L 11130-63 EWT(l)/EWL(k)/EWT(m) BDS/EES(w)-2 AFFTC/ASD/ESD-3/AFWL/SSD
Pz-4/Pab-4/Pi-4/Po-4 AT/IJP(C)

ACCESSION NR: AP3001173 S/0089/63/014/005/0446/0452

AUTHOR: Bezbatchenko, A. L.; Kuznetsov, V. V.; Malakhov, N. P.; Semashko, N. N.

TITLE: Injections of ion beam into the magnetic trap "Ogra" 19

SOURCE: Atomnaya energiya, v. 14, no. 5, 1963, 446-452 81

TOPIC TAGS: ion injection, plasma, magnetic trap

ABSTRACT: The paper describes experimental results on obtaining, focusing, and injection of a beam of molecular hydrogen ions of energy up to 180 kev into the magnetic field of the "Ogra." The ion current introduced into the trap was about 150 ma. The ions are introduced into the trap through a magnetic channel which consists of an iron screen with a compensating current winding for weakening the field inside the channel (see Enclosure). The distortion of the magnetic field of the trap caused by the iron injection channel is in the working part only a few percent. Details of the ion source, ion injector optics, and of the magnetic channel are given. Orig. art. has: 7 figures.

ASSOCIATION: none

Card 1/3 1

BALEBANOV, V.M.; GLASKO, V.B.; GROSHEV, A.L.; KUZNETSOV, V.V.; SVESHNIKOV, A.G.; SEMASHKO, N.N.

Motion of single charged particles in undulating magnetic fields. Atom. energ. 15 no.4:318-319 O '63. (MIRA 16:10)

BALEBANOV, V.M.; VOLKOV, B.I.; GLASKO, V.B.; GROSHEV, A.L.; KUZNETSOV, V.V.; SVESHNIKOV, A.G.; SEMASHKO, N.N.

Motion of isolated charged particles in a magnetic field with helical symmetry. Atom. energ. 15 no.5:409-410 N '63. (MIRA 16:12)

ACCESSION NR: AP4024046 S/0048/64/028/002/0252/0256

AUTHOR: Wang,Ch'uan-p'eng, Gromov,K.Ya.; Zhelev,Zh.; Kuznetsov,V.V.; Ik, Ma Kho; Muziol', G.; Novgorodov, A.F.; Han, Shu-jun; Khalkin, V.A.

TITLE: Positrons in decay of $Yb^{167}$ /Report, Fourteenth Annual Conference on Nuclear Spectroscopy held in Tbilisi 14 to 22 Feb 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.2, 1964, 252-256

TOPIC TAGS: positron spectrum, positron decay, $\gamma$-ray spectrum, log ft, transition matrix element, superfluid nuclear model, deformed nucleus, $Yb^{167}$, $Tm^{167}$

ABSTRACT: The principal purpose of the present study was to determine the log ft value for the decay of $Yb^{167}$ to the 232.7 keV level of $Tm^{167}$. The log ft value calculated by other investigators for the transition from the $5/2^-[523]$ (ground state) of $Yb^{167}$ to the $7/2^-[523]$ state of $Tm^{167}$ on the basis of the $Yb^{167}$-$Tm^{167}$ mass difference is about 3.8, which is significantly lower than the usually observed log ft values. It is of particular interest to obtain the precise experimental value of log ft for this transition in view of the fact that the experimental values of the matrix elements for transitions of this type can serve for verification of the so-

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ACCESSION NR: AP4024046

called superfluid model of deformed nuclei. The $Yb^{167}$ for the measurements was separated from the lutetium fraction obtained by separation of the rare earth extracted from a tantalum target bombarded with 660 MeV protons for 2 hours in the internal proton beam of the Joint Institute for Nuclear Research synchrocyclotron. In view of the repeated rapid separation procedure employed, the source consisted primarily of $Yb^{167}$ with a small admixture of $Yb^{169}$; this last could not significantly affect the results in view of its longer lifetime and different mode of decay. In addition to the positron spectrum, there was also investigated the $\gamma$-ray spectrum of $Yb^{167}$; a number of lines not previously detected were observed, but in the main, the spectrum agrees with that published by R.G.Wilson and M.Pool (Phys.Rev.120,1296, 1960). The Kurie plot of the $\beta$-spectrum is nearly a straight line showing an end-point energy of 650 keV. The log ft value for the transition of interest was calculated on the basis of decay period (17.3 ± 0.2 min), the disintegration energy (1670 ± 30 keV), and the branching ratio. The value obtained for log ft is $4.74^{+0.07}_{-0.08}$. This value is consistent with the log ft values for analogous transition in odd deformed nuclei; actually the accurate experimental value is known for only one other decay; the others are only approximate. The decay scheme for $Yb^{167}$ is shown. Orig.art.has: 3 figures and 3 tables.

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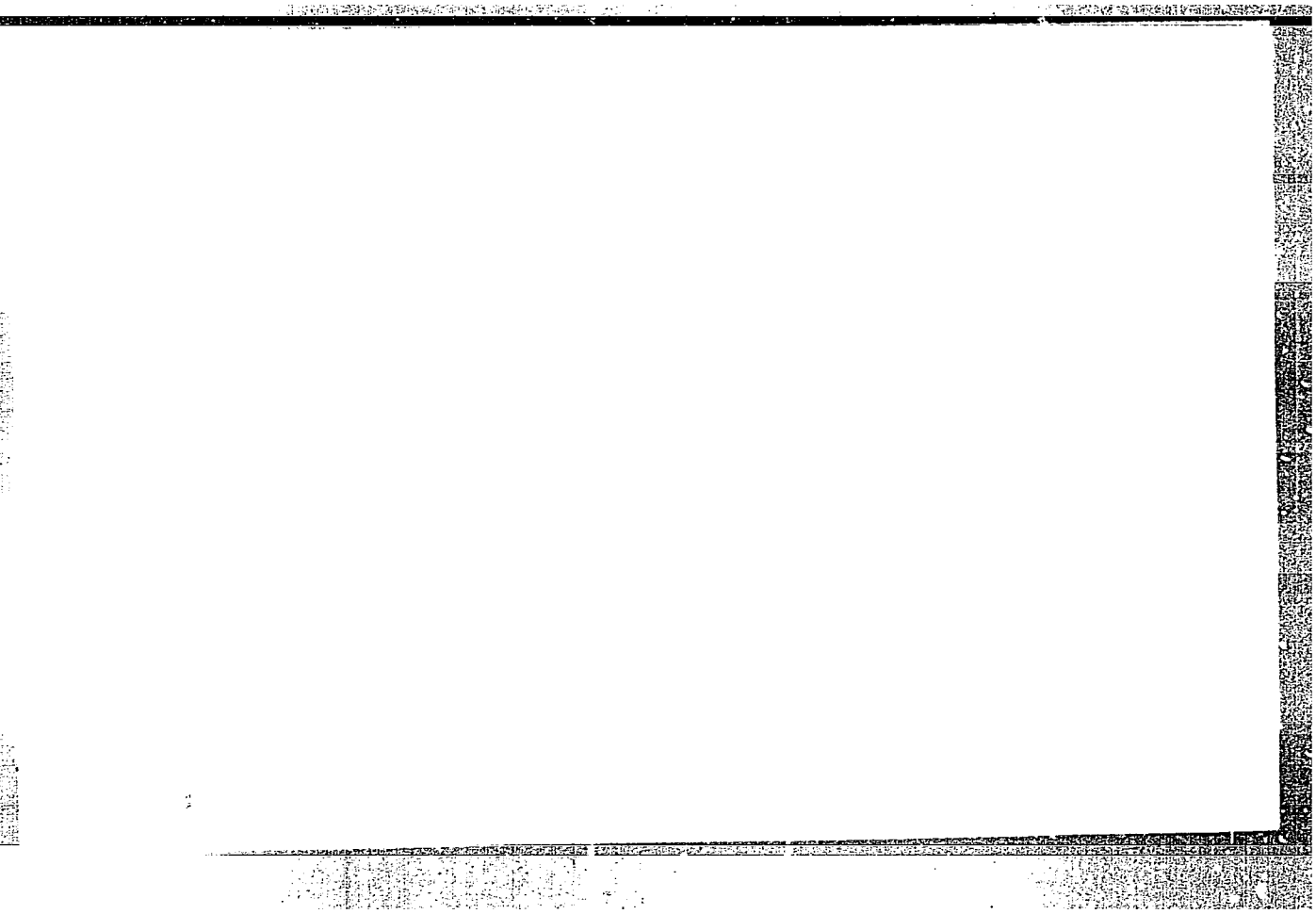
ACCESSION NR: AP4024046

ASSOCIATION: none

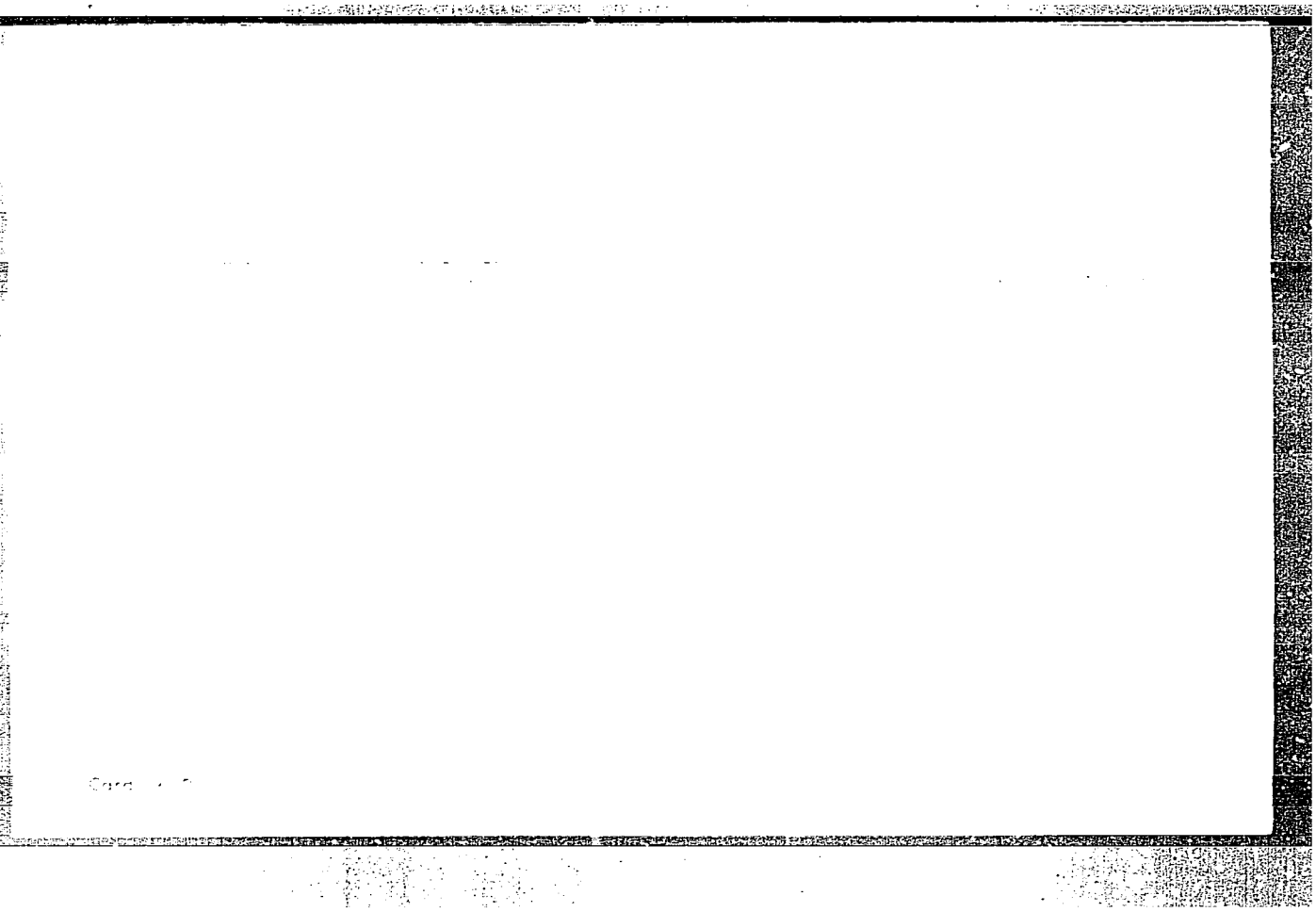
SUBMITTED: 00Aug63 DATE ACQ: 08Apr64 ENCL: 00

SUB CODE: NS NR REF SOV: 006 OTHER: 004

Card 3/3



APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000928210014-4"



APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000928210014-4"

ABDURAZAKOV, A.A.; GROMOV, K.Ya.; KUZNETSOV, V.V.; MA KHO IK; MÜZIOL', G.; MOLNAR, F.; MOLNAR, A.; MUKHTASIMOV, F.; KHAN' SHU-ZHUN' [Han Shu-jun]

Decay of $Ho^{161}$. IAd. fiz. 1 no.6:951-957 Je '65.
(MIRA 18:6)

1. Ob"yedinennyy institut yadernykh issledovaniy i Tashkentskiy politekhnicheskiy institut.

L 01230-66 EWT(m)/EPF(c)/ETC/EWG(m)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) DS/JD

ACCESSION NR: AP5022146 UR/0364/65/001/009/1096/1098
541.135.8.534.-8

AUTHOR: Kuznetzov, V. V.; Subbotina, N. I.

