

1954-1. 37

Investigation of the Angular Distribution of Particles from their  
Traces in a Photo-emulsion.

$$N_5 = 1,011n_5 - 1,240n_4 + 0,091n_3 - 0,002n_2 + \dots$$

$$N_6 = N_0 - 0,811n_5 + 0,063n_4 - 0,041n_3 - 0,001n_2 - 0,000n_1$$

giving good results for small angles (approx.  $5 \frac{1}{4}$  of

divergence between the observation axis and the emission  
plane). The above relationships have been checked against  
an isotropic distribution. Figure 2 shows that the error  
between the angular dependence  $N(\varphi)$  (for a unit solid  
angle), with  $n_1 = n_2 = \dots = n_5$  (broken line), does not  
exceed 3. Besides the simplicity, the method has the  
advantage over the method of direct measurement of angles:  
the loss of short tracks does not influence in any way  
the volume distribution of track projections and the final  
calculated spatial distribution. One diagram and the diagram  
of an angular distribution of uranium nuclei distribution under  
the bombardment of low-energy neutrons are given. Literature  
references, 1 of which is given.

SUBMITTED: July, 29, 1954.

ASSOCIATION: Leningrad Polytechnic Institute (Leningradskiy  
(Leningradskiy Politeknicheskiy Institut))

Card 3/4

120-2-12/37

Investigation of the Angular Distribution of Particles from Their  
Traces in a Photo-emulsion.

AVAILABLE: Library of Congress.

Card 4/4

OSTROUMOV, V. I.

37 19  
ANGULAR DISTRIBUTION OF THE URANIUM FISSION  
FRAGMENTS PRODUCED BY HIGH-ENERGY NEUTRONS  
V. I. Ostroumov and N. A. Porilov. Soviet Phys. JETP 4,  
803-4 (1957) May

It has been shown previously that fragments of heavy nuclei fissioned by either charged or neutral medium energy (up to 20 Mev) particles display a parallel anisotropy relative to the direction of the bombarding beam and this orientation becomes perpendicular for U at incident-proton energies of 460 Mev and higher. Results indicate that the anisotropy in the escape of fragments, the distribution as obtained from the number of particles accompanying the fragments, and the directivity of these particles are approximately the same whether the U nuclei are fissioned by high-energy neutrons or protons of the same energy. (M.S.R.)

113 pmt

OSTROUMOV, V. I.

INTEGRATION OF SILVER AND BROMINE NUCLEI BY HIGH ENERGY PROTONS / V. I. Ostroumov (Academy of Sciences, USSR) - Soviet Phys. JETP 5, 12-20 (1967) Aug.

The interaction with heavy nuclei in emulsion of protons with energies 130, 480, and 860 Mev was studied. By observing the tracks of recoil nuclei in stars formed as a result of this interaction, the average number of cascades protons and alpha-particles in stars with different numbers of prongs was determined. The relation between the number of "black" prongs and the mean excitation energy of the nucleus was established for all three energies of the bombarding protons. The distribution of nuclei according to excitation energy was found. The experimentally observed energy spectrum of the protons differs somewhat from an evaporation spectrum. (auth)

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AUTHOR: OSTROUMOV, V.I. PA - 2101  
TITLE: Disintegration of Ag and Br nuclei by high energy protons.  
(Russian)  
PERIODICAL: Zhurnal Eksperimental'noy i Teoret. Fiziki, 1957, Vol. 32, No. 1, pp. 1-13  
(U.S.S.R.)  
Received: 3 / 1957 Reviewed: 4 / 1957

ABSTRACT: The present paper investigates the interaction of protons with the energies 130, 140 and 660 MeV with the heavy nuclei of a photoemulsion. This spallation process is composed of a cascade process and an evaporation process. The here described method has already been described on a previous occasion (OSTROUMOV, V.I., Doklady Akademii Nauk SSSR, 1955, Vol 103, p 413).

Experimental order: The author used plates with a fine - grained emulsion P-9 as well as plates with the emulsion NIKFI Typ K for parallel tests. The thickness of the photo layer amounted to 150  $\mu$ . The emulsion recorded protons with from 30 - 35 MeV, and on the occasion of an experiment carried out with 140 MeV the sensitivity of the emulsion was NIKFI 100 MeV. Irradiation was carried out with a collimated bundle of protons with 140, 460 and 650 MeV on the synchrocyclotron of the Institute for Nuclear Problems of the Academy of Science of the U.S.S.R.

Card 1/3 Experimental Results: A diagram illustrates the distribution found

PA 2101

Disintegration of Ag and Br nuclei by high energy protons  
(Russian)

here for the recoil nuclei over the range of the energies 460 and 660 MeV of the impinging protons. This curve is based upon 1483 cases. Further diagrams demonstrate the distribution over the x- and y-components of velocity, the modifications of velocities for stars with different numbers of rays, the velocities of the progressive motion of the target nucleus computed therefrom, and the dependence of the number of black rays in a star on excitation energy. From these curves it is possible to determine the distribution of the cases of interaction of fast protons with Ag- and Br-nuclei over the amount of the excitation energy of these nuclei.

The energy spectrum of protons: The energy of the protons in the nuclei was measured from the length of the traces which are brought to a standstill in the photoemulsion. The energy spectra of protons (or more exactly: of the simply charged particles) in the stars formed by the protons with 460 and 660 MeV are shown in form of a diagram. With increasing excitation energy also the "black" component of "knocking out" increases. Most particles of low energy ( $E < 7$  MeV) are emitted towards the rear, which may be ex-

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PA - 2101

Disintegration of Ag and Br nuclei by high energy protons  
(Russian).

plained by the effect produced by the motion of the evaporating nucleus. However, in the case of high energies, the effect produced by "knocking out" becomes noticeable, and a larger number of protons is emitted in the direction of the front hemisphere.

The share of the knocked out particles can be determined from the total anisotropy observed. Further possibilities for the determination of this share are given.

ASSOCIATION: Radium Institute of the Academy of Science of the U.S.S.R.  
PRESENTED BY:  
SUBMITTED:  
AVAILABLE: Library of Congress

Card 3/3

50-5-4/40

AUTHORS: Vaganov, P. A., Ostrovnikov, V. I.

TITLE:  $\alpha$ -Particles Emitted by Heavy Nuclei in Emulsions Under the Action of High-Energy Protons ( $\alpha$ -chastitsy, vypuskayemye tjannelymi yadrami emul'sii pod deystviyem protonov vysokikh energii)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1957  
Vol. 33, Nr 5, pp. 1111-1139 (USSR)

ABSTRACT: A fine-grained emulsion side film was exposed in such a way to the proton-ray of the microcycotron that the ray and the emulsion side are in a parallel position to each other. The energy of the protons was 460, 560 and 660 MeV. The low energies were obtained by slowing down of the 660 MeV-protons in graphite. From the measurement of the range of the  $\alpha$ -particles their energy spectrum was determined. The theoretically calculated evaporation spectra have shown a good accordance with the experimentally obtained data up to  $\alpha$ -energies of 10 MeV. The hypothesis that a reduction of Coulomb's "threshold" according to the Bohr theory, is required, was not applied. By subtracting the calculated from the experimentally found spectrum, the energy distribution of the cascades  $\alpha$ -particles and their relative number occurring with each process of evaporation (all represented by curves) could be determined for all 3 proton energies. There are 2 tables, 4 figures, and 27 references.

Card 1/2



ESTRUCUMOV, V I

AUTHORS: Ostroumov, V. I., Filov, R. A.

56-6-4/47

TITLE: Angular Correlation Between Fragments and the Charged Particles Emitted With the Fission of Uranium Nuclei (Ob uglovoy korrelyatsii mezhdru oskolkami i zaryazhennymi chastitsami, ispuskayemyimi pri delenii yadern urana)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1957, Vol. 33, Nr 6, 1335-1340 (USSR)

ABSTRACT: Nuclear emulsions of 100 and 200  $\mu$  thickness, which were saturated with an aqueous solution of  $\text{NaUC}_2(\text{C}_2\text{H}_3\text{O}_2)_3$ , were subjected to the action of a proton beam of 660 MeV. The fissioning of the uranium nucleus was connected with the forming of charged particles. A total of 3201 fissions (1156 in the thicker emulsion) were recorded. The "beam"-composition of the fission, i.e. the distribution of the light, charged particles produced by the fission, amounted to:

0 beams	- 43,7 %	1 beam	- 25,3 %	2 beams	- 15,7 %
3 beams	- 8,5 %	4 beams	- 4,2 %	5 beams	- 1,5 %
6 beams	- 0,8 %	7 and more beams	- 0,3 %	The ratio between	

Card 1/2

Card 2/2

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VAGANOV, P.A.; OSTROUMOV, V.I.

Alpha particles emitted by heavy nuclei embedded in the emulsion following high-energy proton bombardment. Zhur. eksn. i teor. fiz. 37 no.5:1131-1139 N 157. (MIRA 11:3)

1. Leningradskiy politekhnicheskij institut.  
(Alpha rays) (Protons)

V.I. OSTROUMOV, (N.S. Ivanova)

"ANGULAR CORRELATION OF CHARGED PARTICLES FROM FISSION OF URANIUM

NUCLEI INDUCED BY HIGH ENERGY PROTONS AND PI-MESONS"

21(7)

AUTHORS:

Ostroumov, V. I., Lazovlev, M. P.

