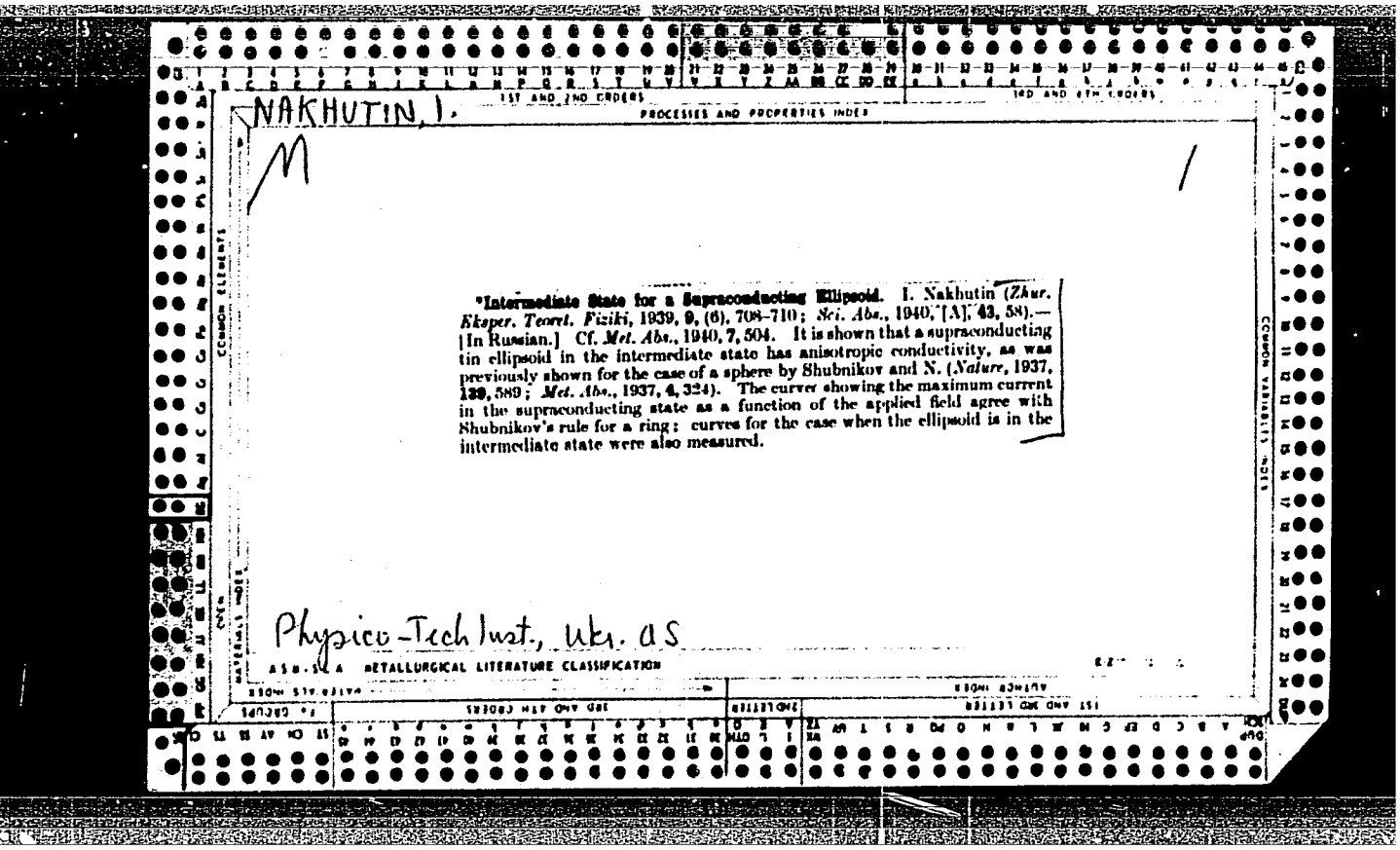
NAKHUTIN, I.

Electrical conductivity of a superconducting sphere in the intermediate state. L. V. Shubnikov and I. Nakhutin. *Nature* 139, 589-90(1937).—A spherical single crystal of Sn in the intermediate superconducting state, i.e., when the magnetic permeability no longer equals 0, possesses anisotropic supercond. With a current direction parallel to the external field the sphere remains superconducting even when the magnetic permeability is near unity, and with a direction perpendicular to the field supercond. disappears at a field strength of approx. $2/3H_0$.
B. C. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Superconductivity in intermediate states. I. E. Nakhutin. *J. Exptl. Theoret. Phys.* (U. S. S. R.) 8, 713-16 (1938); *C. A.* 31, 8201⁶.—At 2.59°K. the cond. of a monocryst. sphere of Sn shows anisotropism. In the intermediate state from $^{9}/_{5}$ H_0 to H_0, μ changes from 0 to 1. In the direction of the field, the Sn sphere remains superconducting almost up to H_0, $\perp$ to the field supercond. disappears above $^{9}/_{5}$ H_0, where H_0 = 146 gausses for the sample used. F. H. Rathmann



NAKHUTIN, I.