TITLE: Effect of ultrasound on diffusion of electrolytic hydrogen through iron membranes

SOURCE: Elektrokhimiya, v. 1, no. 9, 1965, 1096-1098

TOPIC TAGS: hydrogen, electrochemical process, electrode, iron, ultrasonic radiation

ABSTRACT: The effect of ultrasonic waves on diffusion of electrolytic hydrogen through iron membranes has not been investigated before. Assuming that the amount of hydrogen which penetrates the metal depends on the rate of the removal of hydrogen from the surface of the metal, ultrasonic waves should facilitate degassing of the solution as well as desorption of hydrogen from the surface of the metal. In the experiments annealed Armco iron membrane, 0.017 cm thick, with apparent working surface of 6 $cm^2$ was inserted by a special ring between two halves of an electrolytic cell. The diffusion side of the cell contained a microburet sealed hermetically to enable measurements of the hydrogen which passed into that compartment with

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L 01230-66

ACCESSION NR: AP5022146

3

accuracy of 0.01 ml. The diffusion side of the cell was filled with glycerine. The electrolysis were conducted in 1 *N* $H_2SO_4$ using a platinum anode. The cathodic current density was 7.5 a/dm$^2$, the frequency of ultrasound was 24.5 kc and the intensity was 3 W/cm$^2$. The ultrasound was directed perpendicularly to the surface of the membrane. The types of curves obtained are shown in Fig. 1 of the Enclosure. It was found that ultrasound changes significantly the rate of the diffusion of hydrogen through the iron membrane. The rate of diffusion decreases when the polarization side is irradiated and it increases when the ultrasound acts on the diffusion side of the membrane. It was discovered that the ultrasonic treatment of the membrane surface on the polarization side practically stops the diffusion of hydrogen not only during the time of ultrasonic irradiation, but also when the irradiation is terminated. The cause of this phenomenon has not been determined. Orig. art. has: 1 figure and 1 table.

ASSOCIATION: Estestvennonauchnyy institut pri permskom gosudarstvennom universitete im. A. M. Gor'kogo (Institute of Natural Sciences, Perm' State University) 44,55

SUBMITTED: 18Jan65 ENCL: 01 SUB CODE: EM, GC

NO REF SOV: 003 OTHER: 000

Card 2/3

L 01230-66
ACCESSION NR: AP5022146

ENCLOSURE: 01

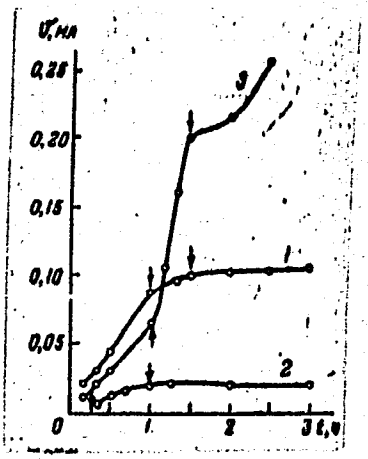


Fig. 1. Diffusion of electrolytic hydrogen through iron during ultrasonic irradiation from the polarization (1, 2) and from the diffusion (3) side of the membrane. Arrows indicate the time of start and finish of ultrasonic irradiation.

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L 01232-66 EPF(c)/EWP(z)/EWT(m)/EWP(i)/ETC/EWG(m)/EWP(b)/T/EWA(d)/EWP(t)
IJP(c) JD/JG

ACCESSION NR: AP5022148 UR/0364/65/001/009/1115/1118
541.13

AUTHOR: Kuznetsov, V. V.; Kon'shina, E. N.

TITLE: Diffusion of electrolytic hydrogen through bimetallic membranes

SOURCE: Elektrokhimiya, v. 1, no. 9, 1965, 1115-1118

TOPIC TAGS: hydrogen, electrochemical process, electrolytic cell, electrode, iron, gold, copper, silver, lead, cadmium, zinc

ABSTRACT: The purpose of this work was to investigate the kinetics of the diffusion of electrolytic hydrogen through iron membranes, coated either on the polarized side or on the diffusion side of the membrane with galvanic deposits of different metals. The experiments were conducted with 0.16 mm unfired Armco sheet iron. The deposits of copper, silver, zinc, cadmium and lead were made in the appropriate electrolytes. These galvanic deposits were made in a special cell and only on one side of the iron membrane. The diffusion of hydrogen through such membranes was investigated in an all-glass cell. The electrolyte was 1 *N* $H_2SO_4$, the anode was platinum and the apparent surface of the membrane cathode was 9 $cm^2$. The diffusion side of the membrane was in contact with distilled water, the volume of

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L 01232-66

ACCESSION NR: AP5022148

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which was measured with accuracy to 0.01 ml, thus yielding the volume of hydrogen which diffused through the membrane. In view of the low hydrogen overvoltage on Ag, Cu and Au the removal of hydrogen from the surface does not require any large activation energy. The volume of hydrogen which diffuses into the metal is small, and consequently in the case of these three metals no hydrogen diffused through the iron membrane. When these deposits were made on the diffusion side of the membrane, the rate of diffusion of hydrogen through a membrane increased in the following order: $N_{Ag} > N_{Cu} > N_{Au}$. This is in correspondence to the hydrogen overvoltage on these metals. Similar behavior was observed in the case of lead, zinc and cadmium deposits. It is hypothesized that the amount of diffused hydrogen through a membrane depends on the magnitude of the coefficient of compression of the metal in the electrolytic deposit and that the rate of diffusion of hydrogen through a bimetallic membrane depends on the contact difference of the potentials at the iron-electrolytic deposit interface. Orig. art. has: 3 figures.

ASSOCIATION: Yestestvenno-nauchnyy institut pri Permskom gosudarstvennom universitete im. A. M. Gor'kogo (Institute of Natural Sciences, Perm' State University)

SUBMITTED: 18Jan65 ENCL: 00 SUB CODE: EM, GC

NO REF SOV: 020 OTHER: 002

Card 2/2

ACC NR: AR7005027 (N) SOURCE CODE: UR/0398/66/000/007/B001/B002

AUTHOR: Verzhbitskaya, L. V.; Kuznetsov, V. V.; Posyagin, G. S.

TITLE: Cathodic protection of steel in river water

SOURCE: Ref. zh. Vodnyy transport, Abs. 7B4

REF SOURCE: Tr. Yestestvennonauchn. in-ta pri Permsk. un-te, v. 11, no. 3, 1965, 79-84

TOPIC TAGS: water, inland, steel, magnesium, waterway, cathode polarization /Steel 3, ML-5 alloy

ABSTRACT: The magnitudes of protective currents and the protective potentials of St-3 steel in Kama River water during cathodic polarization with external current are determined. A model study was made of the changes in the potentials during polarization of wares with simple and intricate shape. It has been determined that it is possible to use cathodic protection with an external current together with magnesium protectors of ML-5 alloys. Formation of salt deposits on the surface

Card 1/2 UDC: 620.193.2

ACC NR: AR7005027

of the steel has been observed. The role of the salt film in the protection of steel from corrosion by external current is determined. Orig. art. has: 3 figures, and 1 table. The bibliography has 4 references. [Translation of abstract] [GC]

SUB CODE: 11, 08/

Card 2/2

KUZNETSOV, V.V.

Errors in the measurement of grounding resistance in mines. Elektrichestvo no.12:50-53 D '64. (MIRA 18:12)

1. Severo-Kavkazskiy gornometallurgicheskiy institut.

KUZNETSOV, V.V.; KARASIK, A.S.; KON'SHINA, E.N.

Kinetics of the deposition of arsenic on various metals from acid and alkaline solutions. Zhur. fiz. khim. 39 no. 1:21-25 Ja '65 (MIRA 18:1)

1. Permskiy gosudarstvennyy universitet imeni A.M. Gor'kogo. Submitted August 13, 1964.

SOLDATOV, G.A.; LEVITSKIY, V.K.; KHAINSON, A.M.; KUZNETSOV, V.V.; SPEKTOR, M.P.

Assembly line for the manufacture of shaped objects. Stek. i ker. 22 no.12:33-35 D '65. (MIRA 18:12)

1. Khar'kovskiy plitochnyy zavod.

KUZNETSOV, V.V.; SUBBOTINA, N.I.

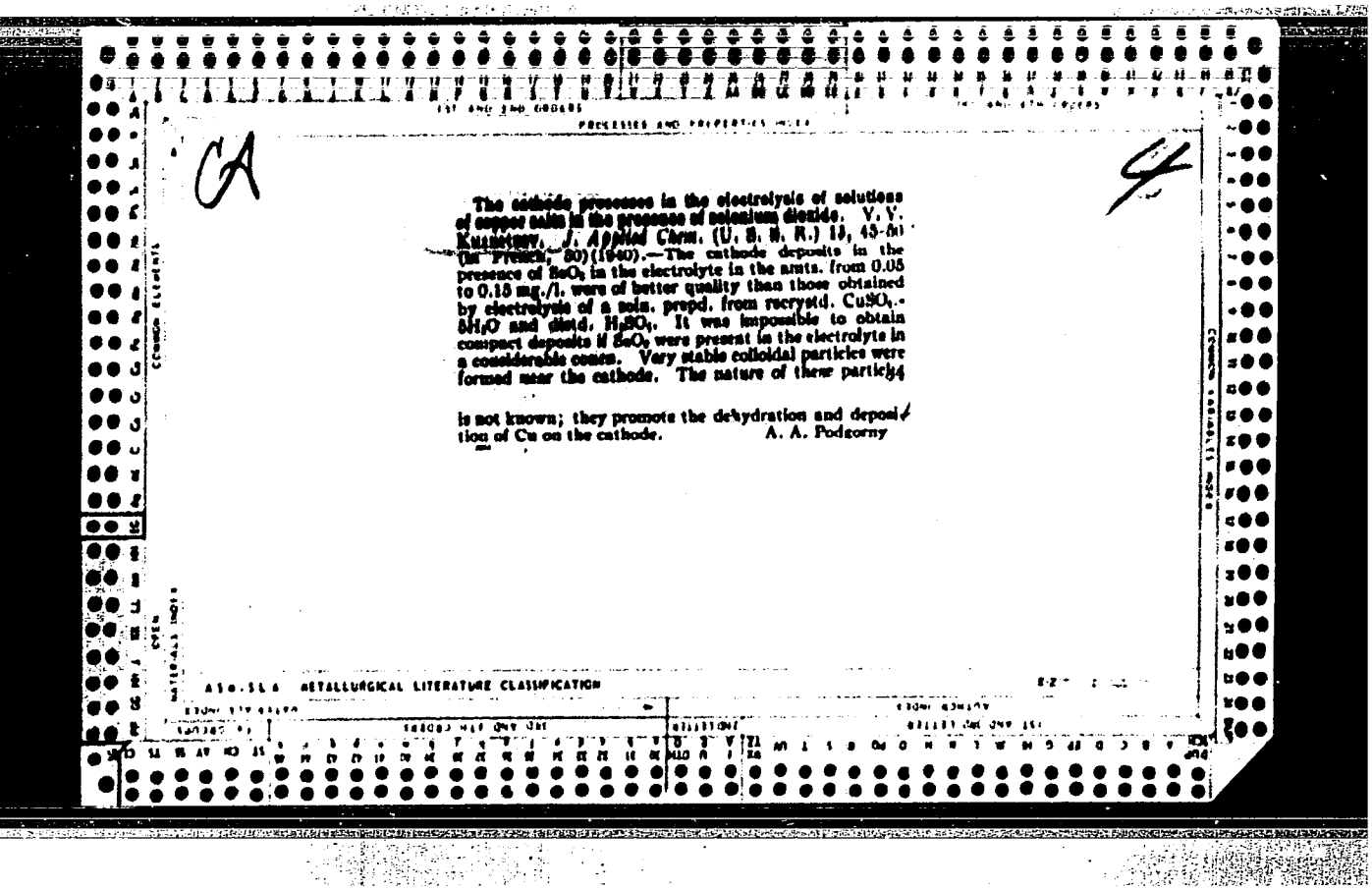
Effect of ultrasound on the diffusion of electrolytic hydrogen through iron membranes. Elektrokhimiia 1 no.9:1096-1098 S '65. (MIRA 18:10)

1. Yestestvennonauchnyy institut pri Permskom gosudarstvennom universitete imeni A.M. Gor'kogo.

KUZNETSOV, V.V.; GLUKHOVA, Yu.V.