SOV 86-35-775, 44

TITLE:

Multi-Charged Particles Emitted During the Nuclear Splitting of Carbon by Protons With Energies of 660 Mev (Mnogozaryadnyye chastitsy, vypuskayemye pri rasshcheplenii yader ugleroda protunami s energiyey 660 MeV)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 10, Nr 6, pp 1358-1363 (USSR)

ABSTRACT:

O.V. Lozhkin, N.A. Perfilov (Ref 1), V.M. Sidurov, Ye.L. Grigor'yev (Ref 2) as well as Ostroumov, Perfilov and H.A. Filov (Ref 3) already worked in this field. The results they obtained are discussed in short in the introduction. The authors themselves investigated multi-charged particles emitted by carbon nuclei bombarded with 660 Mev protons. The target consisted of a 20 $\mu$  thick polystyrene film which was pasted on to the photoplate. The fragments emitted by the film were recorded in the emulsion layer (F-7). Proton irradiation was carried out on the synchrocyclotron of the Obninsk (United Institute for Nuclear Research). Exposure was in three orientations of the emulsion towards the main direction of the beam: a) parallel, b) vertical, and c) at an angle of 30°. The results obtained by the investigations are very clearly shown by

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7,58-5-1-1,4  
Multi-Charged Particles Emitted During the Nuclear Splitting of Carbon  
Protons With Energies of 1.60 Mev

figures 1a and 1b:

Figure 1a shows the connection between the total structural thickness of the trace T and the particle range R at an angle of inclination towards the emulsion plane of up to  $30^\circ$ ; figure 1b shows the same for an angle between  $30$  and  $60^\circ$ . The curves (straights for  $\text{He}_2^4$ ,  $\text{Li}_3^8$ ,  $\text{B}_5^8$ , and  $\text{N}_7^{14}$  are within the ranges  $50 < T < 300$  and

$5 < R < 40\mu$ . Figure 2 shows the corresponding trace distribution according to T, and figure 3 shows the energy spectrum of the fragments with a range of  $>40\mu$ ; figure 4 shows the angular distribution of the fragments with respect to the proton beam compared with that calculated in reference 1. (The calculation method is discussed in an appendix to this paper). The authors further investigated the effective production cross section  $\sigma_{\text{frag}}$  for multi-charged particles

from C-nuclei. The proton flux was determined according to the number of stars formed in all plates on emulsion nuclei. The star production cross section is 1060 mb (Ref 6). For  $\sigma_{\text{frag}}$  the value  $1.4 \pm 0.5$  mb is given. This value holds for the emission of particles with a range of  $>20$  and a charge of  $>3$ . The effective

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SOV/56-35-6-1/44

Multi-Charged Particles Emitted During the Nuclear Splitting of Carbon by  
Protons With Energies of 660 Mev

cross section for the emission of a  $\text{Li}_3^8$ -nucleus with  $E > 10$  Mev is

equal to  $(5 \pm 2) \cdot 10^{-29} \text{ cm}^2$ . The experimental data obtained agree

well with those obtained by Lozhkin and Perfilov (Ref 1).  
In conclusion, the authors thank O.V. Lozhkin, Yu.I. Seretrennikov,  
and R.A. Filov for their help and discussions, and N.A. Perfilov  
for his interest in this work.- There are 5 figures and 2 references,  
6 of which are Soviet.

ASSOCIATION: Leningradskiy politekhnicheskij institut  
(Leningrad Polytechnic Institute)

SUBMITTED: June 16, 1958

Card 3/3

AUTHORS: Ostromov, V. I., Ierfilev, N. A., SU-56-11-1001  
Filov, R. A.

TITLE: Cascade  $\alpha$ -particles in Nuclear Fission Caused by  
Protons With Energies of 360 and 660 Mev (Kaskadnyye  
 $\alpha$ -chastitsy v yadernykh rasschepleniyyakh, proizvedennykh  
protonami s energiyey 360 i 660 MeV)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1964  
Vol 36, Nr 2, pp 367-371 (USSR)

ABSTRACT: In their introduction, the authors discuss the results obtained  
by several publications dealing with this subject (Refs 1-6).  
In the present paper investigations of stars containing tracks  
of  $\alpha$ -particles with energies above 30 Mev are reported.  
The investigations were carried out on photo-plates with a  
fine-grained nuclear emulsion F-2 sensitive to protons with  
30-40 Mev. The plates were subjected to the action of a 360  
and 660 Mev proton beam of the Ob'yedinennyy institut yadernykh  
issledovaniy (United Institute for Nuclear Research). Among the  
plates with stars containing  $\alpha$ -tracks ( $E_{\alpha} > 30$  Mev) only such  
were chosen for analysis in which the entire  $\alpha$ -particle track

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Cascade  $\alpha$ -Particles in Nuclear Fission  
 Caused by Protons With Energies of 360 and 660 Mev

SOV 56-16-2-4 13

was located in the photolayer and in which the track formed an angle of  $< 7^\circ$  with the emulsion plane. The star production cross sections for 360 Mev protons used were taken from the paper by Bernardini et al. (ref 2), and those for 660 Mev protons from that by Grigor'yev and Solov'yeva (ref 1). The plates investigated were divided into 3 groups: The first comprised all stars with tracks of a recoil nucleus; they are assumed to be the result of a disintegration of a heavy fission nucleus (here called T-stars). The second group comprises stars as have no visible tracks of a recoil nucleus (charge carried away  $< 8e$ ,  $E_\alpha < 8$  Mev or  $E_p < 4$  Mev) - disintegration of light nuclei, L-stars. Such stars are classed among the third group as cannot be classed either among the first or the second. The following was found:

				$\sigma_T$ [mb]	$\sigma_L$ [mb]
$E_p = 360$ Mev:	668 stars,	397 (T),	68 (L),	202 (T+L)	$65 \pm 15$ 17.6
$E_p = 660$ Mev:	600 "	363 (T),	77 (L),	160 (T+L)	$120 \pm 25$ 19.16



Cascade  $\alpha$ -Particles in Nuclear Fission  
Caused by Protons With Energies of 360 and 660 Mev

SOV, 50-16-1-1-67

The attempt is now made, by employing various methods, to estimate the share  $x$  of the L-stars in the third group: 1) according to the angular distribution of the fast  $\alpha$ -particles, 2) according to the radiation distribution of the stars, 3) according to  $\alpha/p$ , the ratio between the number of double-charge particles and that of single-charge particles in L- and T-stars, and 4) from a comparison between the results obtained with 660 Mev protons with those obtained by Serebrennikov (Ref 12) with C, O, and N-disintegrations. The results of this estimation is shown by table 2. The results obtained by the investigation of the angular distribution of  $\alpha$ -particles with  $E_{\alpha} > 30$  Mev is shown by figures 1a and 1b (660 Mev protons, 360 Mev protons) for T-stars, and figure 2 shows the same for L-stars. Radiation distribution is shown by figure 3 (T) and figure 4 (L). Further, the relative probability for  $\alpha$ -emission from light and heavy emulsion nuclei is investigated, as also the emission probability of nuclear fragments. Results are shown by diagrams (Figs 5a,b (T) and Figs 6a,b (L)). The emission of cascade  $\alpha$ -particles and

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Cascade  $\alpha$ -Particles in Nuclear Fission  
Caused by Protons With Energies of 360 and 660 Mev

SOV 56-16-2-4, 1956

fragments as a result of bombardment with protons of the same energies were found to be quite similar. This seems to indicate that the  $\alpha$ -particles are produced by the same type of mechanism. The authors thank G. V. Lozkin and Yu. I. Serebrennikov for their help and discussions. There are 6 figures, 3 tables, and 14 references, of which are 3-11.

ASSOCIATION: Radiyevyy institut Akademii nauk SSSR  
(Radium Institute of the Academy of Sciences, USSR)

SUBMITTED: June 28, 1956

Card 4/4

24.6200, 24.6600, 24.6510,  
24.6900, 16.8100

75,75  
SOV 20-37-4-1-1000

**AUTHORS:** Ivanova, N. S., Ostroumov, V. I., Pavlov, Yu. V.  
**TITLE:** Production of Multi-Charged Particles on Photographic  
Emulsion Nuclei by 280-mev  $\pi^+$ -Mesons

**PERIODICAL:** Zhurnal eksperimental'noy i teoreticheskoy fiziki,  
1959, Vol 37, Nr 6, pp 1604-1612 (USSR)

**ABSTRACT:** A study was made with the aid of photographic emulsion  
(relativistic type P-R and less sensitive type F-7)  
of the fragment production in nuclear disintegrations in-  
duced by 280-mev  $\pi^+$ -mesons. The angular, charge, and  
density distributions of the emitted fragments were  
measured and plotted on graphs. The stars formed by  
 $\pi^+$ -mesons were found to contain 223 fragments of which  
61 were located in the relativistic type emulsion. Some  
60% of all fragments were due to the interaction of  
 $\pi$ -mesons with heavy nuclei and 40% with light nuclei.

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Production of Multi-Charged Particles on  
Photographic Emulsion Nuclei by 280-mev  
 $\pi^+$ -Mesons

76 75  
SOV 57-37-1-1

The criterion of the subdivision of these classes was analogous to that of V. I. Ostroumov, N. A. Perfilov, and R. A. Filov (Zhur. eksp. i teoret. fiz., 30, 307, 1956), O. V. Lozkin, N. A. Perfilov (Ibid., 31, 211, 1956), and O. V. Lozkin (Dissertation, Radium Inst. Acad. Sciences, USSR, Leningrad, 1957). In the case of heavy nuclei, the relative yield of fragments of different charges was nearly independent of the energy of the bombarding particles. The comparison of the experimental data with the theoretical data showed that the particles responsible for the formation of fragments are protons produced in the absorption of  $\pi^+$ -mesons in quasi-deuteron pairs and also recoil nucleons produced in the scattering of  $\pi$ -mesons on separate nucleons of the nucleus. The fragmentation cross sections for heavy and light particles were found to be, respectively:  $(1.4 \pm 0.5)$  mbn, and  $(0.56 \pm 0.3)$  mbn. The ratio of

Card 2/4

Production of Multi-Charged Particles in  
Photographic Emulsion Nucleated by  $250\text{-mev}$

SOV/54-31-6-1-3

$\pi^+$  - Mesons

The probability of absorption according to scheme  
 $\pi^+ + d \rightarrow p + p$  ( $W_d$ ) and scheme  $\pi^+ + N \rightarrow \pi + N$  ( $W_f$ ),  
( $W_d + W_f = W_p = 1$ ). For  $\pi^+$ -mesons at the same energy

found, in accord with the results of other investigations  
(G. A. Belov, M. P. Komarov, Ya. Ya. Shalachen, V. A.  
Sheregov, and V. A. Sheregov, Zhurn. eksp. i teoret.  
fiz., 37, no. 1, 1968; G. E. Belovitskiy, ibid., 37,  
838, 1968). The experimental data did not absolutely  
support the probability of the absence of direct emission  
of fragments by mesons; however, this probability was a  
small one. S. A. Tarkovskaya and N. A. Perfilova  
made calculations in the course of this work. There  
are 5 figures; and 13 references, 8 Soviet, 5 Italian,  
1 French, 1 U.S. The U.S. references are R. Wolfgram,  
E. Breen, A. Carotto, J. Carring, G. Friedlander, J.

Card 3, 4

Production of Multi-Charged Particles at  
Photographic Emulsion Nuclear Track Counter

76 21  
SO7

$\pi^+$ -Mesons

Bull. Acad. Sci. USSR Div. Phys. Math. Sci. Ser. B, 1974, No. 1, p. 101-104;  
English transl. in Radiat. Environ. Biophys. 1974, 14, 1-4.  
Paper. Rep. No. 1000, 1974.

ASSOCIATION: Radiat. Inst. Acad. Sciences USSR (High Energy Division)  
Akademicheskaya SSSR)

SUBMITTED: J. J. ...

Card 4/4

21(7)

AUTHORS:

Ostroumov, V. I., Filov, R. A.

