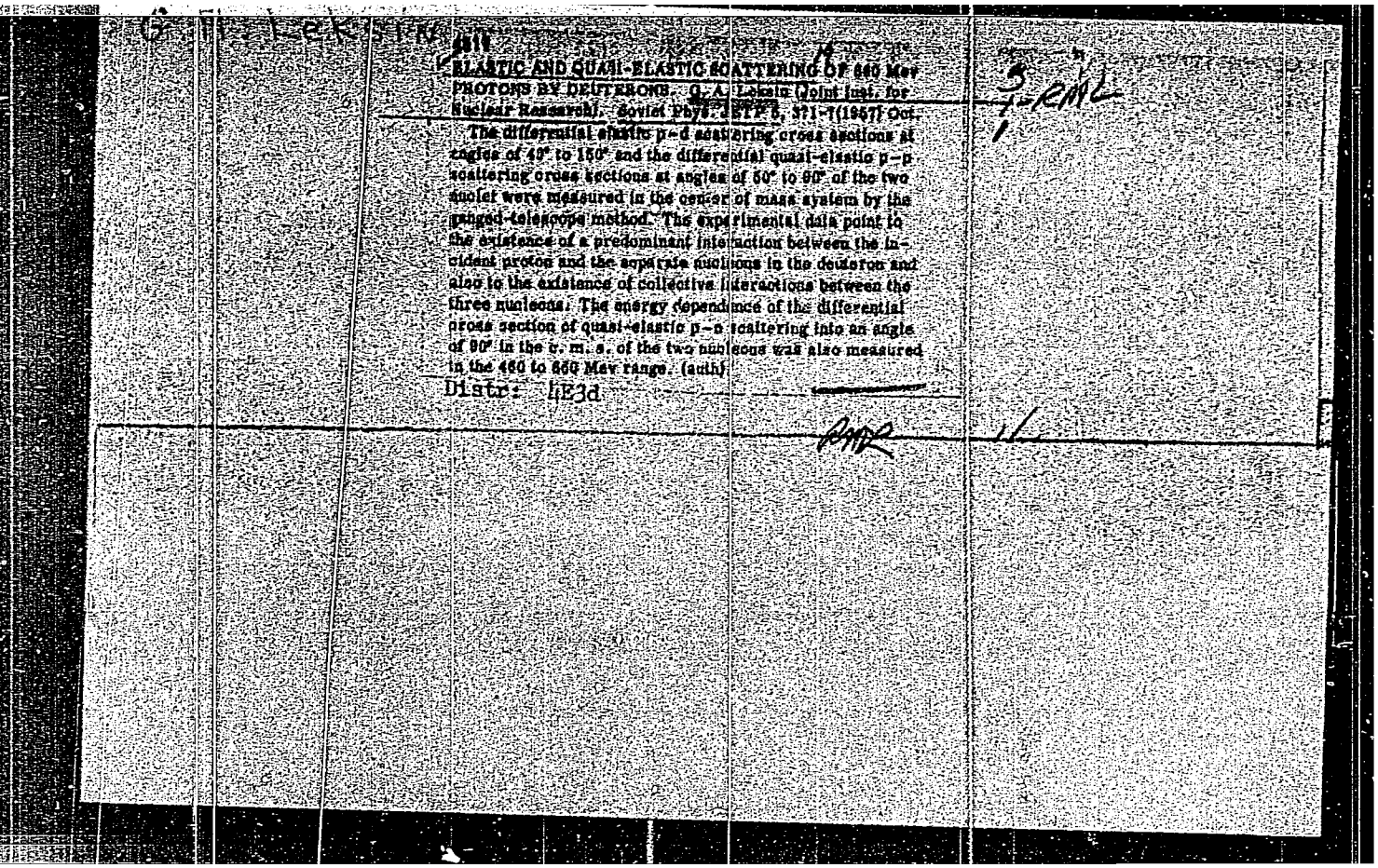

ELASTIC AND QUASI-ELASTIC SCATTERING OF 660 Mev PROTONS BY DEUTERONS. G. A. Leksin (Joint Inst. for Nuclear Research). Soviet Phys.: JETP 5, 371-7(1957) Oct.

The differential elastic p–d scattering cross sections at angles of 40° to 150° and the differential quasi-elastic p–p scattering cross sections at angles of 50° to 90° of the two nuclei were measured in the center of mass system by the ranged-telescope method. The experimental data point to the existence of a predominant interaction between the incident proton and the separate nucleons in the deuteron and also to the existence of collective interactions between the three nucleons. The energy dependence of the differential cross section of quasi-elastic p–p scattering into an angle of 90° in the c. m. s. of the two nucleons was also measured in the 460 to 660 Mev range. (auth)

Distr: 4E3d

LEKSIN, G.A.

Elastic and quasielastic scattering of 660 Mev protons on deuterons.
Zhur. eksp. i teor. fiz. 32 no.3:445-452 Mr '57. (MLRA 10:11)

1. Ob"yedinennyy institut yadernykh issledovaniy.
(Protons--Scattering) (Deuterons)

LEKSIN, G.A.

AUTHOR: Leksin, G.A., Kumekin, Yu.P. 56-5-11/46

TITLE: On the Elastic Backward Scattering of 660 MeV Protons on the Carbon Nucleus Seen as a Whole (Ob uprugom rasseyanii nazad protonov s energiyey 660 MeV yadrom ugleroda kak tselym)

PERIODICAL: Zhurnal Eksperim. i Teoret.Fiziki, 1957, Vol. 33, Nr 5, pp. 1147-1149 (USSR)

ABSTRACT: A carbon target is irradiated by the internal proton ray of the synchrocyclotron. The protons scattered within the domain of $\sim 180^{\circ}$ are deflected by the magnet of the accelerator and then go over into an analyzation electromagnet. After passing through a collimator of a length of 4 m they impinge upon the registration telescope.
Summing up the results obtained by measurements it may be said that the lower limit of the elastic backward scattering cross section (p-C reaction) does not exceed
3.10^{-33} cm^2/sterad. With the same probability no scattered protons were found within the domain of from 660 MeV to 350 MeV.
The mechanism of ejection of fragments containing from

Card 1/2

56-5-11/46

On the Elastic Backward Scattering of 660 MeV Protons on the Carbon Nucleus Seen as a Whole

8 to 12 nucleons differs from the quasielastic scattering by the corresponding fragments in the interior of the nucleus. There are 1 figure and 8 references, 5 of which are Slavic.

ASSOCIATION: United Nuclear Research Institute (Ob"yedinennyy institut yadernykh issledovaniy)

SUBMITTED: June 1, 1957

AVAILABLE: Library of Congress

Card 2/2

85699

S/056/60/038/006/042/049/XX
B006/B070

24.6900 (1138, 1191, 1559)

AUTHORS: Bayukov, Yu. D., Leksin, G. A.

TITLE: The Possibility of Using Nuclear Reactions to Obtain Data on ππ Interaction

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 6, pp. 1907 - 1908

TEXT: Nuclear processes are considered in which transferred momenta are small also for large energies, and from whose theoretical interpretation it is possible to obtain data on ππ, πK, and KK interactions, as is shown here. This is shown for the process where a pion is produced by a pion. Use is made of the formula of Chew and Low which gives the relationship between the cross section for this process and the ππ interaction cross section for the case of small transferred momenta (Ref.1). It is shown that this formula can be applied without much error for the production of a meson by a meson on a nucleus, and that it is thus possible to obtain data on ππ interaction from the total cross section for a nuclear reaction of the type $\pi + A \rightarrow \pi + \pi + B$. This is true especially for the

Card 1/2

The Possibility of Using Nuclear Reactions to Obtain Data on ππ Interaction

S/056/60/038/006/042/049/XX
B006/B070

reaction $\pi^- + C^{12} \rightarrow \pi^- + \pi^- + N^{12}$. Moreover, in momentum approximation, the formula of Chew and Low must be multiplied by

$$S^2 = \left\{ \int_0^\infty \psi^*(r) e^{ipr} \psi(r) dr \right\}^2$$

before integration. This function gives the probability that the nucleus whose ground state is described by the wave function $\psi(r)$ continues to remain in the ground state even when a momentum p is transferred to it. As is shown in a diagram, S^2 falls rapidly with p. Only for p larger than 3 is this function greater than zero (for the case of the C^{12} nucleus considered here). K.A.Ter-Martirosyan is thanked for advice and help. There are 1 figure and 2 references: 1 Soviet and 1 US.

SUBMITTED: February 23, 1960

Card 2/2

S/120/61/000/001/025/062
E032/E114

AUTHORS: Krivitskiy, V.V., and Leksin, G.A.

TITLE: Transmission of Scintillations Through Plastic Scintillators and Light Guides

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No.1, pp.79-81

TEXT: The effect of the shape and coating of light guides and scintillators on the transmission of light (scintillations) through them has been investigated experimentally and the results obtained are now reported. The measurements were carried out with an apparatus consisting of a scintillation counter, a stabilised voltage source and a pen-recorder. Plastic scintillators (p-terphenyl + POPOP in polystyrene) were employed. Hollow and solid perspex light guides were investigated. The inner surfaces of the hollow light guides were coated with aluminium or silver films. Fig.2 shows some of the shape effects obtained. Here, the scintillator was in the form of a sector ($\alpha = 45^\circ$, R = 180 mm) and was used with various light guides, i.e. a cylindrical light guide (a), a conical light guide with a cylindrical attachment (б) and a conical light guide (в). The numbers marked on the figure

Card 1/4

S/120/61/000/001/025/062
E032/E114

Transmission of Scintillations Through Plastic Scintillators and Light Guides

indicate values of the photomultiplier anode currents. The dimensions of the light guides were as follows: Fig.2a, diameter 40 mm, length 15 mm; Fig.2б, length of the cylindrical part 50 mm; Fig.2B, length of cone 125 mm. Fig.3 illustrates the results obtained with a scintillator in the form of a sector and the light guide in the form of a hollow conical pipe 125 mm long with the inner surface coated with silver.
There are 3 figures, 1 table and 6 references: 2 Soviet and 4 non-Soviet.

SUBMITTED: February 24, 1960

Card 2/4

BALATS, M.Ya.; KRIVITSKIY, V.V.; LEKSIN, G.A.; TREBUKHOVSKIY, Yu.V.

Shaping plastic scintillators by pressure. Prib. i tekh. eksp. 6 no.2:171 Mr-Ap '61. (MIRA 14:9)
(Scintillation counters)

BAYUKOV, Yu.D.; LEKSIN, G.A.; SUCHKOV, D.A.; SHALAMOV, Ya.Ya.; SHEBANOV, V.A.

Backward elastic scattering of 2.8 bev/c π^--mesons on neutrons.
Zhur.eksp.i teor.fiz. 41 no.1:52-55 Jl '61. (MIRA 14:7)

1. Institut teoreticheskoy i eksperimental'noy fiziki AN SSSR.
(Mesons--Scattering) (Neutrons)

BAYUKOV, Yu.D.; LEKSIN, G.A.; SHALAMOV, Ya.Ya.

Elastic scattering of π^- -mesons by 2.8 Bev./c neutrons.
Zhur.eksp.i teor.fiz. 41 no.4:1025-1030 O '61. (MIRA 14:10)

1. Institut teoreticheskoy i eksperimental'noy fiziki AN SSSR.
(Mesons---Scattering) (Neutrons)

S/056/61/041/006/019/054
B102/B138

AUTHORS: Bayukov, Yu. D., Leksin, G. A., Shalamov, Ya. Ya.