Extraction-photometric determination of monosulfonic acids of naphthalene in process sulfo masses. Zav. lab. 31 no.11: 1324-1325 '65. (MIRA 19:1)

1. Dorogomilovskiy khimicheskiy zavod imeni Frunze.



The cathode processes in the electrolysis of solutions of copper salts in the presence of selenium dioxide. V. V. Khainatzov. *J. Applied Chem. (U. S. S. R.)* 13, 45-61 (in French, 80)(1940).—The cathode deposits in the presence of $SeO_2$ in the electrolyte in the amts. from 0.05 to 0.15 mg./l. were of better quality than those obtained by electrolysis of a soln. prepd. from recrystd. $CuSO_4 \cdot 5H_2O$ and distd. $H_2SO_4$. It was impossible to obtain compact deposits if $SeO_2$ were present in the electrolyte in a considerable concn. Very stable colloidal particles were formed near the cathode. The nature of these particles is not known; they promote the dehydration and deposition of Cu on the cathode. A. A. Podgorny

KUZNETSOV, V.V.

1/

The conditions of formation and the nature of the colloid particles formed in the electrolysis of aqueous solutions of silver nitrate, mercurous nitrate, and copper sulfate. V. V. Kuznetsov. (Univ. Molotov). *Zhur. Fiz. Khim.*, 24, 874-81(1950).—In an ultramicroscope colloidal particles could be seen between the electrodes in $AgNO_3$ (0.0001-0.01 *N*), $HgNO_3$ (0.001-0.01 *N*), and $CuSO_4$ (0.01-1 *N*) solns. as soon as phenolphthalein around the cathode became purple. Hence, the particles are oxides or hydroxides. These can be reduced to metals by light. The direction of their movement in the elec. field depends on the salt concn. The current yield is not affected by colloid formation. J. J. Bikerman

√Conditions under which colloids are formed in electrolysis and their role in the formation of cathodic deposits. V. V. Kuznetsov. *Uchenye Zapiski Molotov. Un-ta* 8, [illegible]; *Referat. Zhur., Khim.* 1954 No. [illegible]. The formation of colloids in the near-cathode area during the electrolysis of $AgNO_3$ [illegible] $Hg(NO_3)_2$ ($10^{-4}$ – $10^{-2}$ *N*), $AuCl_3$ [illegible] $CuSO_4$ ($10^{-4}$ – $5 \times 10^{-2}$ *N*), $Cu(NO_3)_2$ [illegible] $10^{-2}$ *N*., $NiSO_4$, and $Ni(NO_3)_2$ ($10^{-4}$ – $10^{-2}$ *N*., and of $Pb$[illegible]$H_2O_2$ and $Pb(NO_3)_2$ was studied by [illegible] Colloids were not formed in the electrolysis of Ag cyanide soln., $CuNH_4OH$ soln., or plumbate soln. With the aid of polarization measurements it was established that in solns. of Ag and Cu salts, colloids appear [illegible] when the satn. current was reached [illegible] charge of H ions or $H_2O$ mols. In $Hg(NO_3)_2$ or $AuCl_3$ colloidal particles appeared with the current of [illegible] of an definite value. By adding indicators and by the pH of samples from the near-cathode area with the aid of a glass electrode it was shown that at the time colloids appeared the thin layer of $AgNO_3$ soln. adjacent to the cathode had a pH of 8–8.8. Acidifying this soln. with $HNO_3$, $H_2SO_4$, or AcOH to an acid concn. of 0.065*N* prevented the formation of colloids. After switching-in the current, the potential of Ag and Cu cathodes increased rapidly, attaining a max. within 30–35 sec., and afterward declined slowly. Based on exptl. results it was suggested that colloids appeared when the product of $OH^-$ and metal-ion concns. near the cathode attained the value of the solv. product of the metal hydroxide. In the electrolysis of dil. $AgNO_3$ solns. 95–97% of colloidal particles migrated toward the anode [illegible] odic yield of Ag reached 100% in relation to the current

The presence of colloids near the cathode and the pptn. of their pos. charged particles on the cathode affect d. electrically diffusion and convection, interfered with the normal growth of crystals in electrodeposition, and caused the formation of powderlike deposits. The opinion of some investigators that cathodic deposits were formed via a stage of supersatd. at. of colloidal solns. at the cathode was disputed. M. Hosch

5470

S/081/61/000/023/010/061
B108/B147

AUTHORS: Kuznetsov, V. V., Rybakov, B. N.

TITLE: Effect of hydrogen-absorption catalysts on the hydrogen overvoltage on nickel in sulfuric acid

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 23, 1961, 70, abstract 23B530 ("Izv. Yestestvennonauchn. un-ta pri Permsk. un-te", v. 14, no. 4, 1960, 13 - 18)

TEXT: The effectsof additions of $As_2O_3$ (3.3 - 132 mg/liter) and $SeO_2$ (5 - 125 mg/liter) on the hydrogen overvoltage $\eta$ at $i = 6\cdot10^{-5} - 1\cdot10^{-3}$ a/cm$^2$ and on the stationary potential $\varphi_s$ of a Ni electrode in an 0.1 N $H_2SO_4$ have been studied. The sample of spectroscopically pure Ni sheets was annealed for 30 min in vacuo at 900°C, then polished, degreased in a 2 N NaOH at 65 - 70°C, and rinsed with distilled water. $As_2O_3$ addition shifts $\varphi_s$ toward the positive side and increases $\eta$. The curves ($\eta$(log i))

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Effect of hydrogen-absorption catalysts on... S/081/61/000/023/010/061
B108/B147

exhibit two domains; the slope is steeper at low values of i than at high ones. $SeO_2$ affects $\varphi_s$ and $\eta$ in the same way as $As_2O_3$, but the effects are not quite as strong. The results are explained by a deceleration of the recombination of H (adsorption) owing to molecular precipitation of As and Se on the electrode. [Abstracter's note: Complete translation.]

Card 2/2

S/081/61/000/024/013/086
B138/B102

AUTHOR: Kuznetsov, V. V.

TITLE: Ultramicroscopic investigation of the anodic dissolution of certain metals

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 24, 1961, 92, abstract 24B671 (Izv. Yestestvennonauchn. in-ta pri Permsk, un-te, v. 14, no. 4, 1960, 43 - 50)

TEXT: Ultramicroscope studies have been made of the anodic dissolution of Ag, Cu, Zn, Ni and Pb in the course of the electrolysis of aqueous solutions of their salts. The purpose of the study was to find the conditions for the formation of collective and larger suspension particles, and to explain the role of such particles in the formation of cathode slimes. Collective particles were found to form on the anodic dissolution of Ag, Cu and Zn. Formation of large suspended particles was observed for all the metals, and their number increased with anodic current density. These particles may be precipitated on to the cathode, which could be a reason for random crystal growth of the cathode, the appearance of excrescences and of parts with spongey formations. [Abstracter's note:

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Ultramicroscopic investigation of...

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B138/B102

Complete translation. ]

Card 2/2

5.4600

78220
SOV/80-33-3-21/47

AUTHORS: Kuznetsov, V. V., Frolov, V. A.

TITLE: Change of Electric Resistance in Metals on Electrolytic Saturation With Hydrogen

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 3, pp 628-632 (USSR)

ABSTRACT: Type OVP-0.25 wire made of U9A steel (C, 0.91%; Mn, 0.22%; Si, 0.25%; S, $<$ 0.02%; P, $<$ 0.03%) was annealed under vacuum and then saturated with hydrogen in an electrolytic cell with platinum anode and sulfuric acid electrolyte. $As_2O_3$ was added to the acid to stimulate the hydrogenation. The specific electric resistance $\rho$ of the wire samples was measured before and after hydrogenation with MOD-54 double bridge. It was established that the specific resistance grew with the time of saturation to a maximum, and then remained stable. The time of saturation decreased with increasing

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Change of Electric Resistance in Metals on Electrolytic Saturation With Hydrogen

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concentration of the acid. Plots of $\Delta\rho$ vs current density $d_c$ showed that the saturation point was reached at a definite value of the order of $10^{-1}$ $\mu\Omega$·cm. Steel 1X18H9T and monel, both of which dissolve considerably larger amounts of hydrogen than carbon steels, showed a very high $\Delta\rho$ reaching 3.5-4 $\mu\Omega$·cm. Monel, however, became brittle, and the saturation point could not be determined. The increase of the specific resistance in hydrogenated metals is due, supposedly, to the formation of interstitial hydrogen-metal solid solutions as well as to the liberation of molecular hydrogen in the intergranular and intragranular spaces of the metal. The penetration of hydrogen into metals on hydrolysis can therefore be investigated successfully by measuring the increase of the specific resistance. There are 5 figures; and 15 references, 2 U.S., 1 U.K., 2 French, 1 Polish, 9 Soviet. The U.S. and U.K. references are: G. P. Hoare, S. Shuldiner, J. Phys. Chem., 61, 339 (1957);

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Change of Electric Resistance in Metals on Electrolytic Saturation With Hydrogen

78220
SOV/80-33-3-21/47

I. Isenberg, Phys. Rev., 79, 736 (1950); N. E. Mott, H. Jones, The Theory of the Properties of Metals and Alloys, Oxford University Press, London (1936).

ASSOCIATION: Electrochemical Laboratory of the Natural Sciences Institute at the A. M. Gor'kiy Perm State University (Laboratoriya elektrokhimii Yestestvenno-nauchnogo instituta pri Permskom gosudarstvennom universitete imeni A. M. Gor'kogo)

SUBMITTED: June 1, 1959

Card 3/3

18 8200 26540 S/126/61/012/002/010/019
E111/E435

AUTHORS: Kuznetsov, V.V., Konstantinova, N.I. and Frolov, V.A.

TITLE: Influence of electrolytic hydrogen on the microhardness of some metals

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.12, No.2, pp.255-259

TEXT: The authors consider that although the increase in hardness of many metals and alloys through treatment in hydrogen, etching and cathodic polarization has often been noted, its mechanism has been little studied. Hardness changes in iron through cathodic polarization have been studied (e.g. Ref.4: Moreau L., Chaudron G., Portevin A. Compt. Rend., 1935, 201, 212). The object of the present work was to study the nature of microhardness changes in armco-iron, nickel and tantalum after cathodic polarization in acids, especially those containing hydrogen-pick-up promoters (arsenic or selenium). The investigation was carried out on sheet specimens of nickel (0.08 mm thick), armco-iron (0.18) and tantalum (0.12). The microhardness on the electrolyte and opposite sides was determined. Because preliminary experiments had shown that with unannealed specimens of iron regular changes in

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Influence of electrolytic 26560

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E111/E435

Microhardness could not be obtained, all iron specimens were vacuum annealed ($10^{-4}$ mm Hg) at 900 C. Before cathodic polarization iron specimens were electropolished (40% $H_3PO_4$, 60% glycerine, anode current density 0.5 A/cm$^2$). In the main experiments the surface was etched and the microhardness measured at the centres and near the boundaries of grains. Nickel specimens were polished mechanically and etched with a 1:1 mixture of concentrated nitric and acetic acids. Tantalum was only polished mechanically. Specimens were cathodically polarized in sulphuric or hydrochloric acid solution with a platinum anode; the solutions contained some mg of promoter per litre. Microhardness was measured with loads of 10, 50 or 200 g. Averaged results of seven measurements (accuracy $\pm$ 5 kg/mm$^2$) are plotted as change in microhardness (kg/mm$^2$) against time of cathodic polarization (hours) in Fig.1, 3 and 4 (minutes in Fig.2). All except Fig.3 relate to armco-iron. Indenter loads were 10 g (200 in Fig.2), the sulphuric acid was 1N (2 N in Fig.1), cathodic current densities were 5 A/dm$^2$ (Fig.1,2) and 7.5 A/dm$^2$ (Fig.3-5). Fig.1, 2 and 3 were obtained when microstructure was not taken into consideration, i.e. for unetched specimens. Fig.1 and 2 refer to

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armco-iron without and with 5 mg/litre of solution of arsenic, respectively. The solutions corresponding to the other figures had 10 mg As/litre. Curve 1 in Fig.3 refers to nickel, curve 2 to tantalum. In Fig.4, curves 1 and 2 relate to grain boundary and centre zone, respectively, on the electrolyte side; the corresponding results for the other side are shown in curves 3 and 4. In Fig.5, the abscissa represents annealing time at 150°C after cathodic polarization to saturation with hydrogen. The fact that all the curves for the three metals considered pass through a maximum points to the mechanism of hydrogen hardening being the same. The authors attribute the fall in hardness mainly to cracking of the outer layer, this being supported by the fact that the observed changes in microhardness (25-30 kg/mm$^2$) are similar to the corresponding value of the pressure exerted on the face blisters by molecular hydrogen present in micro-defects, calculated by K.V.Popov and V.A.Yagunova (Ref.9: FMM, 1959, Vol.8, 2, 187). The increase in microhardness in the latter stages of the experiments is attributed to the diffusion into the metal of arsenic or selenium. This agrees with evidence published by V.N.Svechnikov, V.M.Pan and A.K.Shurin (Ref.10: FMM, 1958, 6, 662).