SOV/56-37-3-9/62

TITLE:

Knocking-out of  $\alpha$ -Particles From Nuclei by Fast Nucleons

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,  
Vol 37, Nr 3(9), pp 643-650 (USSR)

ABSTRACT:

In the introduction the authors discuss the results of other papers on this field (Refs 1-14), among others those by Meshcheryakov et al., which deal with the knock-out of fast deuterons from light nuclei by 660 Mev protons. It was the aim of the present paper further to deal with the question as to whether  $\alpha$ -particles exist within the nucleus, which, as a whole, take part in a cascade process. For the experimental investigation fine-grained photographic emulsions of the P-9 type were used, which were irradiated with 660, 360, 200, 140, and 100 Mev protons on the synchrocyclotron of the OIYaI (United Institute of Nuclear Research). The reduction of proton energy was brought about by slowing down the particles in a copper block of suitable thickness. With respect to the selection of stars and their classification criteria, a previous paper (Ref 15) is referred to. The experimentally found cross sections of  $\alpha$ -emission ( $E_{\alpha} > 30$  Mev) of light and

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Knocking-out of  $\alpha$ -Particles From Nuclei by Fast Nucleons SOV/56-37-3-9/62

heavy emulsion nuclei at various energies of the bombarding protons is shown by figure 1. The plotted errors comprise both statistical errors and such as originate from geometry. Calculation of cross sections is carried out by using the data of reference 18 concerning the elastic scattering of protons and neutrons with energies of up to 70 Mev on  $\text{He}_2^4$ -nuclei. In

this connection it is assumed that the nucleons in the nucleus possess definite momenta. The kinetic energy of the  $\alpha$ -particles in the nucleus is to assume the values  $W = 0, 5, 10, \text{ and } 20$  Mev. The results obtained by calculation are given by a diagram (Fig 3). The curves  $\sigma(E)$  for the four  $W$ -values show (beginning with 30 Mev) a steep slope and fall exponentially with increasing  $E$  after exceeding the maximum. In the following, the probability  $w$  of the existence of  $\alpha$ -particles in the nucleus is discussed. If the surface layer of the nucleus contains  $N_{\text{eff}}$   $\alpha$ -particles, and if  $N$  denotes the maximum possible number of these particles in the surface layer (for Ag and Br  $N=12$ , for light nuclei equal to 3), then  $N_{\text{eff}}/N = w$  and

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$$\sigma_{\alpha}(E_0) = Nw\bar{n}(E_0) \int_0^{E_0} f(E)\sigma(E)dE \quad (n \text{ is the number of cascade})$$



Knocking-out of  $\alpha$ -Particles From Nuclei by Fast Nucleons SOV, 56-37-1-2 62

nucleons of the energy  $E$ ,  $E_0$  (the proton energy). Figure 4 shows the course of the curve  $w(W)$  for light and heavy nuclei. The two curves take a parallel course immediately beside each other and  $w$  decreases exponentially with growing  $W$ . The probability of the existence of  $\alpha$ -particles  $w$  is calculated for the nuclei Ag, Br, C, O, and N for the four  $W$ -values and 6  $E_0$ -values and compiled in table 2. The results are discussed. The authors finally thank O. V. Lozhkin for his assistance in carrying out the experiments, Ye. I. Irokofova, N. K. Novikova, and Ye. V. Padina for evaluating the plates, and N. A. Perfilov for his interest and discussions. There are 4 figures, 2 tables, and 22 references, 7 of which are Soviet.

ASSOCIATION: Leningradskiy politekhnicheskii institut (Leningrad Polytechnic Institute)

SUBMITTED: April 11, 1959

Card 3/3

S/056/60 039 01 16 02  
B006/B063

*Ostroumov*

AUTHORS: Ostroumov, V. I., Perfilov, N. A., Filov, K. A.

TITLE: The Energy Spectrum of Cascade Alpha Particles<sup>19</sup> in Photoemulsion Stars Produced by High-energy Protons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 33, No. 1(7), pp. 105-107

TEXT: Following two previous papers (Refs. 1 and 2) in which a theoretical method was developed and similar problems were studied, the authors describe the calculation of the energy spectrum of fast cascade alpha particles, which was carried out to determine the velocity of the alpha particle in the nucleus (since the energy distribution of the recoil particles depends on their primary momentum). The formulas used for calculation were taken from the paper of Ref. 1. The model underlying the calculation is based on the assumption of single elastic collision between cascade nucleons and intranuclear alpha particles. The calculation was made for alpha particles departing with energies of more than 30 Mev during the disintegration of heavy photoemulsion nuclei. The disintegrations are assumed to have been

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The Energy Spectrum of Cascade Alpha Particles  
in Photoemulsion Stars Produced by High-energy  
Protons

5/056/60/039,01/16/023  
B006/B063

released by protons of 140, 200, 360, and 660 Mev. The accompanying figure shows the experimental  $\alpha$ -spectrum for  $T = 30$  Mev ( $T$  denotes the lower limit of the kinetic energy of the  $\alpha$ -particles), which was obtained by observing stars of Ag and Br nuclei induced by 660-Mev protons (the alpha spectra taken at proton energies of 140, 200, and 360 Mev have the same shape). The diagram also contains the theoretical distribution curves; these calculations were made for different kinetic energies,  $W$ , of intranuclear alpha particles; the diagram shows the curves obtained for  $W = 0$  and  $W = 5$  Mev. The theoretical curve for  $W = 5$  Mev gives a better description of the experimental distribution than the theoretical curve for  $W = 0$  Mev. This means that an alpha particle moving in the nucleus is more probable in this model than an alpha particle at rest. As the curves calculated for  $W = 5 + 20$  Mev practically yield the same results, the authors studied the momentum distribution of alpha particles in the nucleus. It was found that the best values for  $W$  were obtained between 5 and 10 Mev. In Ref. 4  $W = 6$  was found for alpha particles in the  $C^{12}$  nucleus. There are 1 figure and 4 references: 3 Soviet and 1 French. /E

Card 2/3

*ESTRONG, J.*

*21-2000*  
*24-0800*

8/25/80/318/02/00/001  
BOOK/2011

ARTICLE:

STRONG, J. M., "Fragmentation of  $\alpha$  and  $\beta$  nuclei at proton energies of 1 MeV"

ORIGIN:

Fragmentation of  $\alpha$  and  $\beta$  nuclei at proton energies of 1 MeV

PERIODICAL:

Phys. Rev. Lett., Vol. 39, No. 2, pp. 345 - 350

NOTE: The authors of the paper under review offer the first results obtained from their investigation of  $\alpha$  and  $\beta$  fragmentation nuclear disintegration in multicharged particles with  $Z = 4$  by using a (P-R) small emission chamber consisting of ten layers of silicon detectors (200  $\mu$ m thick) were irradiated on the proton beam. The (P-R) joint histogram of nuclear fragments with  $Z = 1$  and  $Z = 2$  is presented. The authors interpret the interpretation of the emission, such nuclear disintegration were selected as contained tracks of particles with  $Z = 4$ .

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Fragmentation of  $\alpha$  and  $\beta$  nuclei at proton energies of 1 MeV  
BOOK/2011

Depending on the proton energy, the disintegrations were divided into three groups ( $E_p < 30$  MeV), ( $30 < E_p < 50$  MeV), and ( $E_p > 50$  MeV). For the charge determination, the integral track ratio was determined with an order of magnitude. In interpreting the results, the authors found that disintegrations with four or more protons each, being less than one, as analysis revealed 100 ordinary ones having fragments with  $Z = 4$ . Further 100 events were established, in which such fragments occurred that is a total of 300 disintegrations having fragments with  $Z = 4$ . Another 200 events were also determined, in which such fragments occurred that is a total of 200 disintegrations with fragments with  $Z = 4$ . The average number of particles per track is higher in disintegration with fragments than it is in ordinary disintegrations, especially in disintegrations with several fragments and in each with four fragments. For these reasons fragments with  $Z = 4$  in  $\alpha$ - and  $\beta$ -disintegration it was found to be 100  $\pm$  30 and etc.

Card 2/4

Fragmentation of  $\Lambda$  and  $\Sigma$  baryons at proton 5/29/62/039/02/06/001  
Berkov of 9 MeV 800/8011

about 10% of the total isotopic surface  $\Lambda$  and  $\Sigma$  baryons. Fig. 2 illustrates the fragmentation cross section as a function of  $E_p$ . In the range of proton energies around 1 MeV there appears a steep climb of the cross section of  $\Lambda$  baryons in fragmentation production. The quantity of stars with two or more traces of multi-charged particles is found to grow with the energy of bombarding protons. At  $E_p = 9$  MeV this relative quantity amounts to 0.7, at 60 MeV 0.25 only. 4) Nature of fragments. Fig. 3 shows the charge distribution of the fragments. The number of particles decreases in a practically linear manner with growing charge. The charge distribution differs only little from the one found at lower energies of the bombarding particles. 5) Angular and energy distributions of the fragments. Their angular distribution was determined by a method by V. I. Galimov and B. A. Pitsyn. It is illustrated in Fig. 4 with respect to the proton direction of incident protons. Distributions with fast fragments and slow fragments are shown. The latter become more isotropic with increasing fragment energy. The forward-backward ratio  $R_{FB}$  at  $E_p = 100$  MeV. The angular distribution is less anisotropic at 9 MeV with respect to the proton direction.

Card 3/4

Fragmentation of  $\Lambda$  and  $\Sigma$  baryons at proton 8/29/62/039/02/06/001  
Berkov of 9 MeV 800/8011

tion than it is at 9 MeV. The three diagrams of Fig. 5 show the energy distribution for particles with the charges 4, 5 and 6. It is really little dependent on  $E_p$ . 6) Fig. 7, 8) Superfragment production. Three cases of a hyperfragment production (one of them with a charge equal to 6) were recorded among the 27 fragmentation events. The authors finally thank the team of the Laboratory of Nuclear Energy of the Joint Institute of Nuclear Research for assistance given in the irradiation of the emulsion chamber. There are Figures 1, 2, 3, 4, 5 and 9 references. 6 Soviet and 1 reference.

Card 4/4

AS XIARICUS Ballyeriy unitive Akantani kod 558 (Belgian Institute  
of the Academy of Sciences 558  
August 1, 1951

PERFILOV, N.A.; IVANOVA, N.S.; LOZHKIN, O.V.; MAKAROV, M.M.; OSTROUMOV, V.I.;  
SOLOV'YEVA, Z.I.; SHAMOV, V.P.

Fragmentation of Ag and Br nuclei by 9 Bev. protons. Zhur. eksp. i  
teor. fiz. 38 no.2:345-350 F '60. (MIRA 14:5)

1. Radiyevyy institut Akademii nauk SSSR.  
(Protons) (Nuclear reactions)

51753

S/O58/61/00001/79212

AO58/A101

246600

AUTHORS: Afanas'yev, B.P. Ostroumov, V.I.