TITLE: Investigation of the reaction $\pi^- + n \rightarrow \pi^- + n + m\pi^0$ with a beam of π^- mesons with a momentum of 2.8 Bev/c

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 6(12), 1961, 1787-1792

TEXT: The reaction $\pi^- + n \rightarrow \pi^- + n + m\pi^0$, m=1,2, was studied by means of a 50 cm long, 17-liter freon bubble chamber without magnetic field. The bombarding pions had a momentum of 2.8 ± 0.3 Bev/c. The gamma quanta arising in π^0 decay were recorded with quite high efficiency. From the stereophotographs taken 221 single-pronged stars were selected, representing pion interactions with quasi-free neutrons. Only in two cases was K^0 formation recorded, so strange particle formation could be neglected in evaluating the results. The gamma and pion angular distributions were measured and the multiplicity of the reaction was determined. Results: In the πN c. m. s. the angular gamma quantum distribution was anisotropic and

Card 1/3

Investigation of the reaction ...

asymmetric, the forward-to-backward ratio was 1.76 ± 0.30. In the laboratory system the angular γ and π^- distributions coincided within the limits of statistical error. The anisotropy in π^- angular distribution increased with the energy of the π^- meson. The anisotropy in gamma distributions tended to decrease with increasing number of gamma quanta: 1.7+0.4 for stars with one quantum, 1.7+0.5 with two and 1.5+0.7 for stars with 3 - 5 γ-quanta. In the lab-system it was also greater for stars with $>41^\circ$ π^- emission angles than for $<41^\circ$. The mean efficiency of gamma recording was not dependent on the π^- emission angles, and was to 0.34 ± 0.02. From the contributions of the reactions with m = 1,2,3 the mean multiplicity of π^0 production was found to be 1.47+0.15. The multiplicity tends to increase with the π^- departure angle, and depends on the π^- momentum: 1.33+0.15 for $p_{\pi^-} > 300$ Mev/c and 1.71+0.12 for $p_{\pi^-} < 300$ Mev/c. The results are in good agreement with V. M. Maksimenko's statistical theory (Dissertatsiya, FIAN 1960). The anisotropy can be explained by assuming peripheral $\pi\pi$ interactions. Among others, V. S Barashenko and V. A. Belyakov et al. (ZHETF, 39, 937, 1960) have indicated

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S/056/61/041/006/019/054
B102/B138

Investigation of the reaction ...

this possibility and Ya. Ya. Shalamov and V. A. Shebanov (ZhETF, 39, 1232, 1960) have used it to explain the anisotropy observed in $\pi^- + p \rightarrow n + m\pi^0$ reactions at 2.8 Bev. The authors thank Yu. S. Krestnikov, V. A. Shebanov, N. S. Khropov, M. U. Khodakova, V. A. Krutilina, Z. I. Pal'mina and Yu. S. Petrykin for assistance and N. G. Birger for discussion. There are 5 figures, 2 tables, and 11 references: 7 Soviet and 4 non-Soviet. The four references to English-language publications read as follows: W. D. Wolker, Phys. Rev., 108, 852, 1957; L. C. Grote et al. Nucl. Phys. 24, 300, 1960; G. Maenchen, W. Fowler et al. Phys. Rev. 108, 850, 1957; R. C. Whitten, M. M. Block. Phys. Rev. 111, 1676, 1958.

ASSOCIATION: Institut teoreticheskoy i eksperimental'noy fiziki Akademii nauk SSSR (Institute of Theoretical and Experimental Physics of the Academy of Sciences, USSR)

SUBMITTED: July 18, 1961

Card 3/3

27698
S/120/61/000/003/008/041
E032/E314

24.6800

AUTHORS: Bayukov, Yu.D., Leksin, G.A. and Suchkov, D.A.

TITLE: Characteristics of Spark Counters Operated with Pulsed Supplies

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No. 3, pp. 66 - 68

TEXT: The authors have investigated the characteristics of various spark counters operated with pulsed supplies. The principle of the experiments is illustrated in Fig. 1. The plane-parallel electrodes forming the spark gap were placed in a glass container which was evacuated and then filled with air, nitrogen, carbon dioxide, helium, neon and argon at various pressures, p, respectively. The polished brass electrodes were 55 x 55 mm^2 in size. In addition, a further counter having disc electrodes, 30 mm in diameter and made from aluminium foil 7 μ thick, was tested in open air. The distance between the electrodes was varied between 2 and 6 mm and the

Card 1/7

Characteristics of ....

high-voltage pulse was derived from a TGI-1 400/16 (TGI-1 400/16) thyratron controlled by a telescope consisting of two scintillation counters C_1 and C_2. The thyratron pulse was delayed by 0.5 μsec relative to the passage of the particle through the counter. All the experiments were carried out with cosmic-ray particles. In some cases, a constant clearing voltage V_o (0 to 2 kV) was applied to the counters. The limiting resistor R_2 could be varied between fractions of an ohm and 1.4 kΩ. The remaining parameters are indicated in Fig. 1. The spark discharges of the counter were recorded continuously, by ear, or by counting electrical pulses induced in the antenna of a scaling unit. Fig. 2 shows the results obtained for the efficiency η defined as the ratio of the recorded particles to the total number of particles passing through the counter ($R_2 = 0$, $V_o = 0$, $\tau = 0.5$ μsec).

Characteristics of ....

Fig. 3 shows typical efficiency curves for various clearing voltages and high-voltage pulse delays, τ. The efficiency of a spark counter can be approximately calculated from the formula

$$\eta = 1 - \exp\left[-n(d - v\tau)\right] \qquad (1)$$

where n is the number of ion pairs produced in the discharge gap,
$v = K\varepsilon$ is the charge drift velocity which depends on the clearing field $\varepsilon = V_o/d$ and the mobility K.

By comparing this formula with the results shown in Fig. 3, one can estimate the mobilities of the charges in the spark gap. For air at STP it is found that $K \approx 3$ cm^2/sec, while for argon at $p = 400$ mm Hg $K \approx 3 \times 10^3$ cm^2/sec. Fig. 4 shows the efficiency as a function of the delay τ, in μsec, for $P_2 = 0$, $V_o = 0$ and $d = 6$ mm. Acknowledgments to M.S. Kozodayev for discussions and interest in the work.

Card 3/7

27698
S/120/61/000/003/008/041
E032/E314

Characteristics of ....

There are 4 figures, 3 tables and 1 non-Soviet reference.

SUBMITTED: July 4, 1960

Fig. 1:

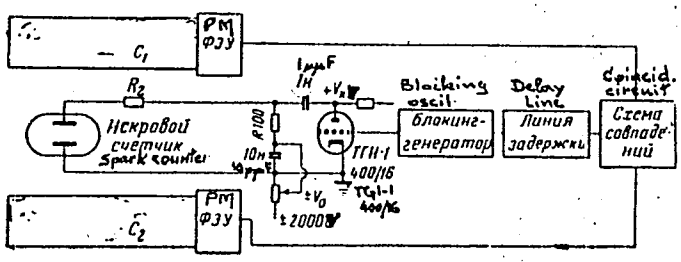


Рис. 1. Схема опытов

Card 4/7

31799
S/056/61/041/006/053/054
B111/B104

24.6700

AUTHORS: Bayukov, Yu. D., Leksin, G. A., Shalamov, Ya. Ya.

TITLE: Wide-angle scattering of high-energy π-mesons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 6, 1961, 2016 - 2018

TEXT: Results obtained by Ya. Ya. Shalamov and V. A. Shebanov (Ref. 5: ZhETF, 39, 1232, 1960) from measurements of the total cross section of $\pi^- + p \rightarrow \pi^0 + n$ reactions were worked out anew. The cross section of π^0-mesons back-scattered into the angular space of 1 steradian is indicated as < 0.01 millibarn/sterad. The cross section of elastic charge exchange with a π^0-meson departing at an angle $> 90^0$ in the c.m.s. was found to be $\lesssim 0.002$ millibarn/sterad. The scattering cross sections of π^--mesons back-scattered by protons according to $\pi^- + p \rightarrow \pi^- + p$ reactions are also indicated. The momentum of π^--mesons was 2.8 Bev/c. For angles $>90^0$ in the c.m.s., $\sigma < 0.03$ millibarn/sterad was measured. I. Ya. Pomeranchuk and V. A. Shebanov are thanked for discussions. There are 1 figure and 6 references: 4 Soviet and 2 non-Soviet. The two

Card 1/2

31799
S/056/61/041/006/053/054
B111/B104

Wide-angle scattering of high-energy...

references to English-language publications read as follows: M. Gell-Mann, F. Zachariasen, Preprint, 1961; C. D. Wood et al., Phys. Rev. Lett. 6, 481, 1961.

SUBMITTED: October 16, 1961

Card 2/2

BAYUKOV, Yu.D.; LEKSIN, G.A.; SHALAMOV, Ya.Ya.

Large-angle scattering of high-energy π-mesons. Zhur. eksp. i teor. fiz. 41 no.6:2016-2018 D '61. (MIRA 15:1)
(Mesons--Scattering)

39677
S/056/62/043/001/049/056
B102/B104

24.6600

AUTHORS: Bayukov, Yu. D., Birger, N. G., Leksin, G. A., Suchkov, D. A.

TITLE: The nature of elastic πN and pp scattering in the region of large transferred momenta

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 1(7), 1962, 339-341

TEXT: The results of experimental and theoretical papers concerning elastic πN and pp-scattering with transferred momenta >0.5 Bev/c are reviewed, discussing mainly the energy course of the differential elastic scattering cross section. Investigations of the asymptotic behavior of the scattering amplitude point to a relation $d\sigma_{el}/dt = f(t)s^{2[l(t)-1]}$ where t is the square of the transferred four-momentum and s is that of the total particle energy in the c. m. s. Numerical results from several papers are used to study the $|t|$ - dependence of l(t) at t-values of from 0.5 to 2.4 $(Bev/c)^2$ and s up to 52 $(Bev)^2$. It is found that l(t) drops

S/056/62/043/001/049/056
B102/B104

The nature of elastic πN and ...

with increasing $|t|$ and changes its sign at $|t| \approx 1$ (Bev/c)^2. Within the (large) error limits no contradiction is found between the data on pp and πN scattering. There are 2 figures. The English-language references are: Cocconi et al. Phys. Rev. Lett. 7, 450, 1961; R. E. Thomas, Phys. Rev. 120, 1015, 1960; Cork et al. Phys. Rev. 107, 859, 1957.

ASSOCIATION: Institut teoreticheskoy i eksperimental'noy fiziki Akademii nauk SSSR (Institute of Theoretical and Experimental Physics of the Academy of Sciences USSR)

SUBMITTED: May 8, 1962

Card 2/2

BAYUKOV, Yu.D.; BIRGER, N.G.; LEKSIN, G.A.; SUCHKOV, D.A.

Nature of elastic $\pi^{+}n$ and pp-scattering in the region of large transferable pulses. Zhur. eksp. i teor. fiz. 43 no.1:339-341 Jl '62. (MIRA 15:9)

1. Institut teoreticheskoy i eksperimental'noy fiziki AN SSSR.
(Mesons—Scattering)

BAYUKOV, Yu.D.; LEKSIN, G.A.; SUCHKOV, D.A.; TELENKOV, V.V.