PROCESSES AND PROPERTIES INDEX

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"Intermediate State for a Superconducting Ellipsoid. I. Nakhutin (*Zhur. Eksper. Teoret. Fiziki*, 1939, **9**, (6), 708–710; *Sci. Abs.*, 1940, [A], **43**, 58).—[In Russian.] Cf. *Met. Abs.*, 1940, **7**, 504. It is shown that a superconducting tin ellipsoid in the intermediate state has anisotropic conductivity, as was previously shown for the case of a sphere by Shubnikov and N. (*Nature*, 1937, **139**, 589; *Met. Abs.*, 1937, **4**, 324). The curver showing the maximum current in the superconducting state as a function of the applied field agree with Shubnikov's rule for a ring; curves for the case when the ellipsoid is in the intermediate state were also measured.

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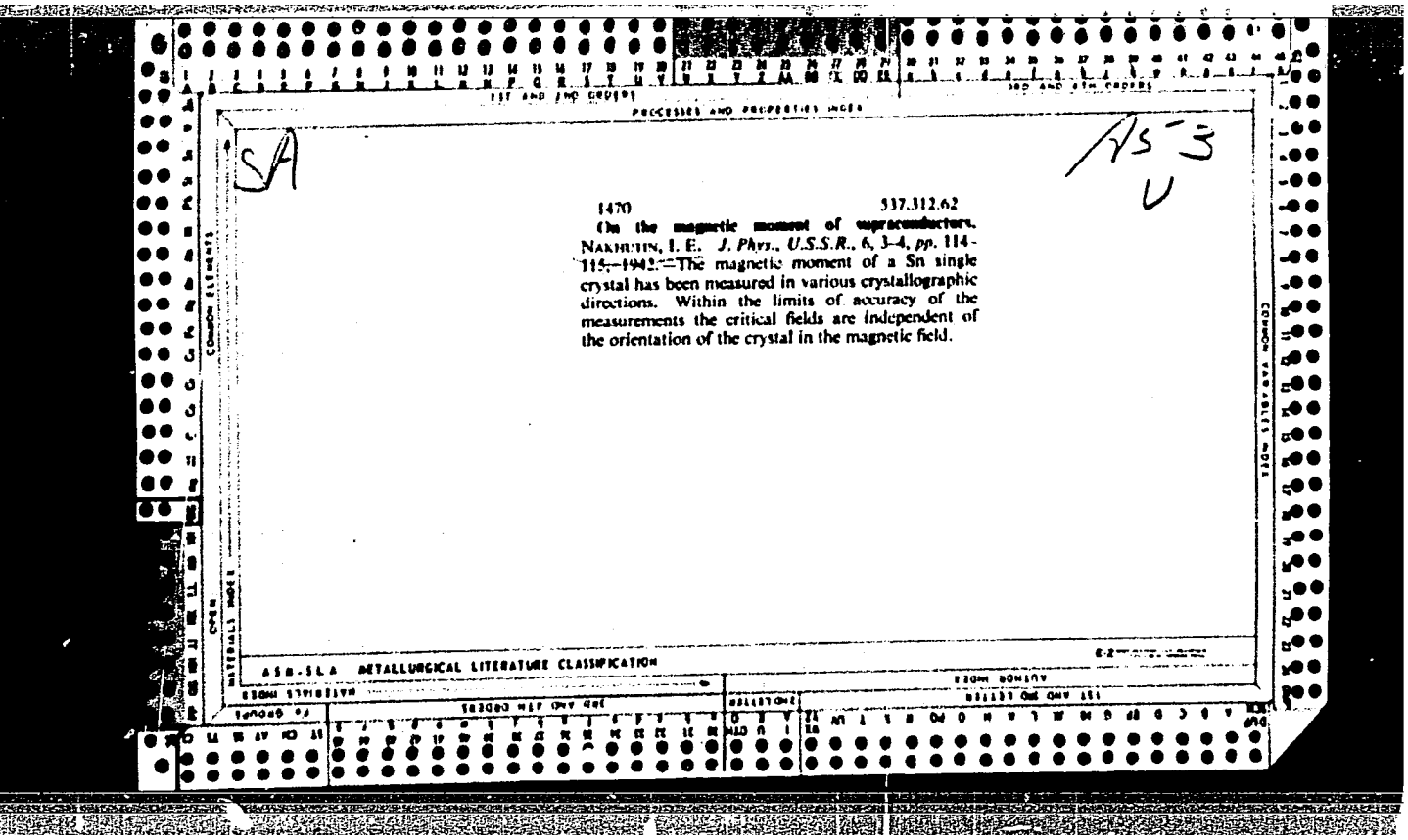
A.S.M. METALLURGICAL LITERATURE CLASSIFICATION



1470 537.312.62

On the magnetic moment of superconductors. NAKHUTIN, I. E. *J. Phys., U.S.S.R.*, 6, 3–4, *pp.* 114–115, 1942.—The magnetic moment of a Sn single crystal has been measured in various crystallographic directions. Within the limits of accuracy of the measurements the critical fields are independent of the orientation of the crystal in the magnetic field.