TITLE: Investigation of the 100-Mev proton induced  $C^{12}(p, p')3\alpha$  reactionPERIODICAL: Referativnyy zhurnal. Fizika, no. 11, 1961, 79, abstract 11P177  
(Nauchno-tekhn. inform. byul. Leningr. politekhn. in-t, 1961, no. 11, p. 8 - 13)

TEXT To study the character of the  $C^{12}(p, p')3\alpha$  reaction  $H_{100}$ -E-90 nuclear photoplates were irradiated with an ОИЯИ (ОГУАИ) synchrocyclotron beam of protons that had been decelerated in a copper block down to 100 Mev.  $E_{\alpha}$ ,  $E_{p'}$  and the angle of emergence of  $p'$  were determined in 50 three-pronged stars induced by  $\alpha$ -particles arrested in the layer. The three variants of the reaction that are possible at the given energy are examined: 1) breakup of the  $C^{12}$  nucleus simultaneously into 3  $\alpha$ -particles, 2) inelastic scattering with decay of the excited nucleus:  $C^{12}(p, p')C^{12*} \rightarrow Be^8 + 3\alpha$  and 3)  $C^{12}(p, p')Be^8 \rightarrow 2\alpha$ . Analysis of the energy spectrum of the alpha particles and of the distribution of the number of three-pronged stars with respect to the magnitude of the least angle between two prongs, the distribution of the number of  $\alpha$ -particle pairs with

Card 1/2

31703  
S/058/F1/000/011 70.2/20  
A058/A101

Investigation of the 100-Mev proton ...

respect to the magnitude of the excitation energy of  $Be^8$ , the angular distribution of the "primary"  $\alpha$ -particles and the scattering-angle dependence of the energy of the scattered proton gives reason to infer that the  $Cl^{35}(p, p')Be$  reaction at  $E_p = 100$  Mev takes for the most part the third course indicated above

A. Beinyakov

[Abstracter's note: Complete translation]

Card 2/2



OSTROUMOV, V. I.

PHASE I BOOK EXPLOITATION

SOV 6254

Perfilov, Nikolay Aleksandrovich, Oleg Vladimirovich Lozhkin, and Vsevolod Ivanovich Ostroumov

Yadernyye reaktsii pod deystviyem chastits vysokikh energii (Nuclear Reactions Under the Action of High-Energy Particles) Moscow, Izd-vo AN SSSR, 1962, 250 p. Errata slip inserted, 3000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR, Radiyevyy institut im. V. G. Khlopina.

Eds. of Publishing House: I. V. Suvorov and T. I. Kulagina, Tech. Ed. M. N. Kondrat'yeva.

PURPOSE: The book is intended for experimental physicists and radiochemists concerned with the investigation of nuclear reactions at high energies, as well as for students in advanced courses in the physics of atomic nuclei.

Card ~~H9~~

1/2

Nuclear Reactions (Cont.)

SOV 625

COVERAGE: The book investigates collision processes of high-energy ( $10^0$  to  $10^4$  Mev) particles with atomic nuclei, presents experimental results on nuclear reactions, and discusses theoretical concepts on the interaction of nuclear particles. Experimental methods for the investigation of nuclear reactions are described. No personalities are mentioned. References accompany each chapter.

TABLE OF CONTENTS:

Preface

PART I. THEORETICAL CONCEPTS OF THE INTERACTION OF HIGH-ENERGY PARTICLES WITH NUCLEI

Ch. 1. Optical Model:	
1. Preliminary remarks	5
2. Basic conditions of optical model	8

Card ~~0/0~~  
2/2

43361

S/056/62/043/005/004/058  
B163/B186

AUTHORS: Bogatin, V. I., Novak, Z., Ostroumov, V. I.

TITLE: Disintegration of the  $C^{12}$  nucleus into three  $\alpha$ -particles as a result of inelastic scattering of 80 MeV  $\pi^+$ -mesons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 5(11), 1962, 1582-1591

TEXT: Plates with a  $\pi$ P- (PR-) type fine grain nuclear emulsion were bombarded at an angle of  $4^\circ$  by  $\pi^+$ -mesons with a momentum of  $(170 \pm 8)$  MeV/c, corresponding to an energy of 80 MeV, from the Dubna synchro-cyclotron. 393 stars formed by the traces of the primary pion, three  $\alpha$ -particles, and the scattered pion were evaluated. The resulting geometrical parameters of the visible traces agreed with the conservation of momentum for the reaction  $C^{12} + \pi = \pi' + 3\alpha$ . The cross section of this reaction was found to be  $(14.6 \pm 3.6)$  mbarn; this figure does not include the cases of inelastic scattering of the pion in which the 7.66 Mev state of  $C^{12}$  is excited. The angular distribution of the scattered pions shows a Card 1/4

Disintegration of the  $C^{12}$  nucleus ...

S/O56/62/043/005/004/058  
B163/B186

strong backward anisotropy which does not vary much with varying energy loss  $U_C = \sum T_\alpha + \epsilon$  in the scattering event, where  $T_\alpha$  are the kinetic energies of the  $\alpha$  particles, and  $\epsilon = 7.28$  Mev the "thermal" effect of the reaction  $C^{12} \rightarrow \beta\alpha$ . The distribution of the number of stars over  $U_C$  shows a distinct peak, evidently corresponding to an excitation of the 9.65 Mev level of  $C^{12}$ . An excitation of the 7.66 Mev level is difficult to observe in this experiment, and peaks at higher energies (14, 16 and 18 Mev) are not as clearly resolved. The distribution of the number of all possible pairs of  $\alpha$ -particles in the stars over the excitation energy  $U_{Be} = U_C - \frac{3}{2}T_1 - \epsilon_1$  of the intermediate  $Be^8$  nucleus has a distinct peak at  $U_{Be} = 0$ . Here  $T_1$  is the kinetic energy of the "first"  $\alpha$ -particle not contained in the  $Be^8$  intermediate nucleus, and  $\epsilon_1 = 7.38$  Mev, the thermal effect of the reaction  $C^{12} \rightarrow Be^8 + \alpha$ . This peak at  $U_{Be} = 0$  indicates that  $Be^8$  as an intermediate system is formed in the disintegration process. If the number of combinations of particles for which  $U_C > 20$  Mev, and  $U_{Be} > 0.5$  Mev, Card 2/4

Disintegration of the  $C^{12}$  nucleus ...

S/056/62/043/005/004/058  
B163/B186

i. e. the number arising from simultaneous breakup of the  $C^{12}$  nucleus, is plotted against  $U_{Be}$ , there is poor agreement with the theoretical distribution according to Sachs' model (Phys. Rev. 103, 671, 1956); whereas much better agreement with theory is achieved if the resonance interaction of the  $\alpha$ -particles is taken into account. Cases where  $8.5 \text{ Mev} < U_C < 10.5 \text{ Mev}$ , and  $U_{Be} < 0.5 \text{ Mev}$  contributing about 20% to the cross section are considered as processes in which the primary pion excites the  $C^{12}$  nucleus to the 9.63 Mev level. This, in turn decays into a "first"  $\alpha$  particle and  $Be^8$ . The energy distribution of these "first" particles has a maximum at 1.5 Mev which is in good agreement with the assumption  $U_C = 9.63 \text{ Mev}$ . Angular correlations are studied between the direction of the "first"  $\alpha$  particle and the plane of pion scattering, between the plane of formation of the excited 9.63 Mev state and plane of its decay, and between the direction of flight of the excited  $C^{12}$  nucleus and the line of its decay. The strong correlations which are found indicate that the spin of the 9.63 Mev level exceeds 1. There are  
Card 3/4

Disintegration of the  $C^{12}$  nucleus ...

S/056/62/043/005/004.058  
B163/B186

13 figures.

ASSOCIATION: Leningradskiy politekhnicheskii institut (Leningrad  
Polytechnic Institute)

SUBMITTED: May 5, 1962

Card 4/4

L 30976-66 EWT(m) IJP(c)

ACC NR: AP6002448

SOURCE CODE: UR/0057/65/012/2227/2227

035/

24

B

AUTHOR: Ostroumov, V.I.; Stabnikov, M.V.ORG: Physico-technical Institute im. A.F.Ioffe, AN SSSR, Leningrad (Fiziko-  
tekhnicheskiy institut AN SSSR)TITLE: Use of nuclear emulsions together with bubble chambers 19

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 12, 1965, 2227

TOPIC TAGS: nuclear emulsion, bubble chamber, inelastic scattering, nuclear reaction

ABSTRACT: Advantages are pointed out of locating nuclear emulsion targets within bubble chambers. High energy particles that leave the emulsion and therefore cannot be well identified by nuclear emulsion techniques will be recorded in the bubble chamber, and low energy particles that would not be recorded in the bubble chamber owing to their short ranges will be recorded in the emulsion. Moreover, the tracks in the chamber will serve to locate the event in the emulsion, thus saving much valuable scanning time. It is proposed that the bubble chamber be designed with a central channel for the beam, as described by L. Guottigo and H. Mark (NSI, 31, 1040, 1960) and by P. Vatsset and V. Voloshchik (Ukr. fiz. zhurn. 6, No. 2., 181, 1961), and that the nuclear emulsion be located within this channel. The proposed technique should be useful for investigating absorption of mesons by nuclei and quasielastic scattering of high energy protons and mesons with emission of low energy particles.