Some characteristics of spark chambers. Prib. i tekh. eksp. 8 no.1:26-28 Ja-F '63. (MIRA 16:5)

1. Institut teoreticheskoy i eksperimental'noy fiziki AN SSSR.
(Counting devices)

S/120/63/000/001/006/072
E032/E314

AUTHORS: Bayukov, Yu.D., Leksin, G.A., Suchkov, D.A. and Telenkov, V.V.

TITLE: Some characteristics of spark chambers

PERIODICAL: Pribory i tekhnika eksperimenta, no. 1, 1963, 36 - 38

TEXT: The apparatus shown in Fig. 1 was used to investigate the efficiency of a single-layer spark chamber as a function of the length of the high-voltage pulse and its rise time. The apparatus and the method employed were described in detail in a previous paper (PTE, 1961, no. 3, 66). In the present work the distance between the electrodes was 6 mm and the chamber was filled with argon at 600 mm Hg; there was no clearing field. All the measurements were carried out with cosmic-ray particles. The length of the high-voltage pulse was taken to be equal to $R_p C_p$, which was varied between 4.2×10^{-8} and 1.8×10^{-6} sec. The form of the efficiency-versus-thyratron anode-voltage curves was found to be similar for different values of R_p and C_p. It was found that as the pulse length was increased the efficiency-versus-

anode-voltage curves shifted towards lower potentials. A study was also made of the effect of the chamber capacitance on the efficiency. It was found that the results were in satisfactory agrement with the formula:

$$\eta = 1 - \exp\left[-n\left(d - \int_0^{\tau} v(t)\,dt\right)\right] \qquad (1)$$

where η is the efficiency, n is the ionization density, d is the interelectrode distance, $v(t)$ is the velocity of electrons which depends on the field strength at a particular instant, i.e. on the form of the high-voltage pulse, and τ is the time taken by the potential to reach the critical value. Next, a study was made of the ability of the single chamber to record simultaneously a number of particles. This was carried out with a four-layer chamber filled with neon at atmospheric pressure, having an inter-electrode distance of 1 cm. The chamber was placed in a 310 meV π^--meson beam and operated when at least two particles passed through it (a detailed description of this apparatus will be given in a future paper). Numerical data on the efficiency of the

Some characteristics of ....

recording of two and three particles simultaneously are reproduced. It was found that argon-filled chambers had a lower efficiency for the simultaneous recording of particles than neon-filled chambers. Finally, the effect of impurities of spark chambers was investigated with the apparatus described in a previous paper. It was found that the presence of saturated water vapour reduced the potential for spurious pulses so that the plateau was practically absent. Small amounts of alcohol, acetone and dichloroethane could give rise to a reduction in efficiency at constant voltage, increase the spurious spark potential and suppress spurious pulses due to the propagation of photons through the chamber. Traces of carbon tetrachloride will reduce to zero the efficiency of recording of events occurring in a time interval of 1 μs prior to the application of the high-voltage pulses. There are 4 figures and 1 table.

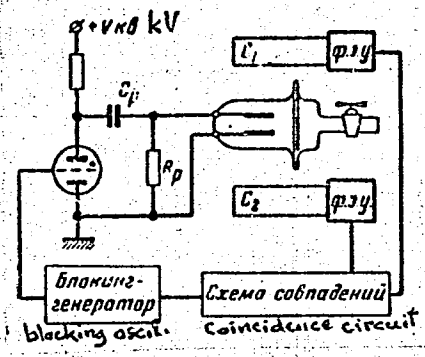
ASSOCIATION: Institut teoreticheskoy i eksperimental'noy fiziki AN SSSR (Institute of Theoretical and Experimental Physics of the AS USSR)

S/120/63/000/001/006/072
E032/E314

Some characteristics of ....

SUBMITTED: April 2, 1962

Fig. 1:



Card 4/4

AID Nr. 993-8 19 June

LEKSIN, G.A.

A NEW SPARK COUNTER (USSR)

Bayukov, Yu. D., G. A. Leksin, D. A. Suchkov, and V. V. Telenkov.
Pribory i tekhnika eksperimenta, no. 2, Mar-Apr 1963, 45-47.
S/120/63/000/002/009/041

A new spark counter with a high voltage power supply for recording secondary π-mesons generated in the reaction $\pi^- + p \rightarrow \pi^+ + n$ is described. The counter, characterized by the small amount of matter in the path of the inoident particles, consists of 8 electrodes, placed into a cylindrical brass case, forming 4 spark gaps. The electrodes are made of aluminum foil 7 μ thick stretched between steel rings. The spark counter is evacuated to a pressure of 10^{-1} to 10^{-2} mm Hg and then filled with neon gas until atmospheric pressure is reached. The sparks are photographed in two mutually perpendicular directions. The recovery time for the generator which produces the high-voltage pulses is about 1 sec. [CS]

Card 1/1

BAYUKOV, Yu.D.; LEKSIN, G.A.; SUCHKOV, D.A.; TELENKOV, V.V.

Spark chamber with little obstructing matter along the particle track. Prib. i tekh. eksp. 8 no.2:45-47 Mr-Ap '63. (MIRA 16:4)
(Counting devices)

LEKSIN, G.A.; LOZHKIN, O.V.

Conference on the Physics of High-energy Particles and Nuclear Structure. Atom. energ. 15 no.2:172-174 Ag '63. (MIRA 16:8)
(Nuclear physics--Congresses)

L 15535-63 EDS

ACCESSION NR: AP3005215 S/0053/63/080/002/0281/0329

AUTHORS: Dayon, M. L.; Leksin, G. A.

49

TITLE: Spark detectors for charged particles

SOURCE: Uspekhi fizicheskikh nauk, v. 80, no. 2, 1963, 281-329

TOPIC TAGS: Particle detector, spark counter

ABSTRACT: The principles, operating characteristics, and applications dc and pulse-fed of parallel-plate spark chambers for the detection of varioys particles are reviewed. The history of the development of counters with dc supply is presented briefly, along with a description of the characteristics, efficiency, and time behavior of such counters and the accuracy with which they can be used to determine the trajectories of charged particles. The operating principles and features of triggered spark counters are similarly described, with the discussion restricted to air as the working medium. The operation of such a counter in a magnetic field and the simultaneous registration of several particles are then described, and some construction features discussed. New types of triggered pulse supplies for counters are described. The radical effect due to

Card 1/2

L 15535-63

ACCESSION NR: AP3005215

replacing the air with a neon-argon mixture, which led to the development of the spark and discharge chamber is described, and the resultant counting and timing characteristics described. The extent to which the sparks follow the particle trajectory and the deviations from the trajectorie are analyzed. Other features discussed are the succession of the sparks along the particle track, the operation of the spark chamber in a magnetic field, spark-chamber construction, effect of impurities and additives to the working medium, the photography of the spark tracks, and microwave chambers. The spark chamber is compared with other particle detectors and it is emphasized that although it combines the best features of counter and track-type detectors, it supplements rather than replaces existing apparatus used for high-energy particle research. Orig. art. has 41 figures, 7 tables, and 11 formulas.

ASSOCIATION: None

SUBMITTED: DATE ACQ: 15Aug63 ENCL: 00

SUB CODE: PH, SD NO REF SOV: 022 OTHER: 048

Card 2/2

L 27594-66 EWT(1)/EWT(m)/T IJP(c) GG SOURCE CODE: UR/0089/65/019/003/0318/0319

ACC NR: AP6018400

47
B

AUTHOR: Leksin, G. A.

ORG: none

TITLE: Spring School of Theoretical and Experimental Physics

SOURCE: Atomnaya energiya, v. 19, no. 3, 1965, 318-319

TOPIC TAGS: elementary particle, particle interaction, nuclear physics conference

ABSTRACT: The fifth session of the Nor-Amberd Spring School of Physics took place in Yerevan 18-26 May, working in the area of the investigation of the elementary particles and their properties. The lectures were grouped into the following thematic classes: resonances in elementary particle systems, the symmetry of elementary particles, strong particle interactions at high energies, weak particle interactions and non-retention of parity; electromagnetic interactions and experimental methodology. A feature of the school was the participation of lecturers from the USA and CERN. The author thanks the organizers and lecturers for their views, and A. I. Alikhanyan for making this session a success. [JPRS]

SUB CODE: 20 / SUBM DATE: none

Card 1/1

S/137/60/000/009/002/029
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 9, p. 65, # 19814

AUTHOR: Leksin, V.

TITLE: The Economical Importance of Developing the Production of Alloys With Indium, Thallium and Tellurium

PERIODICAL: Narodn. kh-vo Kazakhstana, 1960, No. 1, pp. 81-83

TEXT: The small scale of production and high costs of In, Ta and Tl limit their extended use in the manufacture of alloys, layer alloys and coatings. The author notes the wide use of lead alloys with Tl abroad, and of non-ferrous metal alloys with In and Ta. The development of rare metal industry in Kazakhstan is recommended.

T.K.

Translator's note: This is the full translation of the original Russian abstract.

Card 1/1

LEKSIN, V.N.

Present-day status and prospects for using selenium and tellurium. Krat. soob. IMGRE no.1:141-145 '60. (MIRA 17:3)

LEKSIN, V.V

PHASE I BOOK EXPLOITATION SOV/5740

Akademiya nauk SSSR. Institut mineralogii, geokhimii i kristallokhimii redkikh elementov

Voprosy mineralogii, geokhimii i genezisa mestorozhdeniy redkikh elementov (Problems in Mineralogy, Geochemistry, and Deposit Formation of Rare Elements) Moscow, Izd-vo AN SSSR, 1960. 253 p. (Series: Its: Trudy, vyp. 4) Errata printed on the inside of back cover. 2,200 copies printed.

Chief Ed.: K. A. Vlasov, Corresponding Member, Academy of Sciences USSR;
Resp. Ed.: V. V. Lyakhovich; Ed. of Publishing House: L. S. Taranov;
Tech. Ed.: P. S. Kashina.

PURPOSE: This book is intended for geologists, mineralogists, and petrographers.

COVERAGE: This is a collection of 23 articles on the formation, geology, mineralogy, petrography, and geochemistry of deposits of rare elements in Siberia and [Soviet] Central Asia. The distribution and characteristics of rare elements found in these areas as well as some quantitative and qualitative methods of investigating the rocks and minerals in which they are found,

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Problems in Mineralogy (Cont.)

or with which they are associated, are discussed. Two articles present an economic investigation of the possibilities of industrial extraction and utilization of selenium, tellurium, and hafnium. No personalities are mentioned. Each article is accompanied by references.

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ECONOMICS OF RARE ELEMENTS

AVAILABLE: Library of Congress

Card 6/6

JA/Gm/mas
11-14-61

LEKSIN, V.N.; SMIRNYAGIN, L.V.

Defining the reserves of diffused elements in commercial deposits of nonferrous metals. Gor.zhur. no.3:11-14 Mr '60. (MIRA 14:5)

1. Institut mineralogii, geokhimii i kristallokhimii redkikh elementov AN SSSR.
(Ores--Sampling and estimation)

S/137/62/000/007/010/072
A052/A101

AUTHOR: Leksin, V. N.

TITLE: The outlook for the industrial extraction of selenium and tellurium from the products of processing copper-molybdenum ores

PERIODICAL: Referativnyy zhurnal, Metallurgiya,no. 7, 1962, 26, abstract 7G179 ("Tr. In-t mineralogii, geokhimii i kristallokhimii redk. elementov AN SSSR", no. 4, 1960, 235 - 246)

TEXT: Cu-Mo ores are a natural source of rare and scattered elements (Re, Se, Te). Concentrations of these elements are especially high in molybdenites (Se 0.015 - 0.0275%, Te ~ 0.005%). In the future a special attention must be paid to the working out of the technology of extracting Se and Te from the products of molybdenum cycle. In connection with the industrial utilization of lean Cu-Mo ores, a special importance has the co-ordination of methods of comprehensive processing of Cu-Mo ores with the exploration of possibilities of the side extraction of Se and Te from them. There are 20 references.