Influence of electrolytic ... 26560 S/126/61/012/002/010/019
E111/E435

From the difference in microhardness changes at the grain centres and boundaries, the authors conclude that the processes in the metal associated with hydrogen diffusion proceed faster at the boundaries. The authors explain the maxima in the annealing curves (Fig.5) by the fact that absorbed hydrogen or lattice atomic hydrogen leaves comparatively easily on heating and the micro-hardness would therefore fall; however, molecular hydrogen present in defects is less mobile and must either dissociate into atoms or its pressure would rise on heating to a value producing microcracks. There are 5 figures and 10 references: 3 Soviet and 7 non-Soviet. The reference to an English language publication reads as follows: Sugeno F., Kowaka M. J.Appl.Phys., 1954, Vol.25, 8, 1063.

ASSOCIATION: Yestestvenno-nauchnyy institut pri Permskom gosuniversitete (Natural Sciences Institute at Perm' State University)

SUBMITTED: December 19, 1960 (initially)
February 27, 1961 (after revision)

Card 4/6

S/080/62/035/003/013/024
D204/D302

AUTHORS: Kuznetsov, V. V. and Frolov, V. A.

TITLE: Study of the hydrogenation of metals by measuring their electrical resistance

PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no. 3, 1962, 582-587

TEXT: A continuation of earlier work showing that the resistance of certain metals increased, after cathodic polarization in $H_2SO_4$, to a certain value independent of the polarizing current density or acid concentration. In the present study, the change of resistance was measured for monel metal, Ni and steel 1Х18Н9Т (1Kh18N9T) and У9А (U9A) wires, after saturation with electrolytic hydrogen, during cathodic polarization in HCl, $H_2SO_4$ and $H_3PO_4$. The effects of hydrogenation stimulators (As, Se, Te) and of temperature (20-95°C) were investigated. The methods were those used earlier. It was found that at 20°C the resistance increased with time of treatment to a certain value fairly constant for each acid, but at varying

Card 1/2

rates. Stimulator activity of As was greater than that of Se, which in turn exceeded that of Te. In general, the amount and rate of change of resistance depended on the nature and structure of the metal, nature and concentration of the acid, additions of stimulators, cathode current density and temperature. Brittleness, elongation and tensile strength of hydrogen-treated wires were measured. All results are presented in graphical form and are discussed in some detail. Differences in the change of resistance are explained by different structures of the metals and resulting variations in the affinity for hydrogen. The changes are ascribed not only to absorption of atomic H but also to the agglomeration of molecular $H_2$ in pockets in structural defects of the metallic lattice. The linear increase of resistance with rising temperature of the electrolyte, in the case of oxygen containing acids, is explained by the accelerated rates of diffusion of the gas into the metal and by increasing solubility. The possibility of the changed resistance being due to adsorbed film of hydrogen requires further study. There are 9 figures and 6 Soviet-bloc references.

SUBMITTED: April 7, 1961

Card 2/2

18.7530 1145,1555

S/076/61/035/003/011/023
B121/B203

AUTHORS: Kuznetsov, V. V. and Varskoy, B. N.

TITLE: X-ray study of structural changes of steel in electrolytic hydrogen saturation

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 3, 1961, 595-599

TEXT: The authors studied the structural changes of steel in electrolytic hydrogen saturation by determining the changes in width and intensity of X-ray diffraction lines. Specimens of Armco iron, steel 10, and steel 50 (20 × 20 × 0.2 mm), and ОВП-0.50 (OVP-0.50) wire made of У9А (U9A) steel were tested. The change in width of diffraction lines was determined with the $K_\alpha$ radiation of Co at V = 30 kv and i = 10 ma. The change in intensity of diffraction lines was determined with the $K_\alpha$ radiation of Mo at V = 42 kv and i = 10 ma. The intensity of diffraction lines was found to decrease at first, and then slightly increase again, with increasing saturation time of specimens with hydrogen. This increase is probably due to a noticeable oxidation of the specimen surface with oxygen which is anodically formed in prolonged polarization at high amperage. The second-order stresses and

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third-order distortions were found to increase regularly after cathodic polarization in sulfuric acid. The third-order distortions are due to formation of a solid solution between hydrogen and metal; the second-order stresses are explained with the development of molecular hydrogen in the micropores. Small amounts of arsenic were found to affect negatively the hydrogen saturation of steel specimens. The decrease in the limiting value of second-order stresses with increasing carbon content in steel is explained with the formation of large quantities of the carbide phase. The described method of studying the intensity and width of diffraction lines is generally recommended for studies of structural changes in metals after electrolytic hydrogen saturation. There are 6 figures and 5 references: 2 Soviet-bloc and 3 non-Soviet-bloc. [Abstracter's note: Perm' is now called Molotov.]

ASSOCIATION: Permskiy gosudarstvennyy universitet im. A. M. Gor'kogo
(Perm' State University imeni A. M. Gor'kiy)

SUBMITTED: July 3, 1959

KUZNETSOV, V.V.; SADAKOV, G.A.

Polarography of selenious acid. Zhur. anal.khim. 18 no.12: 1486-1491 D '63. (MIRA 17:4)

1. Permskiy gosudarstvennyy universitet imeni Gor'kogo.

L 16935-63 EWT(m)/BDS ESD-3 RH/AB

S/076/63/037/004/026/029

AUTHOR: Karasik, A. S., Kuznetsov, V. V.

57

TITLE: Ultrasonic unit for electrochemical research

PERIODICAL: Zhurnal fizicheskoy khimii, V. 37, No. 4, 1963, 930-932

TEXT: An ultrasonic unit for electrochemical research has been designed and built in the laboratory. The unit makes it possible to regulate the emitter power, to make adjustments to the required frequency, and to observe (with the aid of an instrument) the shape of the ultrasonic wave and beginning of cavitation. With this unit and a receiver it will be possible to measure the intensity of an ultrasonic field from $10^{-4}$ to 15-20 watts/$cm^2$. There are 5 figures.

ASSOCIATION: Yestestvenno-nauchnyy institut pri Permskom universitete (Natural Science Institute at Perm University), Perm

SUBMITTED: March 24, 1962

Card 1/1

KUZNETSOV, V. V. and YERMAKOVA, G. P. (Perm State University A. M. Gorkiy)

"Investigation of hydrogenation of metals during electrolysis by method of measurement of electric resistance".

Report presented at the Intervuz Conference on Electrodeposition of Nonferrous Metals, Ural Polytechnical Institute im S. M. Kirov, Sverdlovsk, held from 27-30 May 1963

(Reported in Tsvetnyye Metally, No. 10, 1963, pp. 82-84)
JPRS 24,651 19 May 64

L 26659-66 EWT(m) DIAAP JD/JG

ACC NR: AP6017114 SOURCE CODE: UR/0048/65/029/012/2235/2238

AUTHOR: Gromov, K. Ya.; Zhelev, Zh. T.; Kalinnikov, V. G.; Kuznetsov, V. V.; Kun, Syan-tszin'; Muziol', G.; Han', Shu-zhun'; Khalkin, V. A. 55 B

ORG: none

TITLE: Positrons in Gd sup 147 decay [This paper was presented at the 15th Annual Conference on Nuclear Spectroscopy and the Structure of the Atomic Nucleus, held in Minsk from 25 January to 2 February 1965]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 12, 1965, 2235-2238

TOPIC TAGS: positron, gadolinium, spectrometer, scintillation spectrometer, tantalum, europium, gamma spectrum, isotope, radioactive decay

ABSTRACT: The positron emission of $Gd^{147}$ is studied with a scintillation spectrometer and a triple-focussing beta spectrometer. The gadolinium sample was extracted from a tantalum target that had been irradiated for 2 hours at 660 Mev. The purpose of this work was to determine the $Eu^{147}$ levels that are populated by positron decay of $Gd^{147}$. This is done by studying the triple coincidence of the 511-511 kev gamma quanta and the quanta of the entire gamma spectrum. The equipment used is diagrammed in the following paper (in the same journal).

Triple coincidence spectra are plotted for two geometries of the detectors. The lone peak at 230 kev leads the authors to assume that a

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L 26659-66

ACC NR: AP6017114

large fraction of the positrons populates the 229 kev level. The remainder is shown to go to ground state. The schematic diagram of $Gd^{147}$ $Eu^{147}$ is shown. Orig. art. has: 4 figures and 1 formula. [JPRS]

SUB CODE: 20 / SUBM DATE: none / ORIG REF: 012 / OTH REF: 003

Card 2/2 BLG

KUZNETSOV, V.V.

Determining the mean absorption and reflection coefficients from the spectra and amplitudes of direct and reflected waves. Trudy Inst. fiz. Zem. no.34:152-174 '64.

(MIRA 18:8)

KUZNETSOV, V.V.; KHAMIDOV, S.

Solution of an inverse problem by the frequency method with an inclined observation surface for a horizontal cylinder. Razved. geofiz. no.3:94-96 '65. (MIRA 18:8)

GROMOV, K.Ya.; YENCHEV, D.A.; ZHELEV, Zh.T.; ZVOL'SKIY, I.; KALINNIKOV, V.G.; KUZNETSOV, V.V.; MA KHO IK; MUZIOL', G.; KHAN' SHU-ZHUN' [Han Shu-jun]

Decay scheme of $Tb^{152}$. IAd. fiz. 1 no.4:562-572 Ap '65. (MIRA 18:5)

1. Ob"yedinennyy institut yadernykh issledovaniy.

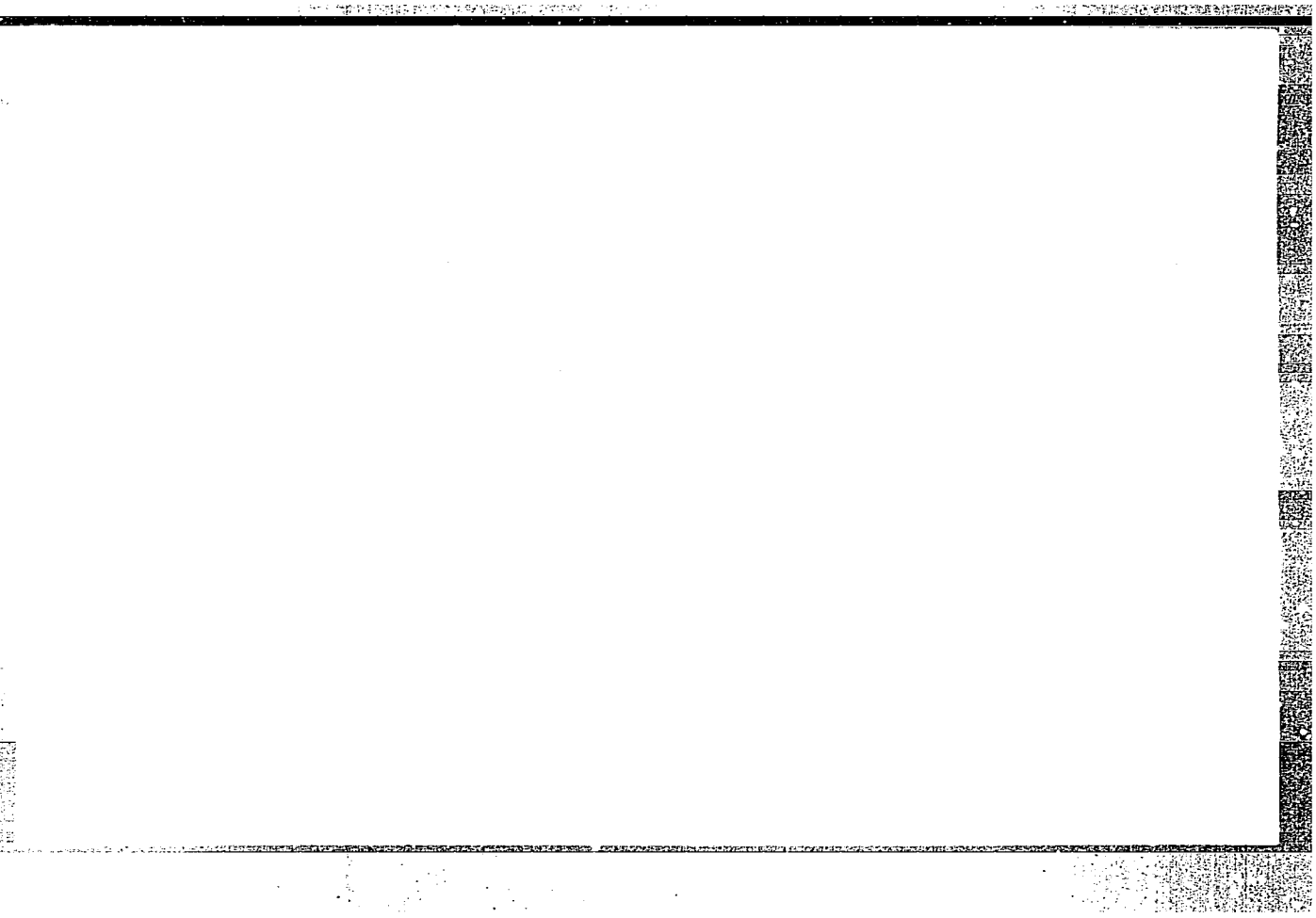
KUZNETSOV, V.V.; KISLYAK, V.V.