SUB CODE: 20,18

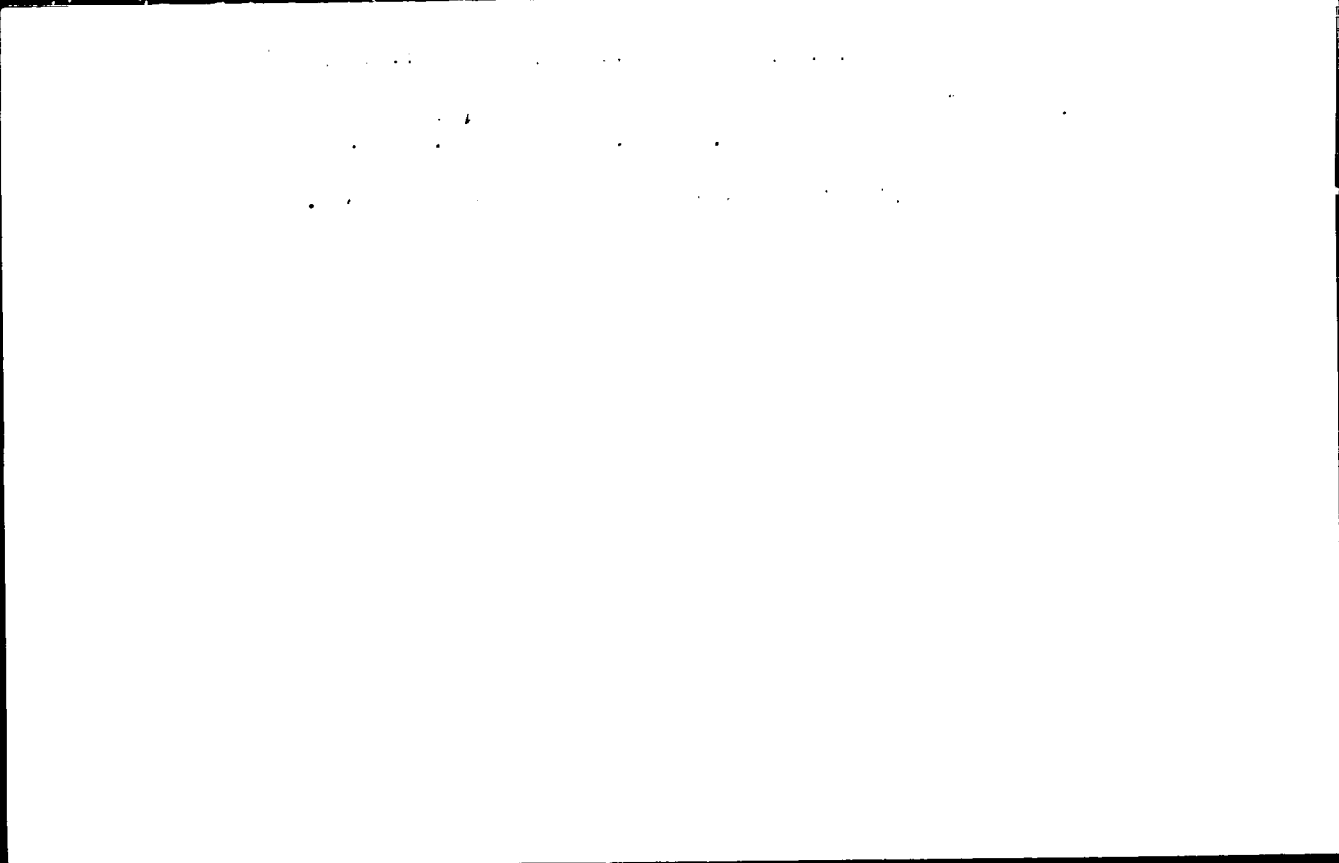
SUBM DATE: 19May65

ORIG. REF: 000 OTH REF: 001

Card 1/1

"APPROVED FOR RELEASE: 06/15/2000

CIA-RDP86-00513R001238510003-8



APPROVED FOR RELEASE: 06/15/2000

CIA-RDP86-00513R001238510003-8"



AFANAS'YEV, B.P.; OSTROKHOV, V.I.

Cross sections of certain reactions due to the absorption of  
fast  $\gamma$ -rays by light nuclei. Dokl. Akad. Nauk SSSR no. 6:  
1255-1256 D 1964 (USSR 1964:1)

1. Leningradskiy politekhnicheskii institut im. M.I. Kalinina.  
Predstavleno akademikom B.P. Konstantinovym.

ACCESSION NR: AP4029689

S/0089/64/016/004/0296/0300

AUTHORS: Gagarin, Yu. F.; Ostroumov, V. I.

TITLE: The influence of the recoil effect on the angular correlation between the fragments and the charged particles released by uranium nuclear fission

SOURCE: Atomnaya energiya, v. 16, no. 4, 1964, 296-300

TOPIC TAGS: nuclear emulsion, angular correlation, high energy proton, fragment divergence, recoil effect, evaporation particles, synchrocyclotron, recoiling impulse, asymmetric fission, excessive fragment

ABSTRACT: The nuclear emulsion method was used to study the angular correlation between the fragments and the charged particles released in the fission of uranium nuclei by high-energy protons. The observable results included a predominant escape of  $\alpha$ -particles at a  $90^\circ$  angle in the direction of the divergent fragments, and an excessive escape of charged particles in the direction of the heavier fission fragment. The correlation was more distinct in the case of

Card 1/3

ACCESSION NR: AP4029689

the alpha particles than the protons. This, according to Le Couëur (Proc. Phys. Soc. A63 (1950) 59) and Segre (Ekperimental'naya yadernaya fizika (Experimental Nuclear Physics) vol. 2, Moscow, Publication of foreign literature publishing house, 1955, page 154), is due to the recoil effect produced by the evaporation of the charged particles. The purpose of this project is to take a closer look at the recoil effect of the evaporating neutrons and charge particles on their angular distribution in relation to the fission fragments. The experiment involved the use of plates with a P-9 type fine-grained, low-sensitivity nuclear emulsion with uranium. An extracted proton beam with an energy of 660 Mev was used for irradiation purposes in a synchrocyclotron of the United Institute of Nuclear Research. The resulting angular distributions of the alpha particles and protons revealed the following characteristics: a) an average of 56% alpha particles and 52% protons were directed toward the heavy fragment; b) the flow of the particles in the direction of the heavy fragment increases in the case of asymmetric fission. Thus, the recoil phenomenon explains the observable flow of excessive charged particles toward the heavy fission fragment. Orig. art. has: 2 figures and 1 table.

Card 2/3

ACCESSION NR: AP4029689

ASSOCIATION: None

SUBMITTED: 20Jun63

DATE ACQ: 01May64

ENCL: 00

SUB CODE: PH, NS

NR REF SOV: 006

OTHER: 004

Card 3/3

PUTINTSEVA, M.A.; BODRILINOV, A.Z.; OSTROUKOV, V.L.; PUTINTSEV,  
Ye.A.; SIDASHOV, A.I.; KHOMENKO, V.A.; LETNEV, B.Ya.,  
red.; KOPYAKOVA, G.H., tekhn. red.

[Technical maintenance of machines and tractors by expert  
machine adjusters] Tekhnicheskoe obsluzhivanie mashinno-  
traktornogo parka masterami-naladzhikami. Moskva, Sel'-  
khozizdat, 1963. 87 p. (MIRA 16:10)  
(Agricultural machinery--Maintenance and repair)

PUTINTSEVA, M.A.; BODRTDINOV, A.Z.; OSTROU'OV, V.L.; PUTINTSEV,  
Ye.A.; SIDASHOV, A.I.; KHOMENKO, V.A.; LETNEV, B.Ya.,  
red.; KOBYAKOVA, G.N., tekhn. red.

[Technical maintenance of machines and tractors by expert  
machine adjusters] Tekhnicheskoe obsluzhivanie mashinno-  
traktornogo parka masterami-naladshikami. Moskva, Sel'-  
khozizdat, 1963. 87 p. (MIRA 16:10)  
(Agricultural machinery--Maintenance and repair)

С. П. ПИМОВ, В. М.

Список литературы. 1977. кн. 1.  
№ 1: 5-17.

Работы в области информатики в  
Советском Союзе. 1977. кн. 1.

OSTROUMOV, V.M.; RUSSIKH, A.M.

Mass observations of natural phenomena by elementary school  
students of grades 3 and 4. Izv. Alt. otd. geog. ob-va 1955  
no.5:209-210 165. (MIRA 18:1)

1. Altayskiy otdel Geograficheskogo obshchestva Soyuza SSSR.



OSTROUCHOV, V.M.

Intensity of plasma current in the tokamak is limited by the  
Birn-Langevin limit. The limit is reached when the plasma  
current is equal to the critical current.

1. Average plasma current is limited by the critical current.

OSTROUMOV, V.N., mayor med. sluzhby

Athletic injuries in garrison units. Voen.med.shur. no.3:88 Nr 157.  
(SPORTS--ACCIDENTS AND INJURIES) (MIRA 11:3)

OSTROUMOV, Vladimir Pavlovich; YELIZAVETIN, Mikhail Alekseyevich;  
BRASLAVSKIY, V.M., inzh., retsenzent; SALETIN, Yu.M., inzh.  
retsenzent; LUGINA, N.A., tekhn. red.

[Increasing the strength of gear wheels] Povyshenie prochnosti  
zubchatykh kolez. Moskva, Mashgiz, 1962. 89 p. (MLA 15:8)  
(Gearing) (Metals--Hardening)

OSTROUNOV, V.P., kand.tekhn.nauk

Effect of lubricant on the smoothness of the machined surface in  
broaching alloyed steel. [Trudy] Izh.mekh.inst. no.2:82-86 '59.  
(MIRA 13:10)

(Broaching machines)

(Surfaces (Technology))

OSTROUMOV, V.P.

Hydroabrasive treatment of springs made of patented B1 wire.  
Metalloved. i term. obr. met. no.11:42-43 N '63. (MIRA 1963)

1. Izhevskiy mekhanicheskii institut.

1100

23266  
3.23/6.1/100  
A 4/A: 4

AUTHOR: Ostroumov, S. I.  
TITLE: The effect of lubrication on the finish of the worked surface during the broaching of alloyed steels.  
PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 5, 1959, pp. 52-53, 5B266 (In Russian; key text in English, pp. 52-53)

TEXT: As a result of investigations it was found that the utilization of a special emulsion as lubricating and cooling fluid reduces the magnitude of surface roughness ( $H_{CK}$ ) in comparison with the sulfonozol P grade by 50-100% and compared with working without lubrication by 200-400%. In the feed range coarse finishing finish broaching (0.5-0.75 mm) a change in the roughness along with an increase in the thickness of cut when working with a special emulsion is not directly taking place by the same regularity, since the straight lines characterizing the growth of  $H_{CK}$  during the cooling by a special emulsion or sulfonozol are parallel. The capacity of lubrication to facilitate metal dispersion and reduce the outer and inner friction in the cutting process is particularly high in the case of

Card 1/2

25206

The effect of lubrication on the surface

of the surface  
of the surface

finish working by broaching. To a great extent this is promoted by the cutting speed and the lubrication of the tool.

of the surface

[Abstractor's note: Complete translation]

Card 2/2

OSTROUDOV, V.P., kand.tekhn.nauk

Formation of surface microroughness in broaching alloyed steel.  
[Trudy] Ish.mekh.inst. no.2:72-81 '59. (MIRA 13:10)  
(Broaching machines) (Surfaces (Technology))



OSTROUMOV, V.I.; KARUMIN, V.A.