G. Svodtseva

[Abstracter's note: Complete translation]

Card 1/1

S/137/62/000/004/023/201
A006/A101

AUTHORS: Leksin, V. N., Tokareva, A. G.

TITLE: Indium extraction in complex processing of polymetallic raw-materials at lead and zinc plants in Capitalist countries

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 21, abstract 4G124 ("Metallurg. i khim. prom-st' Kazakhstana. Nauchno-tekhn. sb.", 1961, no. 4 (14) 116-125)

TEXT: The authors analyze various technological schemes of obtaining In metal. There are 13 references.

G. Svodtseva

[Abstracter's note: Complete translation]

Card 1/1

S/081/62/000/008/030/057
B160/B101

AUTHORS: Getskin, L. S., Leksin, V. N.

TITLE: The problem of the behavior of rare metals in sulfuric acid manufacture and the possibility of extracting them

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 8, 1962, 354, abstract 8K59 (Metallurg. i khim. prom-st' Kazakhstana. Nauchno-tekhn. sb., no. 3(13), 1961, 123 - 125)

TEXT: During the roasting of pyrite concentrates a certain amount of Se, Te and Tl is driven off into the gas phase and trapped in the wet electrostatic precipitators at the fine gas-scrubbing stage. Particular attention is paid to more complete trapping of the Se and Te and their concentration in the sulfuric acid slimes, since a processing technology for removing these metals from the latter has been adopted in industry. 10 references. [Abstracter's note: Complete translation.]

Card 1/1

LEKSIN, V. N.; TOKAREVA, A. G.

Expenditures for and prices of rare elements produced by nonferrous metal plants. TSvet. met. 35 no.10:42-50 O '62.

(Metals, Rare and minor—Prices)
(Nonferrous metal industries—Costs)

GETSKIN, L.S.; LEKSIN, V.N.

Present day state of recovery of rare metals in lead and zinc plants. Tsvet. met. 37 no.6:51-54 Je '64. (MIRA 17:9)

LEKSIN, V.N.; TOKAREVA, A.G.

Economics of the production of selenium and tellurium. TSvet.met. 38 no.3:69-75 Mr '65. (MIRA 18:6)

LEKSIN, Ye.N.

Study of the permeability of the hematoencephalic barrier in meningitis and encephalitis using the radioactive indication method; preliminary report. Trudy Vor. med. inst. 51:117-124 '63.

State of the permeability of the hematoencephalic barrier in some diseases of the nervous system; clinical examination using the "labelled atoms" method. Ibid.:125-130 (MIRA 18:10)

1. Kafedra nervnykh bolezney Voronezhskogo meditsinskogo instituta.

LEKSINA, A.

Through combined efforts. Sov.kras.krest 4 no.1:19 Ja-Mr '54.
(MLRA 7:4)

1. Predsedatel' rayonnogo komiteta Krasnogo Kresta.
(Kotovsk District, Moldavia--Red Cross) (Red Cross--Kotovsk District, Moldavia)

LEKSINA, I.Ye.; NOVIKOVA, S.I.

Thermal expansion of fluoroplast IV (polytetrafluoroethylene) between -190 and 325°C. Fiz. tver. tela 1 no.3:504-511 Mr '59. (MIRA 12:5)

(Ethylene--Thermal properties)

LEKSINA, I. Ye.; PENKINA, N.V.

Optical properties of diluted palladium-silver solid solutions.
Fiz. met. i metalloved 11 no.3:470-471 Mr '61. (MIRA 14:3)

1. Institut metallurgii im. A. A. Baykova.
(Palladium-silver alloys--Optical properties)

S/126/62/013/005/031/031
E073/E535

24.3000

AUTHORS: Leksina, I.Ye. and Penkina, N.V.

TITLE: Optical properties of diluted solid solutions of rhodium-platinum

PERIODICAL: Fizika metallov i metallovedeniye, v.13, no.5, 1962, 799-800

TEXT: The optical constants in the visible range of the spectrum of solid solutions of platinum in rhodium with the following platinum concentrations were measured: 0.01 (Rh in the initial state), 0.03, 0.05, 0.1, 0.2, 0.4, 0.6, 0.8, 1.5 at.%. The initial purities were 99.95% for Rh and 99.99% for Pt. The specimens were levitation melted in an atmosphere of purified helium and then vacuum annealed ($5 \cdot 10^{-6}$ mm Hg) for 24 hours at 1100°C. The surface of the specimens was mechanically polished. Since mechanical polishing distorts the surface layer, the data obtained are not the real absolute values of the optical constants but they do permit judging the relative changes in the optical constants as a function of the content of admixtures. Five series of tests were made and for each series the surfaces were

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prepared afresh. The mean square error in determining n and x was about 8 and 6%, respectively. The following results were obtained (each value being the average of five series of measurements):

λ, мк	0,44		0,49		0,55		0,58		0,66	
Ат. % Pt	n	x	n	x	n	x	n	x	n	x
0,01	0,81	3,89	0,98	4,62	1,23	4,85	1,34	4,93	1,40	5,35
0,03	0,62	3,66	1,01	4,39	1,08	4,71	1,23	4,72	1,21	5,23
0,05	1,05	4,63	1,10	4,86	1,40	5,27	1,62	5,39	1,62	6,03
0,10	0,94	4,48	1,03	5,03	1,33	5,07	1,54	5,12	1,49	5,82
0,20	1,01	4,39	0,98	4,22	1,25	4,71	1,28	4,74	1,42	5,63
0,40	0,82	4,13	0,91	4,34	1,12	4,69	1,05	4,73	1,45	5,50
0,60	0,76	4,04	0,99	4,40	1,22	4,97	1,15	5,01	1,33	5,60
0,80	0,75	3,80	0,93	4,48	1,14	4,70	1,18	4,77	1,19	5,88
1,50	0,86	4,26	0,94	4,59	1,11	5,00	1,12	5,15	1,32	6,00

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43381
S/056/62/043/005/050/058
B125/B104

24.7000

AUTHORS: Gurov, K. P., Leksina, I. Ye., Penkina, N. V.

TITLE: Calculation of the electron characteristics of metals using the data from measurement of their optical constants

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 5 (11), 1962, 1957-1963

TEXT: A method is proposed for calculating the "microproperties" (mean velocity on the Fermi surface, effective mass of the electrons, electron-phonon collision frequencies) of metals caused by electrons using the measurements of the refractive indices and of the absorption coefficients of pure metals. It is assumed that the excitation of the electron system of metals during heat absorption, thermal conduction, electric conduction, excitation by radiation etc. can be described in approximation of the isotropic effective mass. From theoretical calculations of the electron structures

$$v_F = \sqrt{3N_{эфф}/mg(E_F)} = 10^{-14}\cdot\sqrt{N_{эфф}/3g(E_F)} \quad (11)$$

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Calculation of the electron ...

is obtained for the velocity on the Fermi surface. $N_{eff} = g(E_F)mv_F^2/3$ is the effective electron number per unit volume. Considering that $E = mv^2/2$, the effective mass is given by $m^* = \pi\sqrt[3]{\hbar^3 g(E_F)v_F} = 6.16\cdot10^{-27}\sqrt[3]{N_{eff}/v_F^3}$. If n bands contribute to these effects, then also the weighted mean microcharacteristics must be introduced. The weighted mean square velocity on the Fermi surface is

$$\overline{v_F^2} = \sum_{i=1}^{n} g_i(E_{iF})v_{iF}^2 \Big/ \sum_{i=1}^{n} g_i(E_{iF}) = \sum_{i=1}^{n} g_i(E_{iF})\, v_{iF}^2/g(E_F), \qquad (16),$$

where $g(E_f)$ is the total density of states on the Fermi surface. Further, $N_{eff} = g(E_f)mv_F^2/3$ holds (17). The average effective mass is $\bar{m}^* = 6.16\cdot10^{-27}\,(N_{eff}/\bar{v}_F^3)^{1/2}$. The collision frequency is

$$\nu_{el} = \frac{9{,}04\pi^3\alpha^2 T\Theta^2(E_F)^2}{Mu^4}\left\{1+\frac{1}{24}\left(\frac{\Theta}{T}\right)^2\right\}. \qquad (36),$$

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where $\bar{E}_F = \bar{m}^* v_F^2/2$. θ is the Debye temperature, u the velocity of sound, $a = m^*/m$. The microcharacteristics of α-Fe, Pd, Al, and Cu were calculated by means of N_{eff}, which was determined from the metal-optical data by using already published data. With Pd and Fe the d-sub-bands contribute greatly to the effect investigated. The large effective masses of the quasiparticles that correspond to these sub-bands prevail in the weighted mean values found. Results determined from the specific heats agree well with those calculated by the above method. A main advantage of this method of estimating is that the microcharacteristics of different metals can be compared. There is 1 table.

ASSOCIATION: Institut Metallurgii im. A. A. Baykova (Institute of Metallurgy imeni A. A. Baykov)

SUBMITTED: June 25, 1961

Card 3/3

S/181/63/005/004/019/047
B102/B186

AUTHORS: Leksina, I. Ye., and Novikova, S. I.

TITLE: Investigation of the thermal expansion of copper, silver and gold in a wide temperature range

PERIODICAL: Fizika tverdogo tela, v. 5, no. 4, 1963, 1094 - 1099

TEXT: The thermal expansion coefficients α were measured for Cu, Ag and Au in the range 20 - 1200°K, and, using the relation $\alpha = \gamma c_v \chi_T / 3V$, the Grüneisen coefficient γ was calculated: χ_T denotes the compressibility for T = const and V is the atomic volume. In the environment of the Debye temperature ($T \sim \Theta$) γ is a constant defined by $\gamma = -\partial \log \Theta / \partial \log V$; it amounts to 2.0 (Cu), 2.4 (Ag) and 3.0 (Au). For $T < 0.3\ \Theta$ and $T > 2\Theta$ γ is temperature-dependent. From the deviation of the experimental values of γ from the theoretical in the range $T > 2\Theta$ the energy of vacancy formation is calculated; it was found to equal 12.41 kcal/mole (Cu), 11.76 kcal/mole (Ag) and 12.96 kcal/mole (Au). The fact that α increases with T in the case of high temperatures ($T > 2\Theta$) much more rapidly than at low temperatures is due to the effect of lattice structure distortions which become considerable from

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Investigation of the thermal... S/181/63/005/004/019/047
B102/B186

T = 20 on. There are 4 figures and 2 tables.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy Mendeleyevo, Moskovskoy oblasti (All-Union Scientific Research Institute of Physicotechnical and Radiotechnical Measurements, Mendeleyevo, Moscow oblast')

SUBMITTED: November 9, 1962

Card 2/2

LEKSINA, I.Ye.; PENKINA, N.V.

Optical properties of diluted solid solutions palladium - silver and rhodium - platinum. Trudy Inst. met. no.15:58-64 '63. (MIRA 16:9)

(Palladium-silver alloys--Optical properties)
(Rhodium-platinum alloys--Optical properties)

GUROV, K.P.; LEKSINA, I.Ye.; PENKINA, N.V.