Study of the propagation of a television signal in mountainous areas. Elektrosviaz' 19 no.6:78-80 Je '65. (MIRA 18:6)

SOURCE: Zhurnal prikladnoy khimii, v. 38, no. 6, 1965, 1310-1315

TOPIC TAGS: ultrasound, hydrogen absorption, iron, steel cathode polarization, cavitation

ABSTRACT: A study of hydrogen absorption by Armco iron and steel cathodic polarization



APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000928210014-4"

KUZNETSOV, V.V.; MALYUSOV, V.A.

Separation of liquid mixtures with the aid of cellophane.
Khim.prom. no.5:345-346 My '62. (MIRA 15:7)
(Liquids) (Cellophane)

KUZNETSOV, V.V.; MALYUSOV, V.A.

Effect of the temperature and of the aggregate state of binary mixtures on their separation by means of cellophane. Khim. prom. no.8:622-626 Ag '63. (MIRA 16:12)

ZAKHARIKOV, N.A.; NAYDENOV, V.V.; BLOKH, S.A.; SOLDATOV, G.A.; LEVITSKIY, V.K.; KUZNETSOV, V.V.; SPEKTOR, M.P.

Radiation gas drying of structural ceramic products. Stek. i ker. 19 no.7:21-25 Jl '62. (MIRA 15:7)
(Tiles—Drying)

SOLDATOV, G.A.; LEVITSKIY, V.K.; KUZNETSOV, V.V.; SPEKTOR, M.P.; POKUTNYY, N.P.; KHAINSON, A.M.

Gas radiation dryers. Stek.i ker. 21 no.12:26 D '64.
(MIRA 18:3)

On 22 November 1946, at the Power Engineering Institute imeni Molotov, defended his dissertation on "The Light-Optical Systems of Light Beacons with Multiple Flashes". Official opponents - Doctor of Technical Sciences Professor N. A. Karyakin, and Candidate of Technical Sciences A. I. Gribanov.

So: Elektrichestvo, No 4, April 1947, pp 90-94 ( U-5577, 18 February 1954 )

A description was given of aviation beacons and their technical characteristics based on the results of experiments. The effect of the flash characteristics of a beacon was demonstrated on detecting signals and the clarity of recognizing them. An analysis was made of the problem of the effect of the included angle of the dioptric portion of the lens profile on the Fresnel light losses, the dimensions of the optical system, and the structure of the light bundles of lens searchlights. It was demonstrated that the optimal included angle is 30 degrees, and not 38 degrees as usually believed. The dependence between the diameter and focal length of the optical system and the included angle of the dioptric portion of the profile was determined. A method was worked out for calculating the light bundles of lens beacons with a cylindrical source of light for lenses both with and without aberrations; in this connection it was shown that the cylindrical light source cannot be replaced with a spherical source of equivalent dimensions.

So: IBID

KUZNETSOV, V.V., inzh.

Designing mining enterprises with the use of electronic computers. Izv.vys.ucheb.zav.;gor.zhur. 7 no.9:3-7 '64.

(MIRA 18:1)

1. Tul'skiy politekhnicheskiy institut. Rekomendovana kafedroy ekonom'' i organizatsii promyshlennosti i stroitel'stva i laboratoriyey vychislitel'noy tekhniki.

MILLER, Viktor Yakovlevich, inzh.; KORCHAGIN, Vladimir Aleksandrovich, inzh.; TOLOKONNIKOV, Vladimir Gerasimovich, inzh., MUKHANOV, K.K., kand. tekhn. nauk, retsenzent; KUZNETSOV, V.V., inzh., retsenzent; ZELYATROV, V.N., inzh., nauchn. red.

[Steel structures in a blast furnace - gas purification complex] Stal'nye konstruktsii kompleksa domennoi pechi i gazoochistki. Moskva, Stroiizdat, 1965. 278 p.
(MIRA 18:4)

EYLER, S.A., inzh.. Prinimali uchastiye: KOZLINSKIY, N.A., inzh.; MAKHONIN, A.N., inzh.; KUZNETSOV, V.V.; POLYAKOV, V.F.. GURKIN, V.I., kand. tekhn.nauk, nauchnyy red.; PAKHOMOVA, M.A., red.izd-va; TEMKINA, Ye.L., tekhn.red.

[Pipeline construction] Montazh naruzhnykh truboprovodov. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1959. 233 p. (MIRA 13:3)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu. 2. Brigadiry tresta No.4 Mospodzemstroya (for Kuznetsov, Polyakov). (Pipelines)

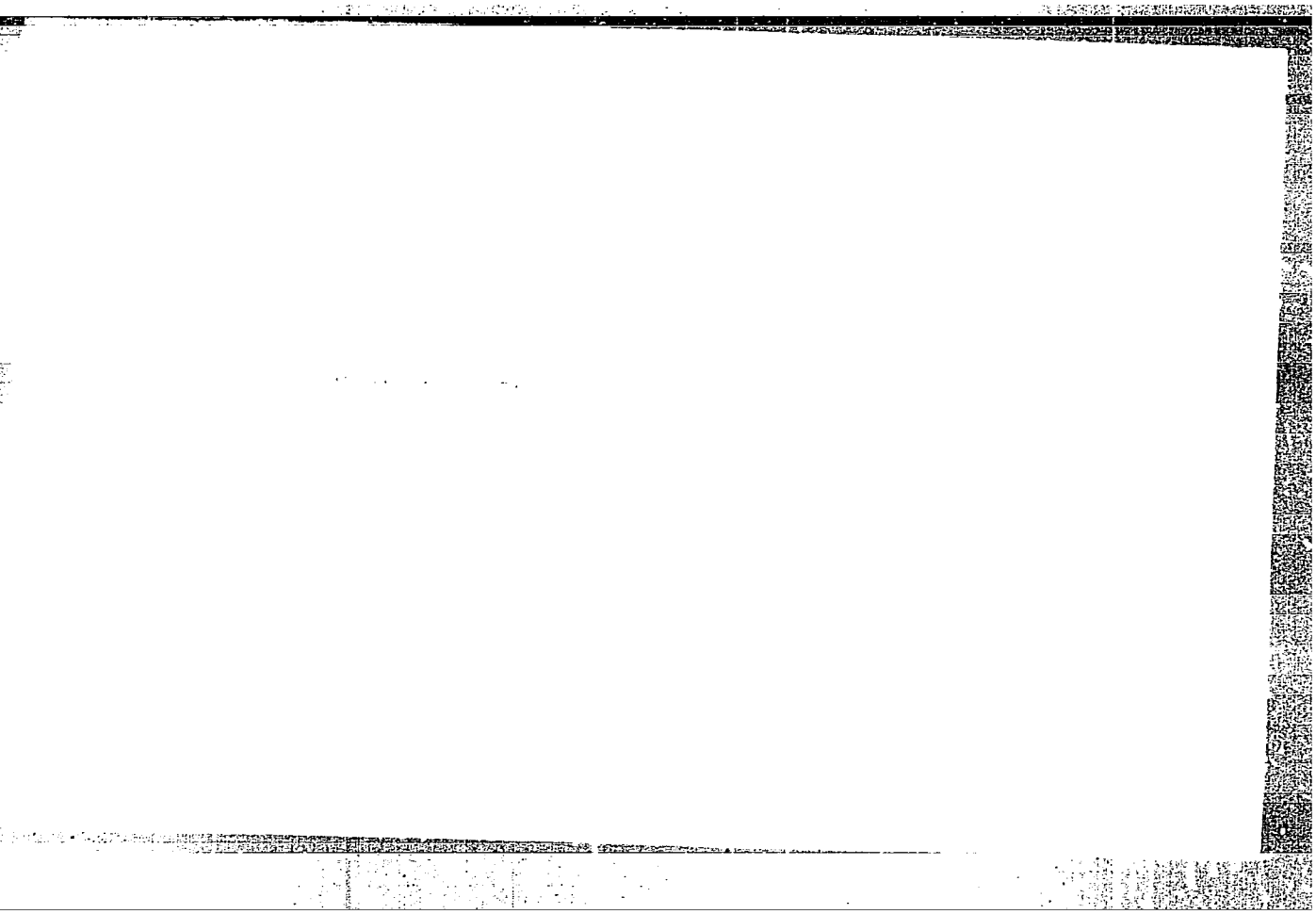
ARTSYBASHEV, Ye.S., kand. sel'khoz. nauk, mladshiy nauchnyy sotr.; VINOGRADOV, B.V., kand. geogr. nauk, starshiy nauchnyy sotr.; KUZNETSOV, V.V., pochvoved, mladshiy nauchnyy sotr.; MARKOVSKIY, V.K., inzh.-gidrogeol., mladshiy nauchnyy sotr.; MEYYER, G.Ya., doktor geol.-miner. nauk, starshiy nauchnyy sotr.; NEFEDOV, K.Ye., inzh.-gidrogeol., aspirant; POPOVA, T.A., kand. biol. nauk, mladshiy nauchnyy sotr.; KELL', N.G., otv. red.; KUDRITSKIY, D.M., red. izd-va; ZAMARAYEVA, R.A., tekhn. red.

[Application of aerial methods for the study of underground waters; materials on the studies in Turkmenia, the northwestern regions of the East European Plain, and the Caspian Depression] Primenenie aerometodov dlia izucheniia gruntovykh vod; materialy issledovaniia v severo-zapadnykh raionakh Russkoi ravniny v Prikaspiiskoi nizmennosti Turkmenii. Moskva, Izd-vo Akad. nauk SSSR, 1962. 141 p. (MIRA 15:11)

1. Russia (1923- U.S.S.R.)Ministerstvo geologii i okhrany nedr. Laboratoriya aerometodov. 2. Chlen-korrespondent Akademii nauk SSSR (for Kell').
(Water, Underground) (Aerial photogrammetry)

NEDASHKOVSKIY, I.Yu.; NIKOL'SKIY, E.V.; POTAP'YEV, S.V.; Prinimali uchastiye: KUZNETSOV, V.V.; OSADCHUK, V.M.; MAKSIMOV, T.M.

Recording PS reflected transformed waves in the southern part of the west Siberian Plain. Trudy Inst. geol. i geofiz. Sib. otd.AN SSSR no.16:172-181 '62. (MIRA 16:9)
(West Siberian Plain—Seismic prospecting)



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KUZNETSOV, V.V.

In the State Institute for designing, studying, and testing steel elements and bridges. Biul. stroi. tekh. 18 no.10:41-44 O '61. (MIRA 17:3)

1. Zamestitel' glavnogo inzhenera Gosudarstvennogo instituta po proyektirovaniyu, issledovaniyu i ispytaniyu stal'nykh konstruktsiy i mostov.

KUZNETSOV, Viktor Vasil'yevich; KASATOCHKIN, V.I., retsenzent; KRETININ, S.A., retsenzent; PALKINA, N.A., retsenzent; KONDRASHKOVA, S.F., red.

[Physical and colloid chemistry] Fizicheskaia i kolloidnaia khimiia. Moskva, Vysshaia shkola, 1964. 385 p. (MIRA 17:5)

KUZNETSOV, V.V.