Universal machine for the dynamic testing of springs. Zav.lab. 26  
no.8:102--1026 '60. (MIRA 13:10)

1. Izhevskiy mekhan cheskiy institut.  
(Spirngs (Mechanism)--Testing)

SOV/3-58-11-29 48

AUTHOR: Ostrovskiy, V. I., Docent; Institute Director

TITLE: The Scientific Interests of the Chairs of General Engineering are Expanding (Rasshiryayutsya nauchnyye interesy obshchetechnicheskikh kafedr)

PUBLICATION: Vestnik vysshey shkoly, 1968, Nr 11, pp 23 - 25

ABSTRACT: The basic chairs of the Izhevsk Mechanical Institute, such as the Chair of Technology of Machine Construction, Chair of Treating Metals by Pressure, Chair of Metal Cutting Machines and Instruments, have from the beginning joined in the research work, in problems of machine construction, automation of industrial processes, reducing the weight and extending the service life of machines, improving the technological processes of treating metals, as well as economics and organization of production. The research is conducted on the basis of economic agreements with the sovmarkhoz and the plants of the Ndmurt administrative economic region. The Institute is endeavoring to arrange that the instructors of all chairs, including the general engineering and general theoretical, participate in the scientific work. The author lists a number of studies that are being done by the various chairs and mentions in this connection doctor of technical sciences, professor V. I. Varkhlyev - head of Chair of Machine

Part 1

The Scientific Interests of the Chairs of General Engineering are ex-  
panding

1958-11-29/18  
Parts, Candidate of Technical Sciences, Docent V. V. Verbitskiy, head of  
the Chair of Strength of Materials, Candidate of Technical  
Sciences, Docent V. M. Kuravlev - head of the Chair of  
Technology of Metals and of Metallurgical Science, Senior  
Instructor N. S. Golubkov, Assistant I. M. Troitskiy, Senior  
Instructors V. M. Grigor'yev and N. G. Vinogradova.

ASSOCIATION: Izhevskiy mekhanicheskiy institut (Izhevsk Mechanical In-  
stitute)

Card 2/2

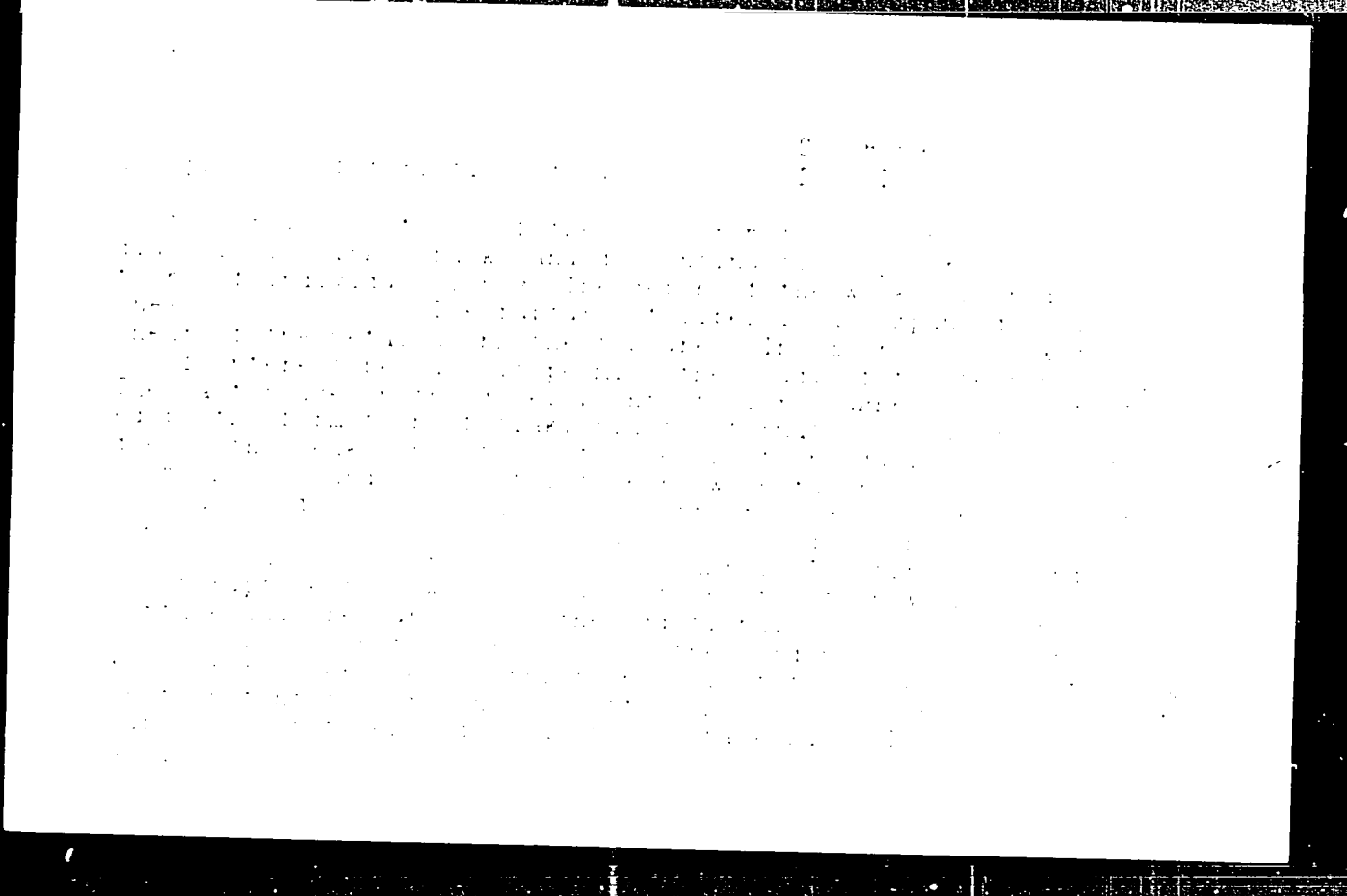
SECRET

AUTHOR: [Illegible]

TITLE: [Illegible]

SUBJECT: [Illegible]

TEXT: The article discusses the... [Illegible text]



The process of formation of

SECRET  
DISTRIBUTION

These layers are formed by the migration of the...  
and upward of...  
and...  
...

Card 2

S. 708 19 011711 1959  
D. 21 D301

AUTHOR: Ostroumov, V. P., Candidate of Technical Sciences

TITLE: The effect of lubrication on the finish of the machined surface during broaching of alloyed steels

SOURCE: Izhevsk Mekhanicheskiy Institut Voprosy teoreticheskoy metallologii i obrabotki stankov i mekhanicheskoy obrabotki, no. 1, 1959, 82 - 86

TEXT: The effect of lubrication on the microroughness during broaching was investigated with components made of OX41M (OKhN-M) steel. The workpieces exhibited a sorbitic structure with some fine pearlite and martensite. Two types of lubricant were used: Special emulsion and mark V (R) of sulfafrezol. In addition to dry operation. The emulsion contained mineral and vegetable oil mixed with water. Graphs of the character of chip deformation for different conditions of cut and various conditions of lubrication are given. The relationship between the radius of the chip curvature and the type of lubricant as well as the depth of cut is also illustrated. The micrograph Card 100

I 23739-66 ENT(m)/T/EWA(h)

ACC NR: AP6014818

SOURCE CODE: UR/0367/6:/001/004/0647/0651

AUTHOR: Afanas'yev, B. P.--Afansyev, B. P.; Ostroumov, V. I. 2/4  
B

ORG: none

TITLE: N sup 14 (pi, 2p)3 sub alpha reaction with 80-MEV ± -mesons 19

SOURCE: Yadernaya fizika, v. 1, no. 4, 1965, 647-651

TOPIC TAGS: meson, nitrogen, nuclear emulsion, particle cross section, angular distribution, proton, alpha particle, carbon

ABSTRACT: The  $N^{14}(\pi, 2p)\alpha$  reaction with 80-mev  $\pi^+$ -mesons was studied by the method of nuclear emulsions. It was found that the effective cross section of the reaction was  $27.4 \pm 7.2$  mbn. It follows from the proton angular and energy distributions that the mechanism of the meson absorption is quasideuteron and is realized mostly on p-shell nucleons. Possible energy states of a system of two and three  $\alpha$ -particles are investigated. The probability of exciting the  $C^{12}$  nucleus to an energy of 13 mev is found to be quite considerable. The authors thank V. F. Kosmach for his assistance in carrying out the calculations; N. S. Zelenskaya for participating in the discussions of the results; and A. I. Mukhin for helping to arrange the experiments. Orig. art. has: 8 figures. [Based on authors' Eng. abstract] [JPRS]

SUB CODE: 20 / SUBM DATE: 03Oct64 / ORIG REF: 007 / OTH REF: 003 2Card 1/1 *Ukr*



OSTROUMOV, V.P., kand.tekhn.nauk, dotsent; KARPUNIN, V.A., kand.tekhn.nauk

Testing springs under dynamic loading. Izv.vys.ucheb.zav.;  
mashinostr. no.1:64-69 '61. (MIRA 14:4)

L. Izhevskiy Mekhanicheskiy institut.  
(Springs (Mechanism)---Testing)

OSTROUMOV, Vladimir Pavlovich; KARPUNIN, Vasilii Aleksandrovich; BERMISHEV,  
A.V., kand. tekhn. nauk, retsenzent; VOLKOV, S.D., kand. fiz.-mat.  
nauk, red.; DUGINA, N.A., tekhn. red.

[Increasing the dynamic strength of springs] Povyshenie dinamicheskoi  
prochnosti pruzhin. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit.  
lit-ry, 1961. 110 p. (MIRA 14:10)  
(Springs (Mechanism))

OSTROUMOV, Valentin Sergeyevich; SHEVCHUK, Aleksandra Vasil'yevna;  
SHENTSIS, Ye.M., red.; KAPRALOVA, A.A., tekhn. red.

[Capital assets of the U.S.S.R.; methods of accounting and  
statistics] Osnovnye fondy SSS ; voprosy metodologii ucheta i  
statistiki. Moskva, Gosstatizdat, 1963. 190 p.

(MIRA 16:5)

(Capital) (Industrial statistics)

OSTROJMCV, V.P.

Effect of shot peening on the relaxation of stress in springs.  
metalloged. 1 term. obr. met. no.11:47 N '64. (MIRA 18:4)

1. Izhevskiy mekhanicheskiy institut.

OSTROUMOV, Valentin Sergeyevich; GORELIK, Vera Semenovna; BELYAKOV, A.,  
otv.red.; KONDRAT'YEVA, A., red.izd-va; TALEGINA, T., tekhn.red.

[Organization of work on the revaluation of fixed assets] Orga-  
nizatsiia raboty po pereotsenke osnovnykh fondov. Moskva, Gos-  
finizdat, 1959. 101 p. (MIRA 12:12)  
(Valuation)

Ostroumov, Valentin Sergeyeovich

Osnovnyye fondy SSSR; voprosy metodologii ucheta i statistiki (by) V.S. Ostroumov  
(1) A.V. Shevchuk. Moskva, Gosstatizdat, 1963.

190 p. graphs, tables.

Bibliography: p. (151)

*1. RUSSIA - FINANCE*

LUKIN, Lev Ivanovich; OSTROUF'OV, Valentin Sergeevich; RYABUSHKIN, T.V.,  
doktor ekon. nauk, prof., red.; GRYAZNOV, V.I., red.; VOLCHEK,  
V.L., tekhn. red.