Calculation of electron characteristics of metals. Trudy Inst. met. no.15:65-74 '63. (MIRA 16:9)
(Metal crystals) (Electrons)

ACC NR: AP6032624 SOURCE CODE: UR/0126/66/022/003/0464/0465

AUTHOR: Leksina, I. Ye.; Penkina, N. V.

ORG: Institute of Metallurgy im. A. A. Baykov (Institut metallurgii)

TITLE: Optical properties of diluted solid Ag-Au solutions

SOURCE: Fizika metallov i metallovedeniye, v. 22, no. 3, 1966, 464-465

TOPIC TAGS: optic property, solid solution, absorption coefficient, refractive index

ABSTRACT: The authors studied transition metals and optical constants of diluted solid solutions based on a nontransition metal. The optical constants of silver and its alloys with small quantities of gold were measured on wavelengths of 0.44, 0.49, 0.55, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95 and 1.00 μ. Solid solutions of gold and silver were studied at 0, 0.05, 0.1, 0.21, 0.3, 0.43, 0.5, 0.59, 0.79, 0.98 and 1.25 at.% Au concentration. The silver used was 99.99% pure. The specimens for the study were melted in a furnace using graphite crucibles and were continuously stirred with a graphite rod. In order to ensure high quality, the specimens were remelted in a high frequency furnace and annealed in a vacuum of $5 \cdot 10^{-6}$ mm Hg at 750°C for 24 hours. Optical constants were measured by the Drude method. The results show an index of refraction for 0.1% gold concentration which is the same as that for pure silver (within an experimental error limit of 30%) although n is a monotonic function

Card 1/2 UDC: 535.3:546.3-19'57'59

ACC NR: AP6032624

of gold concentration in silver. No monotonic relationship was observed between the absorption coefficient and gold concentration in silver. A formula given in the literature was used for calculating effective concentration of conductivity electrons for all pure silver specimens. A graph was plotted for these values and it can be seen that conductivity electron concentration increases smoothly initially from $3.4 \cdot 10^{26}$ at 0.44 μ up to $5.1 \cdot 10^{22}$ at 0.7 μ and evens out from 0.7 to 1.0 with a ±6% degree of error. The effective concentration of conductivity electrons is the same for all specimens studied and is $4\text{-}4.5 \cdot 10^{22}$ el/cm^3. The results of the experiments do not indicate a monotonic relationship between the index of refraction, absorption coefficient or effective concentration of conductivity electrons and impurity concentration in the Au-Ag system. These results must be interpreted within the limits of experimental error. The authors thank K. F. Gurov for his interest in their work. Orig. art. has: 1 table, 1 formula.

SUB CODE: 20/ SUBM DATE: 18Dec65/ ORIG REF: 005/ OTH REF: 001

Card 2/2

ACC NR: AP6033053 (A) SOURCE CODE: UR/0126/66/022/002/0264/0267

AUTHOR: Leksina, I. Ye.; Penkina, N. V.

ORG: Institute of Metallurgy im. A. A. Baykov (Institut metallurgii)

TITLE: Optical properties of dilute tungsten-rhenium solid solutions

SOURCE: Fizika metallov i metallovedeniye, v. 22, no. 2, 1966, 264-267

TOPIC TAGS: optic property, solid solution, tungsten, rhenium, x ray analysis

ABSTRACT: The authors study the optical constants (index of refraction and absorption coefficient) in dilute solid solutions of tungsten and rhenium with rhenium concentration approaching 1.6 at.% in the 0.5-8.0 μ spectral region. A table is given showing the composition of the specimens tested. 99.97% pure VChDK tungsten powder and 99.98% pure (GOST 88-59) rhenium powder were used for making the specimens. The samples were hydraulically pressed, degassed and sintered at 1200°C in a $5 \cdot 10^{-6}$ mm Hg vacuum. As a final step, the specimens were melted in an arc furnace in an argon atmosphere. In order to ensure homogeneity and relieve stress, the specimens were annealed in a vacuum at 1500°C for 15 hours. Some of the specimens were subjected to local x-ray analysis to determine rhenium content. This analysis showed that rhenium was uniformly distributed throughout the specimens. An additional analysis was carried out to determine gas content in the specimens. The results of this analysis

UDC: 546.3-19'78'719:535

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ACC NR: AP6033053

showed that the specimens contained 0.003% oxygen and 0.02% nitrogen. The Drude method was used for measuring the optical constants in the 0.49-1.0 μ spectral region and the Beattie and Conn method was used for measuring these constants in the 1.5-8.0 μ region. Four sets of measurements were taken and the values for the refractive indices and absorption coefficients were averaged. The average errors in determining the index of refraction and absorption coefficient in the 0.5-1.0 μ spectral region were 8 and 5% respectively, and 15 and 6% in the 1.5-8.0 μ region. The results of the experiments show that tungsten has a wide absorption band encompassing the visible and infrared regions of the spectrum up to 4 μ. This band, though somewhat deformed, was present throughout the entire series of experiments on tungsten-rhenium alloys. A diagram is given showing the long wave absorption edge for all specimens. These data show that increasing rhenium concentration shifts the edge of the band into the long wave region. Variation in the location of the edge of the band is approximately 0.1 ev with the addition of 1 at.% of rhenium. For the case of 6-7 μ waves, where optical properties are determined by electron conductivity and the contribution from quantum absorption is small, conduction electron concentration was calculated by using the normal skin effect formula. It was found that the concentration of conduction electrons in W-Re solid solutions is a constant $1.3\text{-}1.4 \cdot 10^{22}$ el/cm^2 for rhenium concentrations up to 1.6 at.%. Orig. art. has: 1 figure, 2 tables.

SUB CODE: 11/ 20/ SUBM DATE: 07Feb66/ ORIG REF: 003/ OTH REF: 001

Card 2/2

KOROTKIKH, O.I.; UBEYKOBYLINA, T.D.; LEKSINA, L.I.

Survival of Leptospira in different pH of the medium.
Trudy TomNIIVS 14:83-85 '63. (MIRA 17:7)

1. Nauchnyy studencheskiy kruzhok pri kafedre mikrobiologii Tomskgo meditsinskogo instituta i Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok.

S/181/62/004/004/016/042
B104/B108

AUTHORS: Regel', V. R., and Leksovskiy, A. M.

TITLE: Time dependence of strength under static and cyclic loading

PERIODICAL: Fizika tverdogo tela, v. 4, no. 4, 1962, 949 - 955

TEXT: A device designed for both static and cyclic tensile testing is described. It features a damper of the undesired harmonic oscillations arising under cyclic loading. Tests were made on Al and Zn metal foils, polymethyl methacrylate films , as well as caprone, viscose, and polyacrylonitrile fibers. The times τ until the materials broke under static and cyclic loading were determined. Under either load the relation $\log\tau = f(\sigma)$ is linear within the error limits and converges to $\tau \approx 10^{-2}$ sec. Appreciable divergences occur with great numbers of cycles only. The time dependence of strength under cyclic loading is regarded as a special case of the general temperature and time dependence of strength in solids. The mentioned divergence is explained by the varying behavior of a structural factor in the case of static and cyclic loading. S. N. Zhurkov, Corre-

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Time dependence of strength under ...

sponding Member AS USSR, is thanked for having posed the problem and for discussions. There are 3 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute imeni A. F. Ioffe AS USSR, Leningrad)

SUBMITTED: November 27, 1961

Card 2/2

LEKSOVSKIY, A.M., REGEL', V.R.

Study of static and dynamic fatigue polymers.

Report presented at the 13th Conference on High-molecular Compounds.
Moscow, 8-11 Oct 62

L 61054-65 EWT(m)/EPF(c)/EWG(v)/EWP(j)/T/EWA(c) Pc-4/Pe-5/Pr-4/Ps-4 RPL
WW/RM

ACCESSION NR: AP5016508 UR/0190/65/007/006/1045/1050
678.01 : 53

AUTHORS: Leksovskiy, A. M.; Regel', V. R. 44,55 44,55

TITLE: The longevity of polymers under cyclic loading 7,44,55

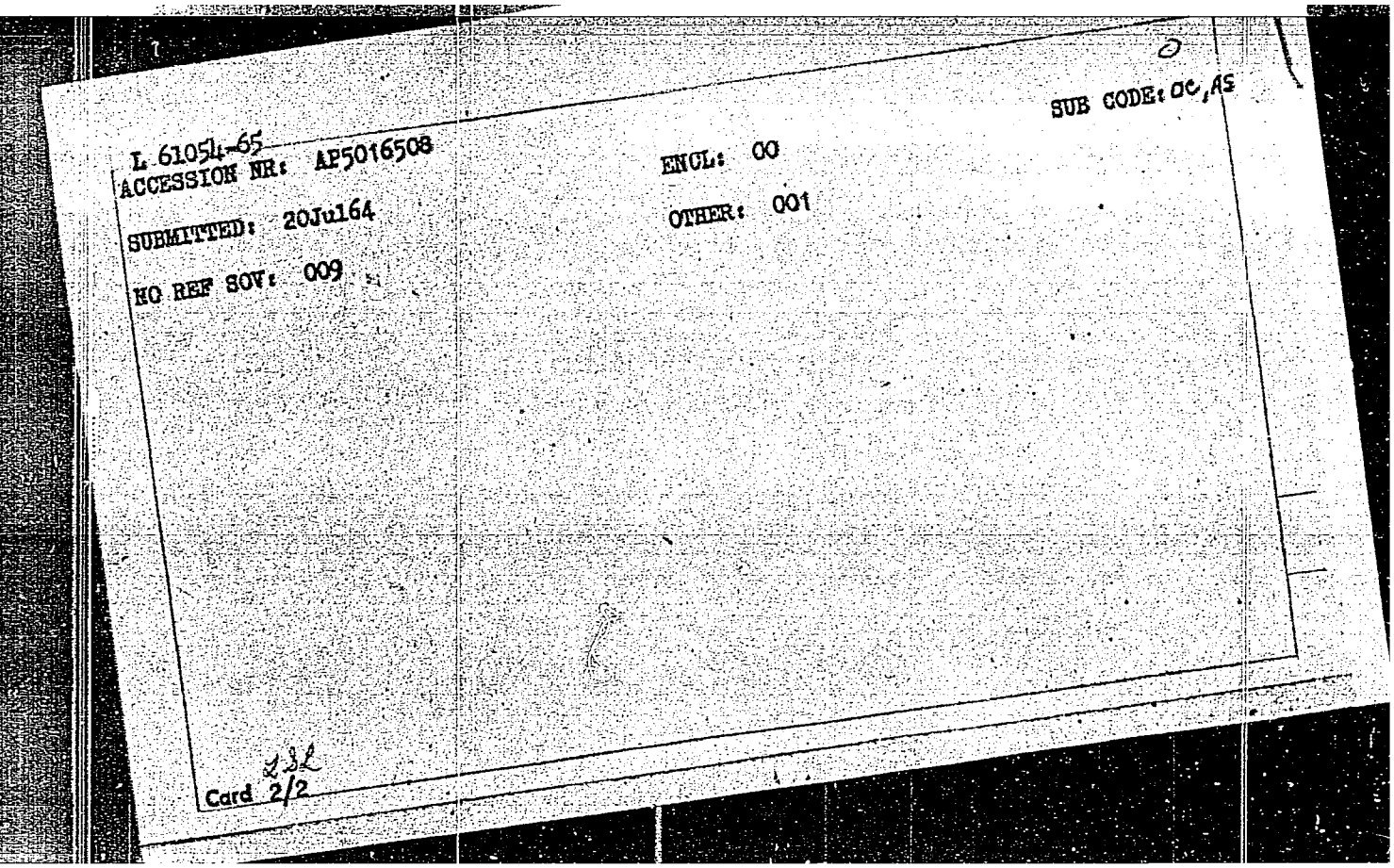
SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 6, 1965, 1045-1050