Duality of functors in the category of sets with a marked point.
Dokl. AN SSSR 159 no.4:738-741 D '64 (MIRA 18:1)

1. Predstavleno akademikom P.S. Aleksandrovym.

L 10741-63 BDS/EWT(1)—AFFTC/ESD-3—TF

ACCESSION NR: AP3002027 S/0049/63/000/006/0861/0875

AUTHOR: Yepinat'yeva, A. M.; Kuznetsov, V. V.; Ostrovskiy, Yu. A.; Khudzinskiy, L. L. 57 56

TITLE: Some experimental data on the shape of pulses excited by explosions in boreholes

SOURCE: AN SSSR. Izv. Ser. geofizicheskaya, no. 6, 1963, 861-875

TOPIC TAGS: borehole explosions, seismic-pulse shapes, seismic-pulse propagation

ABSTRACT: Experimental data have been obtained on the shape of seismic pulses excited by explosions in boreholes. Only the region of elastic deformation was investigated. Near the source, pulse shape changes sharply with distance; at a distance close to 0.75 of the apparent wavelength, the pulse shape becomes established, and there is little change of subsequent pulse [illegible]. The pulse is brief and its apparent [illegible] increase from

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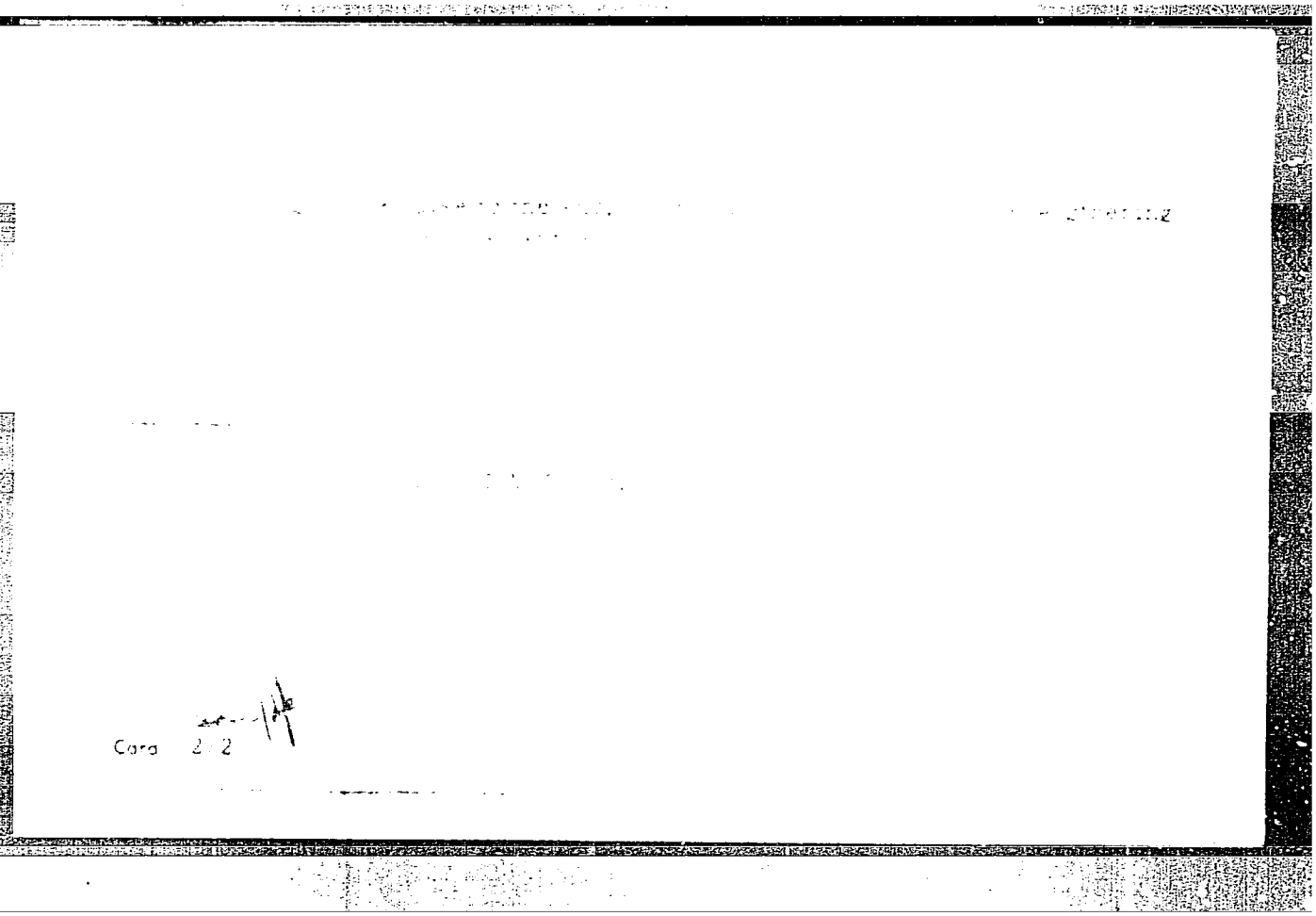

[redacted], [redacted]



(1912 - 1961)

Marine Biology

KUZNETSOV, V.Ya.

Functional status of the liver in children with osteoarticular tuberculosis before and after radical surgical treatment. Probl. tub. 42 no.11:34-36 '64. (MIRA 18:8)

1. Respublikanskiy detskiy kostnotuberkuleznyy sanatoriy "Kiritsy" (glavnyy vrach A.M.Pikhanov; nauchnyy rukovoditel' prof. Ye.N. Stanislavleva).

AUTHOR: Kuznetsov, V.Ye. SOV-26-58-11/9/49

TITLE: Investigations of the Magnetic Structure of Ferromagnetics (Issledovaniya magnitnoy struktury ferromagnetikov). An All-Union Conference in Krasnoyarsk (Vsesoyuznoye soveshchaniye v Krasnoyarske).

PERIODICAL: Priroda, 1958, Nr 11, pp 53-55 (USSR)

ABSTRACT: In June 1958 an All-Union meeting on the magnetic structure of ferromagnetics was convoked by the Institut fiziki AN SSSR (Institute of Physics of the AS USSR) and the Komissiya po magnetizmu Otdeleniya fiziko-matematicheskikh nauk AN SSSR (Commission for Magnetism of the Department of Physico-Mathematical Sciences of AS USSR) in Krasnoyarsk. The meeting was attended by representatives of scientific institutions of many principal cities of the USSR. A total of 32 papers were read. Ya.S. Shur of the Institut fiziki metallov AN SSSR (Institute of the Physics of Metals, AS USSR) in Sverdlovsk summarized the magnetic structure of ferromagnetics. G.V. Spivak of the Moskovskiy gosudarstvennyy universitet (Moscow State University) told of present and future electron-optical methods of study of the domain structure of ferromagnetics. L.V. Kirenskiy and M.K. Savchenko of the Institute of Physics of the AS USSR in Krasnoyarsk presented new data on the spatial distribution of the domain structure in samples of transformer iron. A.I.

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Investigations of the Magnetic Structure of Ferromagnetics

Sudovtsev and Ye.Ye. Semenenko of the Fiziko-technicheskiy institut AN USSR (Physico-Technical Institute of AS UkrSSR) in Khar'kov read a paper on the influence of the domain structure on the electrical conductivity of very pure iron. G.V. Spivak, V.Ye. Yurasova and Ye.I. Shishkina of Moscow University presented an original method of exposure of magnetic heterogeneity in metal. T.I. Prasova of the Verkh-Isetskiy metallurgicheskiy zavod (Verkh-Isetskiy Metallurgical Plant) told of experimental work carried out in cooperation with V.V. Druzhinin on the application of the method of powder patterns to the study of the magnetic properties of transformer steel. G.P. D'yakov of Moscow University spoke on the calculation of the domain structure in the theory of magnetization and magnetostriction of monocrystals. L.V. Kirpenskiy and I.P. Dagtyarev of Krasnoyarsk read a paper on the temperature dependence of the domain structure of crystals of ferrosilicon. V.A. Zaykova and Ya.S. Shur reported on the results of a study of the influence of elastic stresses on the magnetic structure of the crystals of ferrosilicon. V.V. Veter of the Institute of Physics of the AS USSR in Krasnoyarsk reported on his original work conducted together

Investigations of the Magnetic Structure of Ferromagnetics

with L.V. Kirenskiy on the determination of the width of the domain boundary; the method had been suggested by G.S. Krinchik. I.M. Puzey of the Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii, Moskva (Central Scientific Research Institute of Iron Metallurgy, Moscow) communicated the results of studies of the dynamics of the domain structure in a frequency range of up to several mhz. A.I. Drokin, D.A. Laptey, and R.P. Smolin (Krasnoyarsk) presented results of their studies of the temperature magnetic hysteresis on the points of the hysteresis loop. Nickel and iron-nickel alloy samples had been studied for this purpose. I.Ye. Startseva and Ya.S. Shur read a study of the structure of the residual magnetized ferromagnetic by aid of the method of powder patterns, and the change of this structure under the influence of a changing magnetic field. The papers of L.V. Kirenskiy, A.I. Drokin and V.S. Cherkashin dealt with the results of the influence of ultrasonic waves on the magnetic properties of ferromagnetics at various temperatures.

Card 3/4 Several papers were devoted to further investigations of the

30V-26-58-11-9/49

Investigations of the Magnetic Structure of Ferromagnetics

Barkhausen effect, the concept of which has been considerably extended by such Soviet researchers as R.V. Telesnin, Ye.P. Dzaganiya, V.F. Ivlev and others. Several papers dealt with transitional magnetic structure and temperature changes. The Physical Institute of the AS USSR in Krasnoyarsk, in 1957 opened the Stolby Game Reservation. The construction site of the Krasnoyarsk Hydroelectric Power Station was visited by the scientists.

1. Magnetostriction--Properties

Card 4/4

KUZNETSOV, V.Ye.

All-Union conference on the biophysics of erythrocytes. Izv. Sib.otd.AN SSSR no.11:103-104 '59. (MIRA 13:4)
(Erythrocytes)

KUZNETSOV, V.Ye.

Symposium on thin ferromagnetic films. Izv. Sib. otd. AN SSSR no. 11:144-145 '60. (MIRA 14:1)
(Films--Magnetic properties)

39167
S/120/62/000/003/037/048
E032/E114

24.2200

AUTHORS: Kuznetsov, V.Ye., and Usatov, V.U.

TITLE: Measurement of periodic magnetostrictional strains

PERIODICAL: Pribory i tekhnika eksperimenta, no.3, 1962, 157-160

TEXT: The authors describe an apparatus which can be used to measure small (down to 0.3 Å) changes in linear magnetostriction. The modulation-interferometric method is employed, in which the interference pattern is modulated at a fixed frequency so that the periodic shift of the interference bands produces an alternating component in the current of a photomultiplier which is used as the detector. A block diagram is shown in Fig.1. The light beam produced by a motion picture projector 1 passes through the lens 2 and the light filter 3, and enters the Michelson interferometer 4. The latter consists of glass plates 6 and 7 and reflecting mirrors 5 and 8. Mirror 8 is attached to the specimen 9. The latter is placed inside coils 11 and 10 (large and small respectively). The large coil produces up to 5 kOe and the small coil up to 60 Oe. Currents through the two coils are measured by the ammeters 12 and 14. The large coil is

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supplied by an oil-cooled transformer, and the small coil by an audiofrequency oscillator 16 through an amplifier 15. The small coil is used to modulate the magnetic field. The modulated interference pattern is magnified by the lens 17 by a factor of 4 and can either be viewed on the screen 20 or focused by the lens 21 on the photomultiplier cathode. The pattern is thrown onto the screen by the mirror 19. The photomultiplier is supplied by the stabilized EHT source 23 and the d.c. component of the photocurrent is measured by the microammeter 24. The alternating component is fed into the filter-amplifier 27 and the rectified output is measured by the output meter 28. The filter-amplifier is tuned to the modulation frequency and has a bandwidth of 5 - 7 c.p.s. It has five amplification stages and an overall amplification coefficient of $2 \times 10^5$. The modulated signal may be fed directly into the filter-amplifier for calibration purposes by means of the switch 26. The calibration voltage is measured by the vacuum tube voltmeter 25. The output can also be monitored by the CRO 29. In practice a dark band of maximum contrast is selected by the slit 18. The performance of

the apparatus was checked by measuring the amplitude of magnetostrictional oscillations of silicon iron (0.92% Si). Fig.2 shows the dependence of the amplitude of vibrations on the constant magnetic field for three values of the modulating field at 20 °C. The sensitivity of the device (0.3 Å) is said to be higher by three orders of magnitude as compared with static measurements. The experimental error is of the order of 5 - 10%.

ASSOCIATION: Institut fiziki SO AN SSSR
(Physics Institute SD AS USSR)

SUBMITTED: September 18, 1961

Card 3/3

KUZNETSOV, V.Ye.

Symposium on ferro- and antiferromagnetism. Izv. SO AN SSSR no.2 Ser. tekh. nauk no.1:129-131 '63. (MIRA 16:8)

(Ferromagnetism)

KIRENSKIY, L.V.; KUZNETSOV, V.Ye.; USATOV, V.U.

[Dynamic magnetostriction of iron] Dinamicheskaia magnitostriktsiia zheleza. [n.p.]. AN SSSR. Sibirskoe otdnie. In-t fiziki, 1964. 29 p. (MIRA 17:7)

KUZNETSOV, V.Ye.

Dynamic magnetostriction of iron in pulsed magnetic fields.
Fiz. met. i metalloved. 20 no.2:199-203 Ag '65. (MIRA 18:9)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.

KIKEMSKIY, L.V.; KUZNETSOV, V.Ye.; USATOV, V.U.

Magnetostriction of iron in field variables. Fiz. met. i metalloved. 20 no.2:221-225 Ag '65. (MIRA 18:9)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.