[Organization of statistics in foreign countries] Organizatsiia sta-  
tistiki v zarubezhnykh stranakh. Pod red. T.V.Riabushkina. Moskva,  
Gosstatizdat, TsSU SSSR, 1961. 245 p. (MIRA 14:12)  
(Statistics)

L 19624-65 EWT(m)/EWP(t)/EWP(b) IJP(c)/RAEM(a)/SSD/AFWL/ESD(gs)/ESD(t)

JD

ACCESSION NR: AP5000508

S/0080/64/037/011/2431/2437

AUTHOR: Sty'rkas, A. D.; Ostroumov, V. V.; Anan'yeva, G. V.

TITLE: Simultaneous electrolytic precipitation of antimony and indium from non-aqueous solutions <sup>13</sup>

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 11, 1964, 2431-2437

TOPIC TAGS: nonaqueous electrolysis, ethylene glycol electrolyte, quartz electrode, indium refining, antimony refining, indium antimonide, electrolytic precipitation

ABSTRACT: The difficulties associated with the aqueous electrolysis of indium and antimony sulfates were avoided by using ethylene glycol for a solvent and substituting  $\text{In}_3(\text{SO}_4)_2$  with water of crystallization which is still soluble in ethylene glycol. Solutions were electrolyzed under carbon dioxide, separating the anode from the cathode with a porous glass partition, and using quartz cathodes coated with a  $0.1\mu$  layer of antimony and heated in hydrogen to increase adherence. With a constant current density of  $10 \text{ ma/cm}^2$ , at  $20\text{C}$  and an indium sulfate content of  $0.05\text{N}$ , the antimony content of the deposited layer was found to increase with  $\text{Sb}_3(\text{SO}_4)_2$  concentration. Current density had practically no effect on the composition of the layer obtained from a  $0.05\text{N}$  solution of both sulfates.

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L 19624-65

ACCESSION NR: AP5000508

corresponding to a 1:1 ratio of the metals, but above 2 ma/cm<sup>2</sup> the yield was sharply reduced. The porous and crumbling nature of the deposits could not be improved by raising the electrolysis temperature from 20 to 160C. They always contained crystals of antimony, indium, and SbIn, indicating the presence of an activation barrier in the reactions of antimony and indium supplied by electrolysis. Heating in hydrogen increased the InSb content at the expense of the pure metals. Orig. art. has: 6 figures.

ASSOCIATION: none

SUBMITTED: 10Jul63

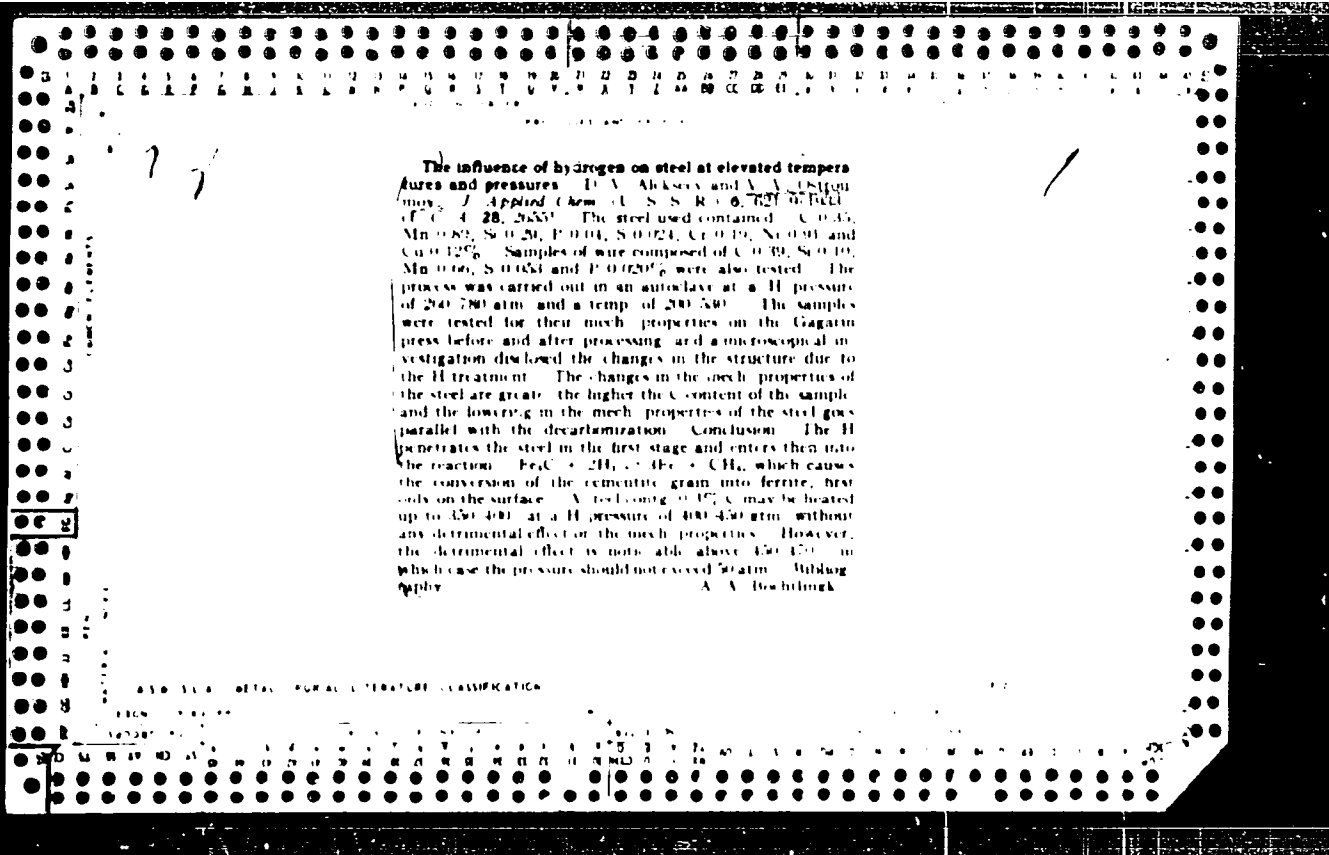
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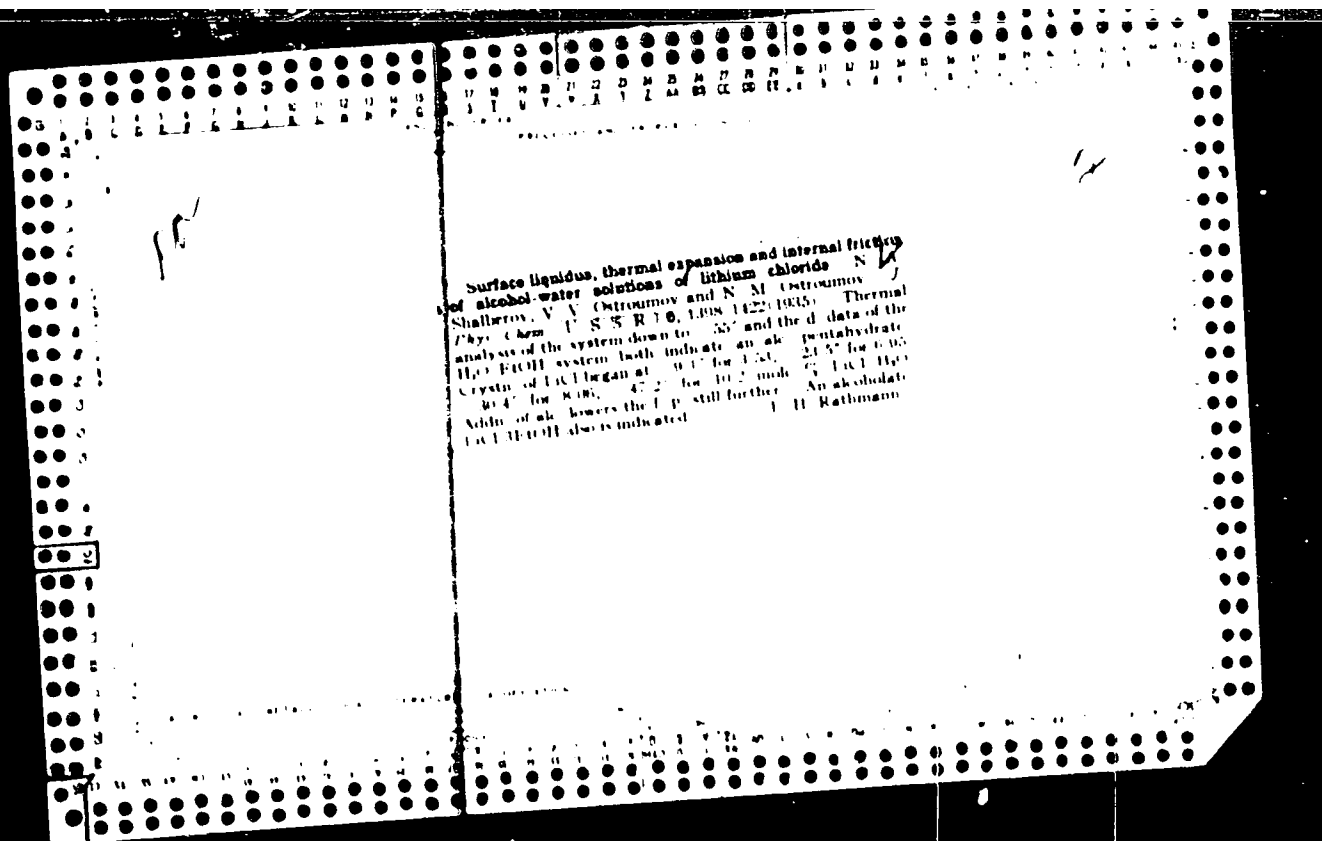
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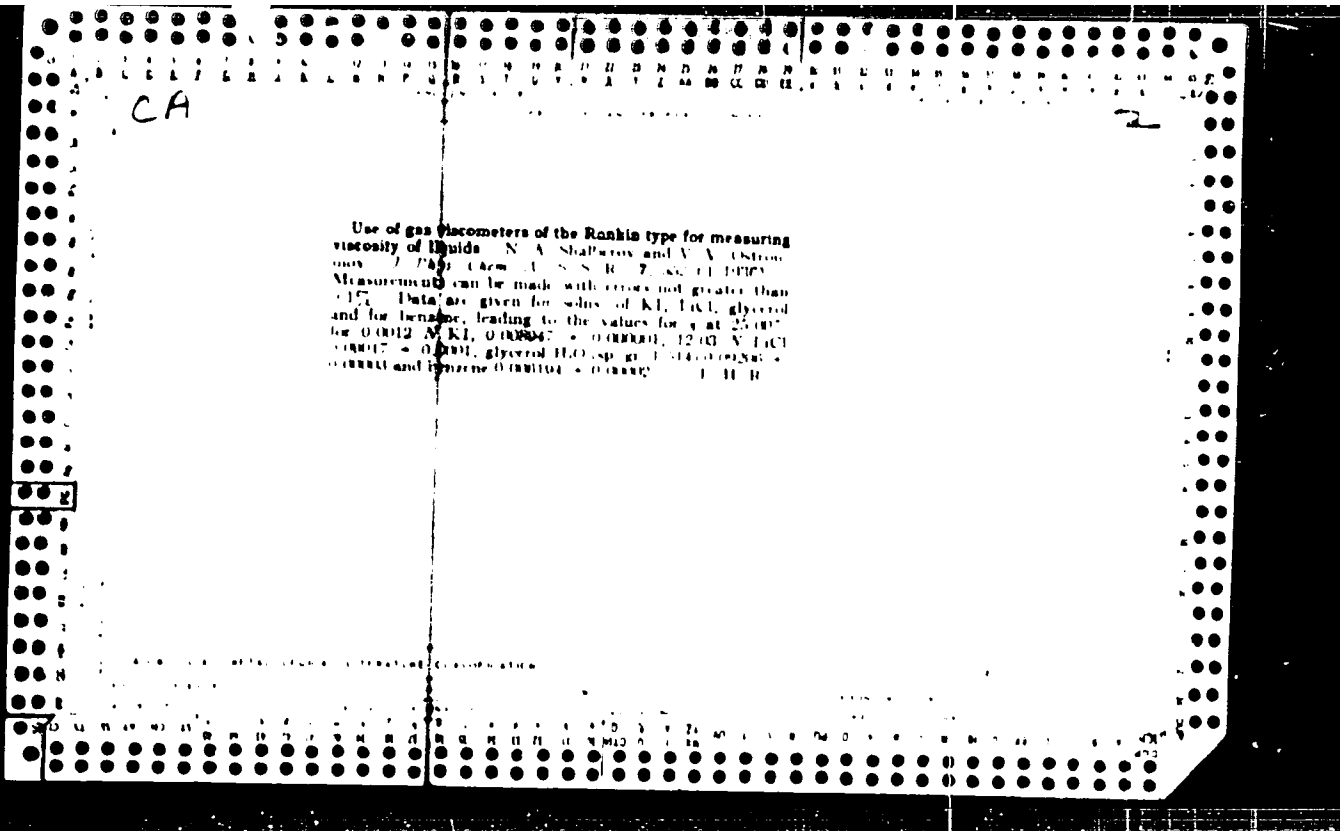
NO REF SOV: 007