TOPIC TAGS: polymer, resin, tensile stress, tensile strength, polyacrylonitrile, polymethyl methacrylate, viscose, caprone

ABSTRACT: The longevity of four polymers subjected to static and periodic loading was determined in order to test the validity of the impairment superposition principle. The investigation is an extension of previous work of the authors (Fizika tverdogo tela, 4, 949, 1962). The polymers investigated were: polyacrylonitrile, polymethylmethacrylate, viscose, and caprone. The experimental method is described in the reference above. It is concluded that the impairment superposition principle is valid and that the degradation at static and periodic loads stems from the thermal activation rupture of chemical bonds as suggested by Zhurkov. Orig. art. has: 5 graphs and 4 equations.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe. (Physico-Technical Institute)

Card 1/2 44,55



L 61054-65
ACCESSION NR: AP5016508

SUB CODE: OC, AS

ENCL: 00

SUBMITTED: 20Jul64

OTHER: 001

NO REF SOV: 009

Card 2/2

L 1356-66 EWT(d)/EWP(m)/EWP(w)/EWP(t)/EWP(b) IJP(c) JD/EM

ACCESSION NR: AP5021939 UR/0126/65/020/002/0288/0292
539.292; 548.0:539

45
35
B

AUTHOR: Leksovskiy, A. M.; Regel', V. R. 44,55

TITLE: Temperature-time dependence of the strength of aluminum under static and cyclic loads 44,55,27 16

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 2, 1965, 288-292

TOPIC TAGS: temperature dependence, time dependence, aluminum strength, static load, cyclic load, aluminum life, Zhurkov formula

ABSTRACT: The present work is a continuation of a previous investigation (Regel', V. R., Leksovskiy, A. M. FTT, 1962, 4, 949), with the difference that it presents further experimental findings on the comparative endurance under static and cyclic loads, with the object of elucidating the reasons for the observed divergence between τ_{stat} and τ_{cycl}. To this end, the cyclic and static lives of aluminum were observed not only at room temperature, as in the previous investigation, in which thus no allowance was made for the relaxation processes, but also at other test temperatures (250, 100, 18, and -50°C), and in the presence of

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ACCESSION NR: AP5021939

two loading frequencies (24 and 0.8 cps). Findings: as the temperature increases, the discrepancy between τ_{stat} and τ_{cycl} gradually decreases: at 18°C and particularly at -50°C this discrepancy is very marked, whereas at 250°C it becomes insignificant even in the presence of a large number of cycles prior to fracture of the specimens of polycrystalline ultrafine aluminum (99.9%). This qualitatively confirms the theory that relaxation processes play a major role in the discrepancy between τ_{stat} and τ_{cycl}. Another highly important fact is that at sufficiently high temperatures, when the rate of relaxation processes is high, the frequency effect and the discrepancy between static and cyclic lives disappear. It is thus concluded that -- at least under the limited conditions of experiment (in the high-temperature range) -- whatever the loading regime, the process of fracture is traceable to one and the same thermal activation mechanism, the nature of which is reflected by Zhurkov's equation (ZhTF, 1958, 23, 1677, and elsewhere):

$$\tau = \tau_0 e^{\frac{U_0 - \gamma\sigma}{kT}} \qquad (1)$$

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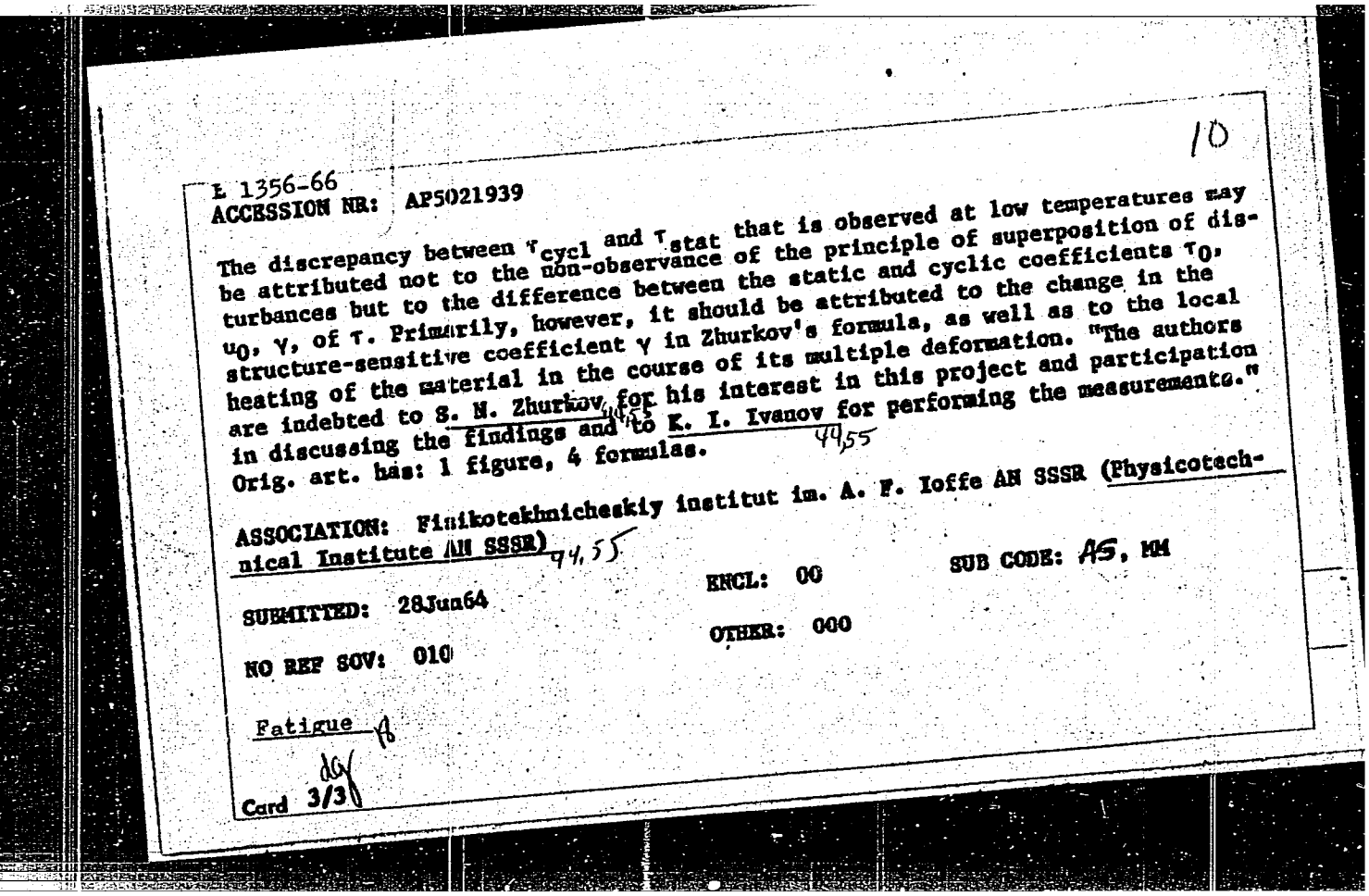

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The discrepancy between τ_{cycl} and τ_{stat} that is observed at low temperatures may be attributed not to the non-observance of the principle of superposition of disturbances but to the difference between the static and cyclic coefficients τ_0, u_0, γ, of τ. Primarily, however, it should be attributed to the change in the structure-sensitive coefficient γ in Zhurkov's formula, as well as to the local heating of the material in the course of its multiple deformation. "The authors are indebted to S. N. Zhurkov for his interest in this project and participation in discussing the findings and to K. I. Ivanov for performing the measurements." Orig. art. has: 1 figure, 4 formulas.

ASSOCIATION: Finikotekhnicheskiy institut im. A. F. Ioffe AN SSSR (Physicotechnical Institute AN SSSR)

SUBMITTED: 28Jun64 ENCL: 00 SUB CODE: AS, MM

NO REF SOV: 010 OTHER: 000

Fatigue

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I[illegible]N", M.

D veloping the sense of beauty in the drawing class. p. 6[illegible]

NOUKOGUNDE KOOL. (NARODNOYE OBRAZOVANIYE) Tallinn, Estonia.
Vol. 17, no. 9, Sept. 1959

Monthly List of East European Accessions (EEMI) LC, Vol. 9, No. 12, Dec. 1[illegible]
Uncl.

LEKSTON, Henryk, mgr

Economic conditions for a regular Polish ocean line to Canada and the ports of the Great Lakes. Tech gosp morska 14 no. 4: 99-101 Ap '64.

1. Polish Ocean Lines, Gdynia.

1. LEKSUTKIN, A. F.

2. USSR (600)

4. Nets

7. Improved-design stake net. Ryb. khoz. 29, No. 4, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

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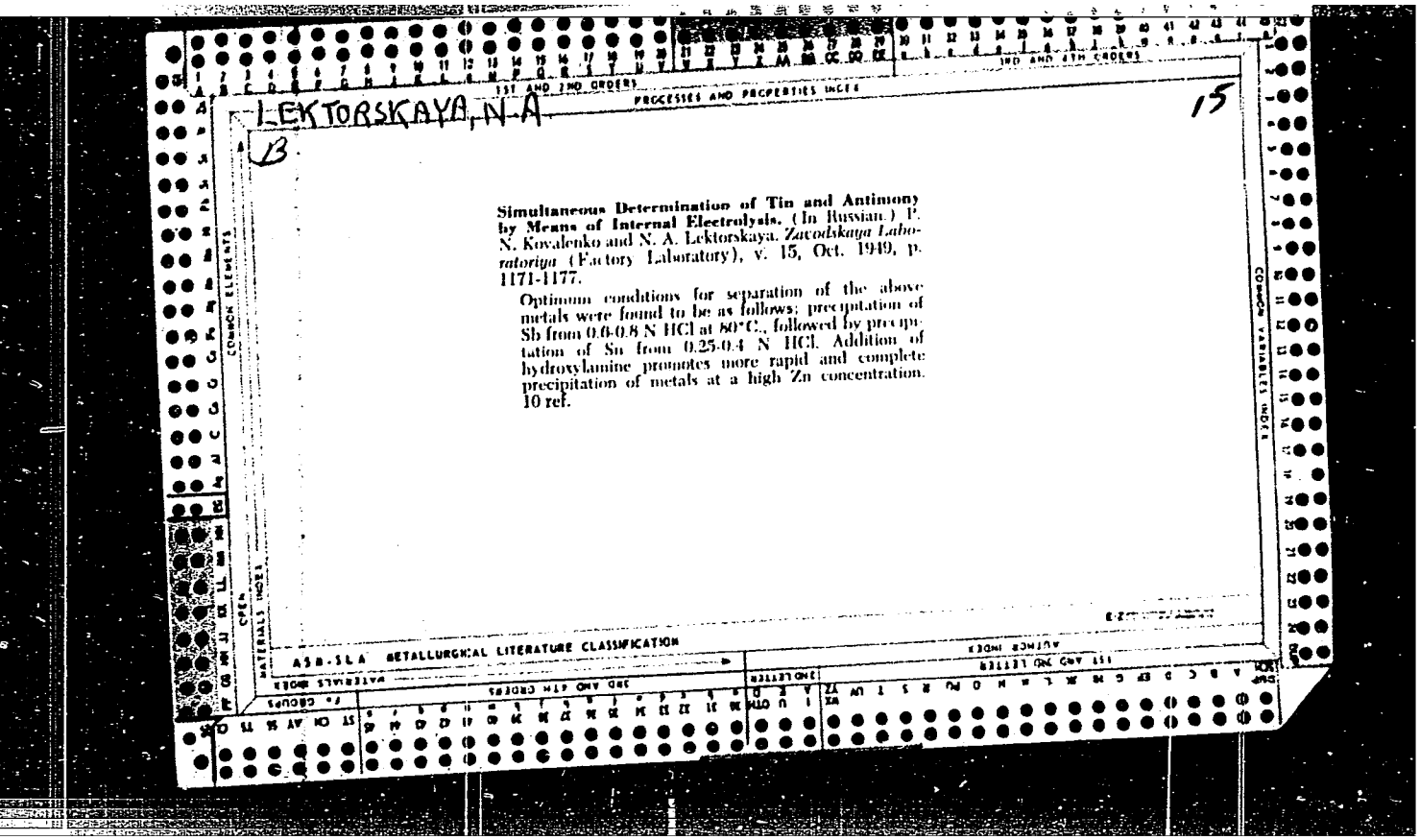
[Industrial Astrakhan] Promyshlennaia Astrakhan'. Astrakhan', Izd-vo gazety "Volga," 1959. 318 p. (MIRA 12:11)