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ORG: none

TITLE Dynamic magnetostriction measurements

SOURCE: Vsesoyuznaya konferentsiya po avtomaticheskomu kontrolyu i metodam elektricheskikh izmereniy, 5th, Avtomaticheskiy kontrol' i metody elektricheskikh izmereniy; trudy konferentsii, t. 2: Izmeritel'nyye informatsionnyye sistemy. Ustroystva avtomaticheskogo kontrolya. Elektricheskiye izmereniya neelektricheskikh velichin (Automatic control and electrical measuring techniques; transactions of the conference, v. 2: Information measurement systems. Automatic control devices. Electrical measurements of non-electrical quantities). Novosibirsk, Izd-vo Nauka, 1966, 186-190

TOPIC TAGS: magnetostriction, interferometer, ~~measuring instrument~~ ferromagnetic material, constant magnetic field, laboratory instrument

ABSTRACT: Whereas magnetostriction of ferromagnetics in static fields has been thoroughly studied in the past, the same effect in dynamic fields is still a poorly understood subject. The present article describes a new method and presents initial results of dynamic magnetostriction $\lambda_\sim$ and magnetic susceptibility $\lambda_\sim / H_\sim$ measurements in iron over a wide range of constant magnetic fields and different amplitudes of the modulating field. The method is based on the modulation interferometry principle developed in radio physics and optics and used for the measurements of the amplitudes of oscillating crystals of dielectrics

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(see, e.g., I. S. Zheludev, A. A. Fotchenkov, Kristallografiya, 3, 3, 1958). The instrument described by the authors can register $\lambda$ of the order of $10^{-6}$–$10^{10}$ in constant (polarizing) magnetic fields up to 159,155 a/m and variable (modulating) fields up to 3,580.99 a/m. The tested frequencies were in the audio and ultrasonic regions. The sensitivity is 0.5 - 1 a/m, and the error 5 - 10%. Orig. art. has: 4 formulas and 4 figures.

SUB CODE: 20 / SUBM DATE: 29Nov65/ ORIG REF: 009 / OTH REF: 002

Card 2/2 hlg5

KUZNETSOV, V.I., inzh.

Strength of the bodies of reinforced concrete floating docks in ocean towing. Sudostroenie 30 no.12:5-7 D '64.
(MIRA 18:6)

GRIGOR'YEV, E.P., inzh.; KUZNETSOV, V.Ye., inzh.; MAKSHEYEV, V.G., inzh.; PETROVSKIY, A.S., inzh.; VEDESHKIN, V.I., tekhnik; KONAKEL'NIKOV, V.V., kapitan-nastavnik; MIKHAYLOVSKIY, Ye.V., red.

[Fisheries] Promyslovoe delo. Murmansk, Murmanskoe knizhnoe izd-vo, 1964. 463 p. (MIRA 18:5)

KUZNETSOV, YA. A.

NOVIKOV, Yu.F., kandidat tekhnicheskikh nauk; KUZNETSOV, Ya.A., inzhener.

Rotary tillage machinery and problems connected with their use; from foreign periodicals. Sel'khozmashina no.7:31-33 Jl '57. (MLRA 10:8)

(Agricultural machinery)

FUR[illegible]V, Ya.A., kand. istoricheskikh nauk

The program of the CPSU on the development of the socialist state in the period of the advanced building of communism. Sov. gos. i pravo no.8:31-47 '62 (MIRA 18:8)

KUZNETSOV, Ya.T.

Mathematical Review
June 1954
Numerical and Graphical
Methods

Bertova, E. I., Kuznecov, Ya. T., Natanson, I. P., and Caregradskil, H. A. **On approximate computation of definite integrals by means of a multiplicative method of excluding singularities.** Akad. Nauk SSSR. Prikl. Mat. Meh. 17, 639–644 (1953). (Russian)

This paper extends Gauss's method of numerical integration to the case of functions having certain types of singularities in the interval of integration. The method developed here applies to the case where the integrand can be written as a product of the form $|x|^{\alpha}f(x)$ in which $f(x)$ is continuous and $\alpha$ lies in the interval $-1<\alpha<0$. As is well known, one may approximate the integral by a sum of the form $\sum_{i=1}^{n}A_i f(x_i)$ in which the $A$'s are constants and the $x$'s are zeros of a polynomial $w_n(x)$ of degree $n$, where the set of polynomials $w_0(x), w_1(x), \cdots, w_n(x)$ are orthogonal with weight function $|x|^{\alpha}$ for the given interval of integration. Such polynomials can be constructed by a three-term recurrence relation. The author obtains the orthogonal polynomials through the eighth degree and tabulates values of the $A$'s and $x$'s for $\alpha=-\frac{1}{4}, -\frac{3}{4}, -\frac{1}{2}, -\frac{1}{4}$ and $-\frac{3}{4}$.

*W. E. Milne* (Corvallis, Ore.).

ZHERDEV, O. [Zherdiev, O.]; KUZNETSOV, Ya. [Kuznietsov, IE.]

Simazine from waste products. Nauka i zhyttia 12 no.1:23 Ja '63.
(MIRA 16:3)

(Herbicides)

VENTSEL', S., doktor tekhn.nauk, prof.; KUZNETSOV, Ye., kand.tekhn.nauk; CHUPIS, N.; LEVCHENKO, P.

Using niger oil in chassis lubrication units. Avt.transp. 42 no.12:15-16 D '64. (MIRA 18:4)

KUZNETSOV, Ye.; ALEKSEYEV, N.

The TO-1 standard maintenance line for motor vehicles. Avt.transp. 43 no.3:15-17 Mr '65. (MIRA 18:5)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut avtomobil'nogo transporta.

LEVKOVSKIY, N.; KUZNETSOV, Ye.; AKHPOLOV, I.

Maintenance and repair of refrigerated motortrucks. Avt. transp. 43 no.12:22-24 D '65. (MIRA 18:12)

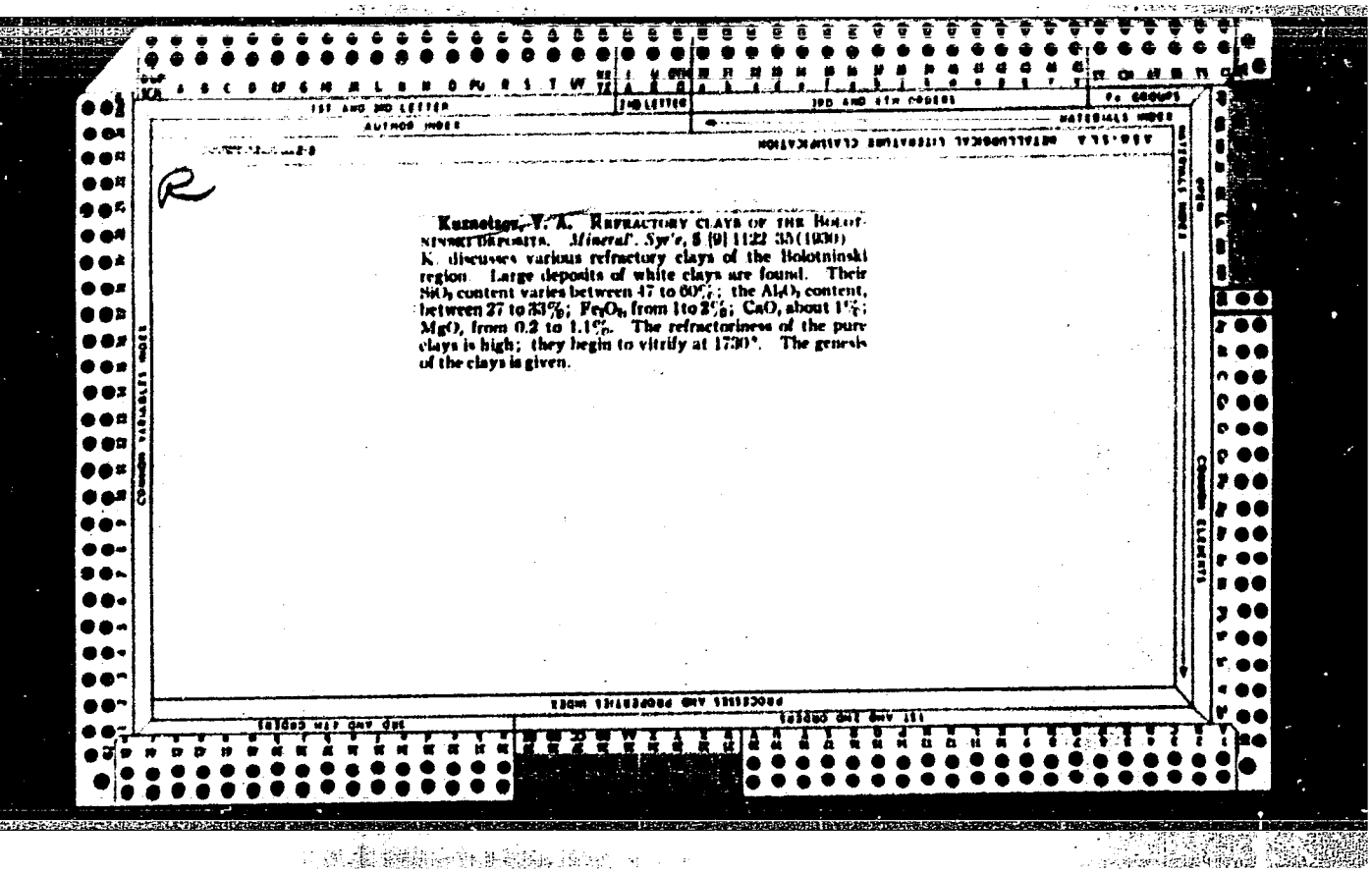
KUZNETSOV, E. A.

ZAKHAROV, E. E. jt. au. Petrographical description of the valley of Soimonovsk, the mountain Karabash Moskva, Izdanie Nauchno - tekhn. up. V. S. N. Kh., 1927. 65 p. (Union of Social Socialist Republics. Vysshii sovet narodnogo khoziaistva. Nauchno-tekhnicheskoe upravlenie. Trudy, no. 184) Petrograficheskie. .1927.

KUZNETSOV, Ye. A. (Industrial Institute, Tomsk.)

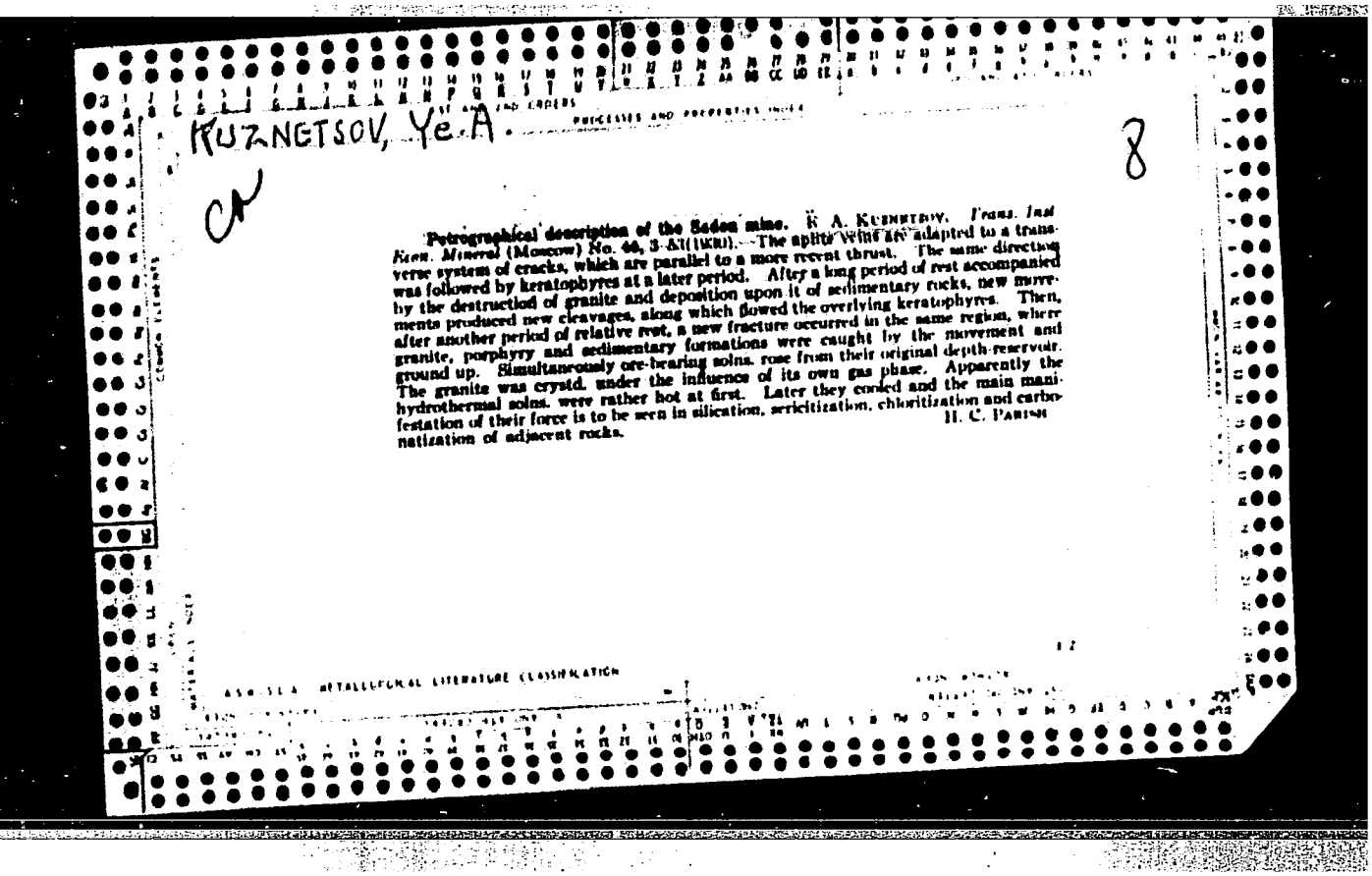
A USSR registrant of the 17th International Geological Congress held in Moscow in 1937.