NAKHUTIN, I. E.

S-4

1119 537.312.62

The magnetic behaviour of supraconducting alloys of Sn-Zn. LAZAREV, B. G., AND NAKHUTIN, I. E. *J. Phys., U.S.S.R.*, 6, 3-4, *pp.* 116–119, 1942.—The critical fields and temperatures of the alloys coincide with those for Sn. Very small particles of Sn which could change the critical fields are not present in the alloys in any noticeable quantity. In low fields the curves for the magnetic moment of the investigated alloys, and even of the alloy containing 10% of Sn, do not differ from the curves for the pure supraconductor.

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1119 537.312.62

The magnetic behaviour of

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SOV/126-7-3-31/44

AUTHORS: Nakhutin, I. Ye. and Sutyagina, Ye. I.

TITLE: Absorption of Hydrogen by Palladium at Low Temperatures (Pogloshcheniye vodoroda palladiyem pri nizkikh temperaturakh)

PERIODICAL: Fizika metallov i metallovedeniye, Vol 7, Nr 3, p 459 (USSR)

ABSTRACT: The rapid absorption of hydrogen by platinum black has enabled the authors to measure the isotherm of hydrogen absorption by palladium at - 78°C. In Fig.1 the results of three series of measurements are shown. The initial portion of the curve corresponds to the α-phase of the hydrogen-palladium solid solution; a horizontal portion of two-phase region follows, and the last portion rises steeply and corresponds to the β-phase of the solid solution. The pressure at which the phase transformation occurs is 0.015-0.018 mm Hg. The quantity of hydrogen dissolved at this pressure in the α-phase is 70-71 n. cm^3/g Pd. At a pressure of 13 mm Hg the quantity of dissolved hydrogen is about 82 n. cm^3/g Pd. (H / Pd = 0.78). At - 120°C and a pressure of about 15 mm Hg the quantity of dissolved

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Absorption of Hydrogen by Palladium at Low Temperatures

hydrogen attained 86 n. cm^3/g Pd (H / Pd 0.82). At - 196°C absorption of hydrogen proceeded very s l o w l y The experiments, carried out in a closed circuit containing a given quantity of hydrogen and palladium, showed that the hydrogen absorption still continued after two days. The concentrations of hydrogen dissolved in palladium remained lower than those at - 78°C at the same pressures. It follows that the hydrogen-palladium system had not reached equilibrium as the solubility of hydrogen in palladium must increase with drop in temperature.
There is 1 figure, and 4 references of which 2 are Soviet and 2 English.

SUBMITTED: September 2, 1957

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SOV/120-59-1-44/50

AUTHORS: Nakhutin, I. Ye., Smirnova, N. M.

TITLE: Production of Pure Xenon (Polucheniye chistogo ksenona)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 1, p 149 (USSR)

ABSTRACT: A method of separating the hydrocarbons present in xenon is described. The elimination of the hydrocarbons was done by employing a highly active reagent which is prepared by depositing a layer of copper oxide on a surface of silica gel. The reagent was placed in a short quartz tube (having a length of a few cm), and dehydrated at a temperature of 300°C. The tube was then heated to 700°C, and the xenon to be purified was passed through it. The device operated as a chromatographic column in that the change of colour of the reagent after the reaction permitted the observation of the front forming in the column. A preliminary filling of the column by xenon was done very slowly. Subsequently, the xenon was passed in a continuous stream, at a rate of about 10 $\ell/cm^2 hr$, through the heated column and through another two columns operating at the ambient temperature. The other two columns captured the carbonic acid and the water vapours which formed during the oxidation of the hydrocarbons. After the operation the column was regenerated at 600°C. By the above method it was possible to obtain a spectrally pure xenon; the lines

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Production of Pure Xenon

of hydrogen and oxygen could not be detected, nor were the molecular spectra of hydrocarbons present. The method can be used for the purification of other rare gases. The authors express their gratitude to N. A. Teterina for carrying out the spectral analysis. There are no figures or references.

SUBMITTED: February 15, 1958.

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B004/B070

24.6720

AUTHORS: Nakhutin, I. Ye., Ovechkin, V. V., Ochkin, D. V., Polyakov, A. S., Khoduleva, Z. K.

TITLE: Preparation of the Radioactive Isotope Kr^{35} and Investigation of Its Gamma Radiation 79

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 4(10), pp. 991-992

TEXT: Kr^{35} was obtained by dissolving neutron-irradiated uranium in nitric acid and by separating chromatographically by active carbon at 77°K the gases liberated from moisture, nitrogen oxides, and radioactive iodine. For the measurement of emission, Kr^{35} was filled in a plexiglass cylinder with an aluminum foil bottom. The yield was determined from the ratio $k_\gamma = N_\gamma/N_\beta$, where N_γ, N_β are, respectively, the numbers of 517 kev gamma quanta and of β particles emitted per unit time in the solid angle 4π. The beta radiation was measured by an СИ-2В (SI-2B) counter, and the gamma radiation by a NaJ(Tl) scintillator

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