1. Astrakhan (Province) Ekonomicheskiy administrativnyy rayon. (Astrakhan Province--Economic conditions)

PEKLO, M.I.; ALABUKHIN, I.S.; LEKTOROVICH, I.V.; LOBANOV, A.Ye.

Straightening planing saws. Der.prom. 7 no. 6:17-20 Je '58.
(MIRA 11:8)

(Circular saws)



LEKTORSKAYA, N-A

B

15

Simultaneous Determination of Tin and Antimony by Means of Internal Electrolysis. (In Russian.) P. N. Kovalenko and N. A. Lektorskaya. *Zavodskaya Laboratoriya* (Factory Laboratory), v. 15, Oct. 1949, p. 1171-1177.

Optimum conditions for separation of the above metals were found to be as follows: precipitation of Sb from 0.6-0.8 N HCl at 80°C., followed by precipitation of Sn from 0.25-0.4 N HCl. Addition of hydroxylamine promotes more rapid and complete precipitation of metals at a high Zn concentration. 10 ref.

LEKTORSKAYA, N. A.

USSR/Chemistry - Analysis, Lead Aug 50

"Polarographic Determination of Tin and Antimony in Metallic Lead," P. N. Koralenko, N. A. Lektorskaya, Rostov State U

"Zavod Lab" Vol XVI, No 8, pp 924-929.

Sn in precipitated as phosphate and Sb is coprecipitated with metastannic acid from nitric acid solution. Precipitates are dissolved in hydrochloric acid and polarographed. Determines Sn to 0.005%, Sb to 0.016%.

PA 169T7

LEKTORSKAYA, N.A.; KOVALENKO, P.N.

Determination of antimony and bismuth in zinc electrolytes. Uch. zap. RGU 40:173-177 '58. (MIRA 13:10)
(Antimony--Analysis) (Bismuth--Analysis)

LEKTORSKAYA, N.A.; KOVALENKO, P.N.

Electrode polarization in the polarographic determination of antimony, bismuth, lead, and tin. Uch.zap. RGU 41:95-105 '58. (MIRA 15:1)
(Metals--Analysis) (Polarography)

LEKTORSKAYA, N. A.: Master Chem Sci (diss) -- "The polarographic method of determining bismuth and antimony, and lead and tin, when they occur together". Rostov na Donu, 1959. 14 pp (Min Culture USSR, Rostov State U, Chair of Analytic Chem), 200 copies (KL, No 17, 1959, 106)

5(2) SOV/156-59-1-24/54

AUTHORS: Lektorskaya, N. A., Kovalenko, P. N.

TITLE: The Polarographic Determination of Bismuth and Antimony, Lead and Tin in Joint Presence (Polyarograficheskoye opredeleniye vismuta i sur'my, svintsa i olova pri sovmestnom prisutstvii)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1959, Nr 1, pp 102-104 (USSR)

ABSTRACT: The check of the electrolytic purification of tin requires a quick and reliable method for the determination of the admixtures of bismuth, antimony and lead. The halfwave potentials of tin and lead agree during their reduction. The same applies to bismuth and antimony. Sodium fluoride was used as a complexing agent to displace the discharge potentials. NaF ($9.5.10^{-2}$ to $1.19.10^{-1}$ ml/l) displaces the half-wave potential of antimony by 0.2-0.076 volts with respect to the half-wave potential of bismuth and suppresses the diffusion current of tin. The concentration of hydrochloric acid in the tin salt solution in the presence of sodium chloride for the polarography of bismuth and antimony must not exceed 0.75 n and in the case of lead and tin must not be less than 1.75 n. The amplitude of the differential

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The Polarographic Determination of Bismuth and Antimony, Lead and Tin in Joint Presence

wave of lead, bismuth and antimony is directly proportional to their concentration. The amplitude of the wave of tin can be calculated from the total of the wave amplitudes of lead and tin. A prescription is given how to perform the polarographic analysis. The polarographic determination of the four metals has been carried out on samples of industrial tin and on artificially composed mixtures. The accuracy achieved has been given in tables. There are 3 tables and 6 references, 3 of which are Soviet.

ASSOCIATION: Kafedra analiticheskoy khimii Rostovskogo-na-Donu gosudarstvennogo universiteta
(Chair of Analytical Chemistry of Rostov-na-Donu State University)

SUBMITTED: July 10, 1958

S/137/62/000/012/077/085
A006/A101

AUTHOR: Lektorskaya, N. A.

TITLE: Polarographical characteristics of vanadium and chromium

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 12, 1962, 9, abstract 12K53 (In collection: "Teoriya i praktika polyarogr. analiza", Kishinev, "Shtinitsa", 1962, 261 - 264)

TEXT: The author studied conditions of V and Cr reduction on a Hg-drop cathode to reveal the possibility of determining small V amounts in the presence of Cr. $MgCl_2$, $CaCl_2$, KCNS and NaF solutions were studied as backgrounds. It was established that on a background of 0.1 n. NaF at pH 12, the potentials of Cr^{6+} and V^{5+} half-waves are respectively equal to -1.08 and -1.55 v, so that their simultaneous determination is possible. In analyses of artificial mixtures, good reproducibility was obtained. There are 8 references.

N. Gertseva

[Abstracter's note: Complete translation]

Card 1/1

S/137/61/000/012/147/149
A006/A101

AUTHORS: Lektorskaya, N. A., Kovalenko, P. N.

TITLE: Determining molybdenum by the polarographic method

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 12, 1961, 13, abstract 12K69 (V sb. "Fiz.-khim. metody analiza i kontrolye proiz-va". Rostov-na-Donu, Rostovsk. un-t, 1961, 28-32)

TEXT: An investigation was made for the purpose of selecting more simple conditions for the polarographic determination of Mo. The measurements were made on a visual polarograph with a galvanometer. To prepare the Mo solution ammonium molybdate salt was employed. The concentration of the initial solution was 1.10^{-2} mol/l. Investigations were made on the reduction of Mo [illegible] acetic and boric acid solutions, a mixture of glycerin and H_2SO_4 solution, K rhodanide and CH_3COOH solutions. It was established that molybdate ions were reduced on a drop Hg-cathode on a background of CH_3COOH at - 0.42 v of the halfwave potential. The intensity of the diffusional current and the halfwave potentials are practically constant at 1.0 - 3.5 n. CH_3COOH concentration. The diffusional waves are well pronounced. The intensity of the diffusion current of Mo is a direct

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S/137/61/000/012/147/149
A006/A101

Determining molybdenum by the polarographic method

function of its concentration. On the basis of data obtained, a method was developed to determine Mo in steel. The steel sample is dissolved in HCl in the presence of HNO_3. The hot solution is neutralized with a NaOH solution so that $Fe(OH)_3$ precipitates. The solution with the precipitate is brought to boiling, cooled and transferred into a measuring retort, filled up to the mark and filtered. A portion of the filtrate is placed into 2 measuring retorts. In one of the retorts a titrated solution of ammonium molybdate is added, then 3 - 4 drops of CH_3COOH are added into both retorts and the solution is filled up to the mark. Prior to polarography, N_2 is blown through the solutions during 10 - 15 minutes. There are 12 references.

L. Vorob'yeva

[Abstracter's note: Complete translation]

Card 2/2

9.4120

S/194/61/000/010/035/082
D256/D301

AUTHORS: Imedadze, V.V. and Lekvinadze, A.G.

TITLE: Performance analysis of a thyratron commutator-switch

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 10, 1960, 5, abstract 10 V37 (Tr. In-ta elektroniki avtomatiki i telemekhan. AN GruzSSR, 1960, 1, 93-103)

TEXT: An analysis is presented of a thyratron switching arrangement under active- and inductive-loads, and it is shown that the switching speed is considerably higher for a purely active load than for a mixed active-inductive one. A system of switching el.-magn. devices was investigated and a max. switching speed of 100-150 cs/sec was reached. The results of the experiments were found to be in full agreement with the analysis. 9 figures. 4 references.
[Abstracter's note: Complete translation]

Card 1/1

L 16015-66 EWT(m)/EWP(t) IJP(c) ES/WW/JD/JG/GS

ACC NR: AT6005598 SOURCE CODE: UR/0000/64/000/000/0061/0065

AUTHOR: Lektorskaya, N. A.; Kovalenko, P. N. (Professor)

ORG: Rostov State University (Rostovskiy gosudarstvennyy universitet)

TITLE: Separation of uranium by internal electrolysis

SOURCE: Vsesoyuznaya konferentsiya rabotnikov metallurgicheskoy i khimicheskoy promyshlennosti i sotrudnikov vuzov. Rostov-on-Don, 1962. Peredovyye metody khimicheskoy tekhnologii i kontrolya proizvodsvta (Progressive methods of chemical engineering and production control); trudy konferentsii. Rostov-on-Don, Izd-vo Rostovskogo univ., 1964, 61-65

TOPIC TAGS: uranium, electrolysis, quantitative analysis

ABSTRACT: Conditions of separation of uranium (VI) from ammoniacal solutions by internal electrolysis were studied without using diaphragms. Uranium was determined by gravimetric and polarographic methods. The concentration of ammonia in the range from 1.8 to 3 N had no effect on the quantitative deposition of uranium; 2 N was taken as the optimum NH_3 concentration, and 45 min as the optimum time of elec-

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trolysis. The minimum quantity of uranium which can thus be separated is 0.2 mg from 100 ml of solution. Uranium is quantitatively separated by zinc, cadmium, and tin anodes, all three of these metals being less electronegative than zinc. The effect of vanadium, tungsten, molybdenum, chromium, and lead on the separation of uranium from an ammonia-glycerin medium is described. The technique of uranium determination is recommended for the analysis of industrial samples. Orig. art. has: 4 tables.

SUB CODE: 07/ SUBM DATE: 24Mar64/ ORIG REF: 005/ OTH REF: 000

Card 2/2

GORBATOVA, T.A.; KOVALENKO, P.N.; LEKTORSKAYA, N.A.