SO: Report of The 17th Inter. Geol. Cong., 1937



**Kuznetsov, V. A.** Refractory clays of the Holotninski deposits. *Mineral. Syr'e*, 8 [9] 1122-35 (1936)

K. discusses various refractory clays of the Holotninski region. Large deposits of white clays are found. Their $SiO_2$ content varies between 47 to 60%; the $Al_2O_3$ content, between 27 to 33%; $Fe_2O_3$ from 1 to 2%; CaO, about 1%; MgO, from 0.2 to 1.1%. The refractoriness of the pure clays is high; they begin to vitrify at 1730°. The genesis of the clays is given.



KUZNETSOV, Ye.A.

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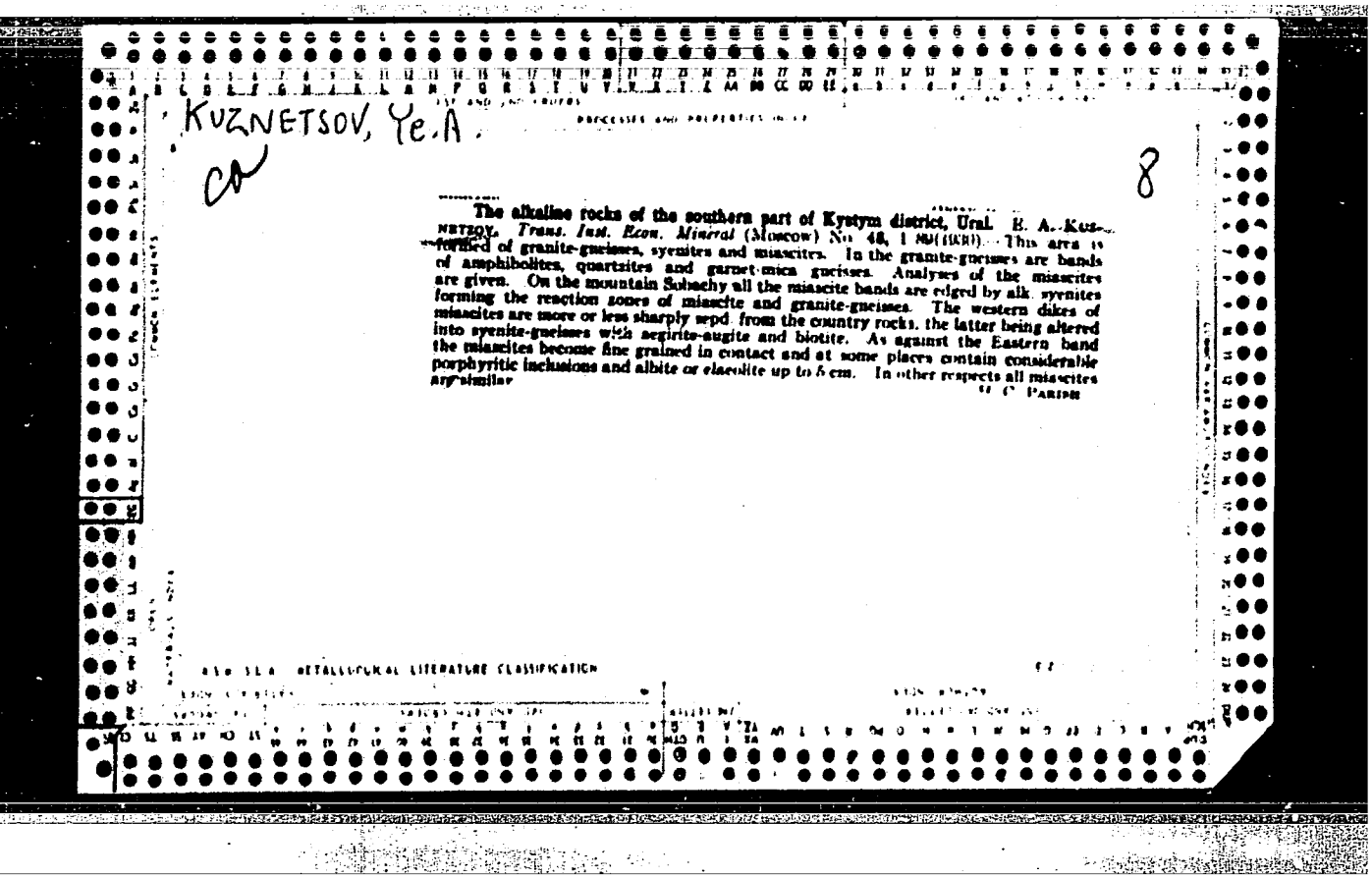
**Petrographical description of the Sadon mine.** K. A. KUZNETSOV. *Trans. Inst. Econ. Mineral* (Moscow) No. 40, 3-81(1938).—The apatite veins are adapted to a transverse system of cracks, which are parallel to a more recent thrust. The same directing was followed by keratophyres at a later period. After a long period of rest accompanied by the destruction of granite and deposition upon it of sedimentary rocks, new movements produced new cleavages, along which flowed the overlying keratophyres. Then, after another period of relative rest, a new fracture occurred in the same region, wherr granite, porphyry and sedimentary formations were caught by the movement and ground up. Simultaneously ore-bearing solns. rose from their original depth reservoir. The granite was crystd. under the influence of its own gas phase. Apparently the hydrothermal solns. were rather hot at first. Later they cooled and the main manifestation of their force is to be seen in silication, sericitization, chloritization and carbonatization of adjacent rocks.

H. C. PARSON



KUZNETSOV, Ye.A.

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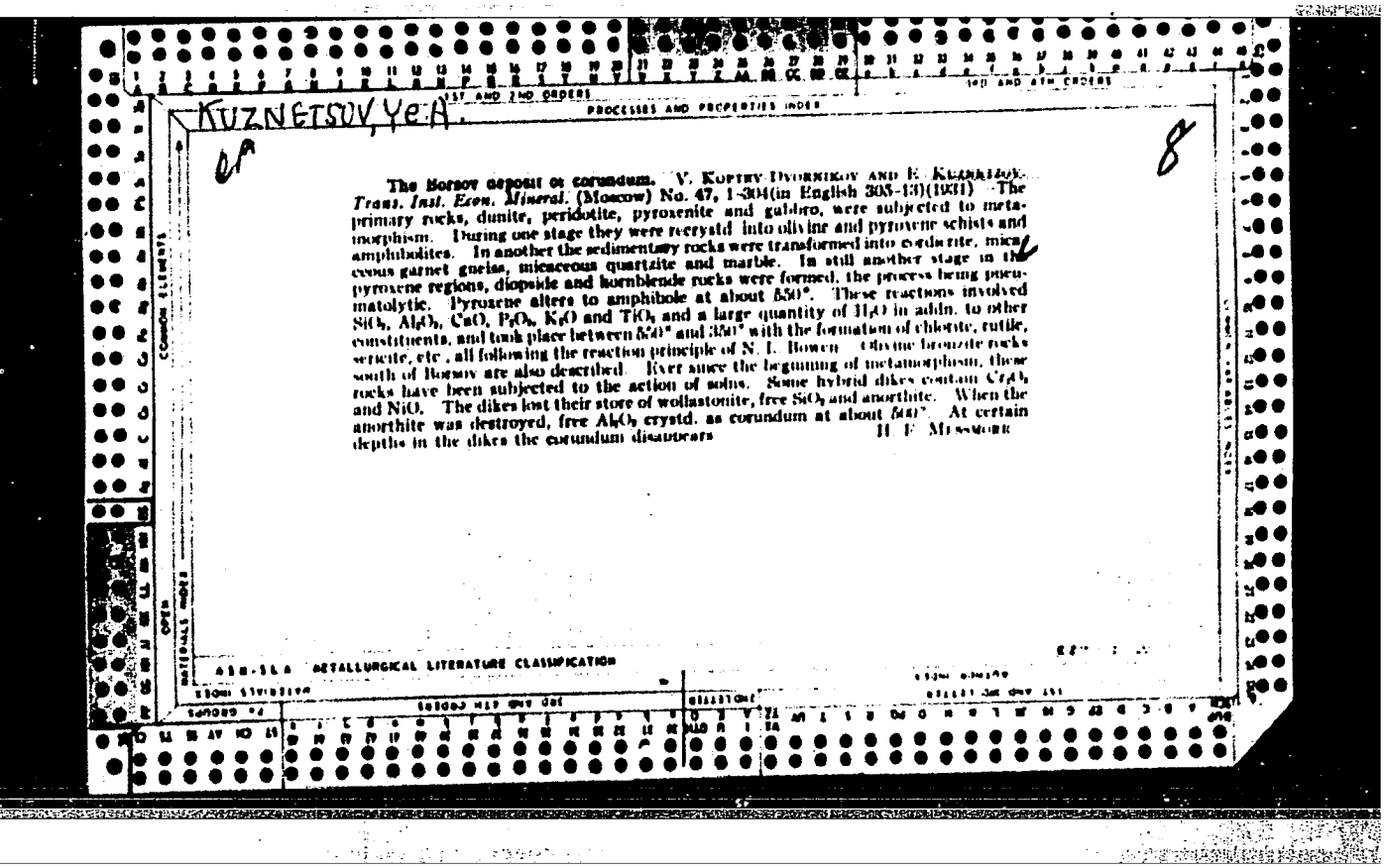
The alkaline rocks of the southern part of Kystym district, Ural. E. A. Kuznetsov. *Trans. Inst. Econ. Mineral* (Moscow) No. 48, 1 80(1931). This area is formed of granite-gneisses, syenites and miascites. In the granite-gneisses are bands of amphibolites, quartzites and garnet-mica gneisses. Analyses of the miascites are given. On the mountain Subachy all the miascite bands are edged by alk. syenites forming the reaction zones of miascite and granite-gneisses. The western dikes of miascites are more or less sharply sepd. from the country rocks, the latter being altered into syenite-gneisses with aegirite-augite and biotite. As against the Eastern band the miascites become fine grained in contact and at some places contain considerable porphyritic inclusions and albite or elaeolite up to 5 cm. In other respects all miascites are similar.

G. Parish



KUZNETSOV, Ye.A.

PROCESSES AND PROPERTIES INDEX

**The Borsov deposit of corundum.** V. Koptev-Dvornikov and E. Kuznetsov. *Trans. Inst. Econ. Mineral.* (Moscow) No. 47, 1-304(in English 303-13)(1931). The primary rocks, dunite, peridotite, pyroxenite and gabbro, were subjected to metamorphism. During one stage they were recrystd. into olivine and pyroxene schists and amphibolites. In another the sedimentary rocks were transformed into cordierite, micaceous garnet gneiss, micaceous quartzite and marble. In still another stage in the pyroxene regions, diopside and hornblende rocks were formed, the process being pneumatolytic. Pyroxene alters to amphibole at about 550°. These reactions involved $SiO_2$, $Al_2O_3$, CaO, $P_2O_5$, $K_2O$ and $TiO_2$ and a large quantity of $H_2O$ in addn. to other constituents, and took place between 550° and 350° with the formation of chlorite, rutile, sericite, etc., all following the reaction principle of N. L. Bowen. Olivine bronzite rocks south of Borsov are also described. Ever since the beginning of metamorphism, these rocks have been subjected to the action of soins. Some hybrid dikes contain $Cr_2O_3$ and NiO. The dikes lost their store of wollastonite, free $SiO_2$ and anorthite. When the anorthite was destroyed, free $Al_2O_3$ crystd. as corundum at about 500°. At certain depths in the dikes the corundum disappears. H. F. Mussakin

A53-SLA METALLURGICAL LITERATURE CLASSIFICATION