Polarographic reduction of germanium on certain supports. Izv. vys. ucheb. zav., khim. i khim. tekh. 7 no.5:720-724 '64
(MIRA 18:1)

1. Kafedra analiticheskoy khimii Rostovskogo-na-Donu gosudarstvennogo universiteta.

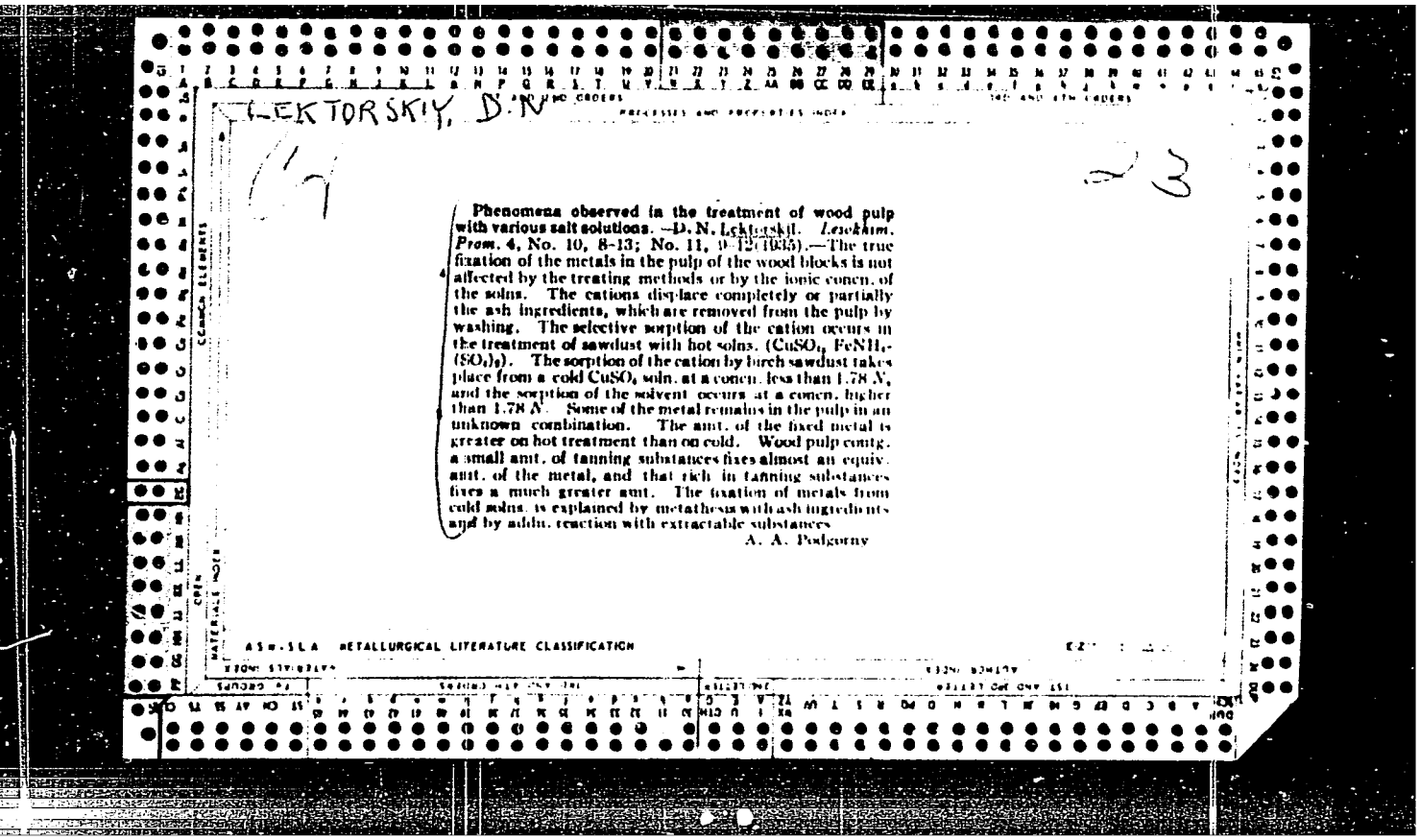
LOKTORSKIY, A.I

OBRAZY BAROSHNYKH-I VOLNUTSIONEROV V TVORCHESTVE M. GOR'KOGO. MOSKVA, IZD-VO ZNANIYE, 1952. 47 P. (VSESOYUZNOYE OBSHCHESTVO PO RASPROSTRANENIYU POLITICHESKIKH I NAUCHNYKH ZNANIY. 1952, SERIYA II, NO. 78-79)
BIBLIOGRAPHICAL FOOTNOTES.

ZAYETS, T.L.; GULYAMOV, T.D.; LEKTORSKIY, B.I.

Decomposition of tissue proteins in burns. Biul. eksp. biol. i med. 55/i.e.56/ no.10:44-48 O'63 (MIRA 17:8)

1. Iz biokhimicheskoy laboratorii (zav. - prof. A.S. Konikova) i fiziologicheskoy laboratorii (zav/ prof. L.L. Shik) Instituta khirurgii imeni A.V. Vishnevskogo (dir. - deystvitel'nyy chlen AMN SSSR prof. A.A. Vishnevskiy) AMN SSSR. Predstavlena deystvitel'nym chlenom AMN SSSR A.A. Vishnevskim.

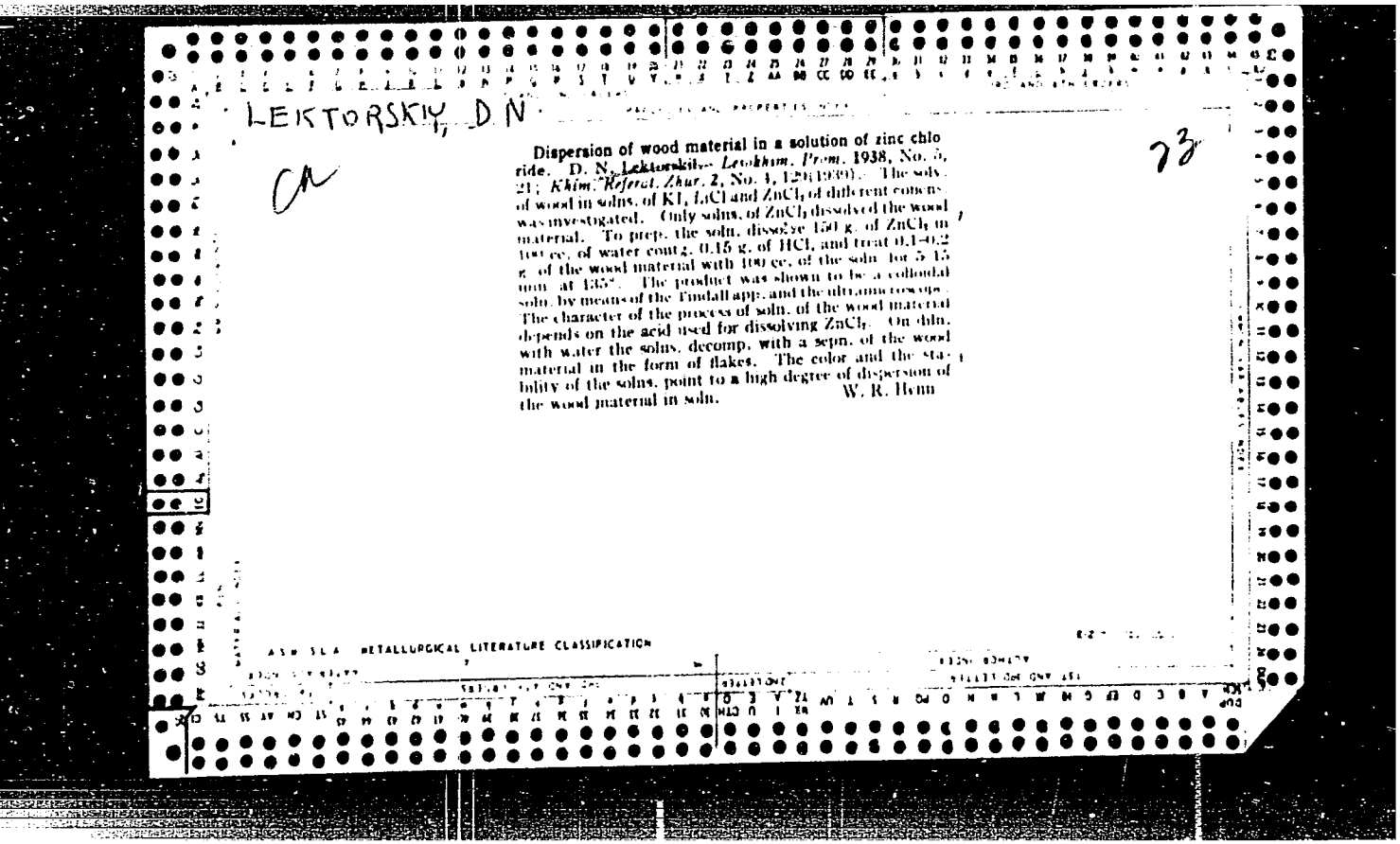


LEKTORSKIY, D.N.

Phenomena observed in the treatment of wood pulp with various salt solutions. —D. N. Lektorskiĭ. *Lesokhim. Prom.* 4, No. 10, 8-13; No. 11, 9-12 (1935).—The true fixation of the metals in the pulp of the wood blocks is not affected by the treating methods or by the ionic concn. of the solns. The cations displace completely or partially the ash ingredients, which are removed from the pulp by washing. The selective sorption of the cation occurs in the treatment of sawdust with hot solns. ($CuSO_4$, $FeNH_4(SO_4)_2$). The sorption of the cation by birch sawdust takes place from a cold $CuSO_4$ soln. at a concn. less than 1.78 *N*, and the sorption of the solvent occurs at a concn. higher than 1.78 *N*. Some of the metal remains in the pulp in an unknown combination. The amt. of the fixed metal is greater on hot treatment than on cold. Wood pulp contg. a small amt. of tanning substances fixes almost an equiv. amt. of the metal, and that rich in tanning substances fixes a much greater amt. The fixation of metals from cold solns. is explained by metathesis with ash ingredients and by addn. reaction with extractable substances.

A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



LEKTORSKIY, D N

CA

73

Dispersion of wood material in a solution of zinc chloride. D. N. Lektorskii. *Leokhim. Prom.* 1938, No. 5, 21; *Khim. Referat. Zhur.* 2, No. 4, 128(1939). The solv. of wood in solns. of KI, LiCl and $ZnCl_2$ of different concns. was investigated. Only solns. of $ZnCl_2$ dissolved the wood material. To prep. the soln. dissolve 150 g. of $ZnCl_2$ in 100 cc. of water contg. 0.15 g. of HCl, and treat 0.1–0.2 g. of the wood material with 100 cc. of the soln. for 5–15 min. at 135°. The product was shown to be a colloidal soln. by means of the Tindall app. and the ultramicroscope. The character of the process of soln. of the wood material depends on the acid used for dissolving $ZnCl_2$. On dilu. with water the solns. decomp. with a sepn. of the wood material in the form of flakes. The color and the stability of the solns. point to a high degree of dispersion of the wood material in soln.

W. R. Henn

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

LEKTORSKIY, D.N.; BABOCHKIN, P.N.

Using gas generator wood tar for preserving wood. Gidroliz. i lesokhim. prom. 11 no.5:14-15 '58. (MIRA 11:9)

1. TSentral'nyy nauchno-issledovatel'skiy lesokhimicheskiy institut.
(Wood preservatives) (Tar)