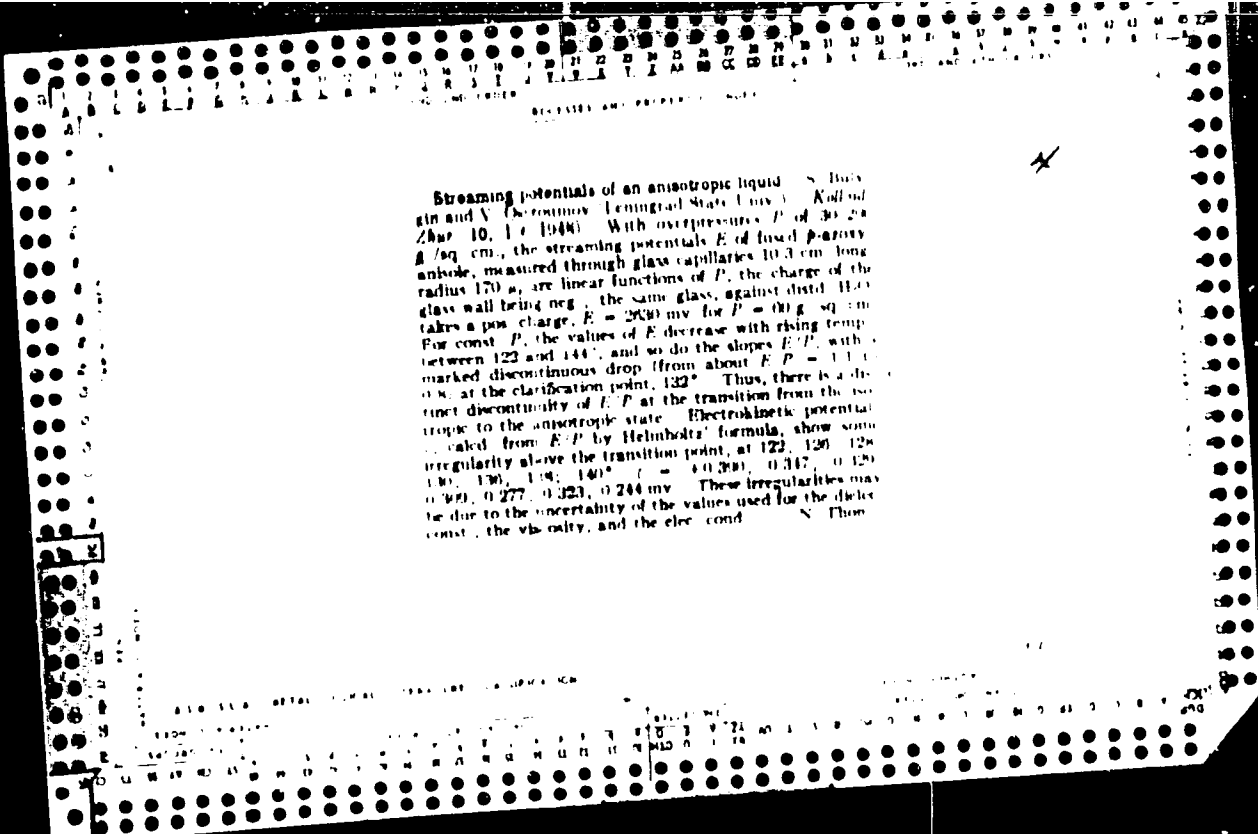
OTHER: 004

Card 2/2









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Streaming potentials in fine-pore quartz membranes  
A. G. Samartsev and V. V. Ostrosov. *Kolloid Zhur* 12, 136-43 (1950). - The streaming potential  $E$  mv. was proportional to the driving pressure  $P$  up to 300 g.wt./sq

cm. The ratio  $E/P$  was smaller, the greater the concn. of the NaCl soln. pressed through the quartz powder column and the smaller the powder particle diam.  $D$ . E.g., in  $10^{-2}$  N NaCl,  $E/P$  was 11, 10, 2.1, and 0.5 and in 0.05 N NaCl 0.046, 0.041, 0.032, and 0.026 for  $D = 11\mu, 39, 10, \text{ and } 1\mu$ , resp. The elec. cond. of NaCl solns. in quartz powder column was greater than in the absence of powder in the ratio  $\epsilon$ . If  $\epsilon$  was assumed to be one for 0.1 N KCl, it was, e.g., 1.25, 1.13, 1.06, and 1.04 for  $D = 189$  and 1.57, 1.26, 1.13, and 1.06 for  $D = 39\mu$  and  $10^{-2}$  N,  $10^{-3}$  N,  $10^{-4}$  N, and 0.02 N NaCl, resp. If the  $E/P$  values are multiplied by  $\epsilon$ , the dependence of  $E/P$  on  $D$  almost disappears; this fact shows that this is caused by surface conductance. J. J. Bikerman

OSTROUMOV, V.V.

Influence of some organic substances on the process of palladium  
plating. Zhur.prikl. khim. 31 no.3:402-408 Mr '58.

(MIRA 11:4)

(Palladium) (Electroplating)

PA 19677

OSTROUMOV, V. V.

USSR/Chemistry - Electrokinetic  
Potential

Sep/Oct 51

"Electrokinetic Potential in Diaphragms With  
Fine Pores," V. V. Ostroumov, Leningrad

"Kolloid Zhur" Vol XIII, No 5, pp 371-378

This is a theoretical discussion and mathemat-  
ical treatment in which the author concentrates  
on the behavior of double elec layers in narrow  
capillaries. He disagrees with Helmholtz's as-  
sumption that the thickness of the double layer  
is negligible in relation to the capillary's  
radius and considers the effect of compression  
of the double layer in narrow capillaries.

19677



OSTROUMOV, V.V.

Method for comparative evaluation of hardness of thin specular  
layers of metals. Zav.lab.22 no.11:1348-1350 '56. (MLRA 10:2)  
(Metals--Testing)

OSTROUMOV, V.V. (Leningrad)

Mechanical stresses in electrolytic palladium depositions [with  
summary in English]. Zhur.fiz.khim.31 no.8:1812-1819 Ag '57.

(MIRA 10:12)

(Palladium) (Electroplating)

O STROUMOV, V.V.

Date: 4/23/4820

27  
 ✓ Mechanical stresses in electrolytic palladium deposits.  
 V. V. Stroumov, *Zh. Fiz. Khim.* 31, 1915-19 (1957).  
 The stresses in electrodepositd Pd were detd. by measuring the deflections of a flexible brass or stainless steel cathode, one end of which was firmly held, with the Pd deposited on one side of the cathode only, while the reverse side was coated with a thin layer of an insulator. The mech. stresses were calcd. by Brenner and Senderoff's formula (C. r. 43, 6315c). The stresses depended on the conditions during the electrolysis of baths contg. 1, 2, 6, and 20 g. Pd, 100 g. Na<sub>2</sub>HPO<sub>4</sub>, 20 g. (NH<sub>4</sub>)<sub>2</sub>HPO<sub>4</sub>, 25 g. NH<sub>4</sub>Cl, and aq. NH<sub>3</sub> to pH 9. H evolved on the cathode formed an unstable system with Pd which was destroyed by O reaching the cathode from the soln.; H was eliminated both during the electrolysis and when the current was turned off. H-intercalation into the Pd lattice increased the vol. of the solid phase (owing to the formation of the  $\alpha$ - and  $\beta$ -phases), and the elimination of H resulted in a compression of the deposit, which produced inner stresses, which frequently caused cracks and a peeling off of the deposit from the electrode. Factors which favored an increase of H formation during the electrolysis increased also the mech. stresses in the deposit. A supersat. of the deposit with H resulted in the formation of H bubbles which dilated the deposit temporarily, but this disappeared when the current was turned off. The unstable Pd-H system was more readily formed when Pd and H were discharged simultaneously than when H satd. the previously deposited Pd. The mech. compression stresses in the Pd deposit reached 7000 kg./sq. cm. W. M. Steenberg

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*[Handwritten signature]*

Ost no umov, V.V.

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✓ Electrolytic deposition of palladium in potassium hydroxide solutions. Ost no umov, *Zhur. Priklad. A.kim.* 31, 77-88(1968). — Deposition of Pd from solns. contg. 20-200 g. KOH and 0.5-3 g. Pd (as PdCl<sub>2</sub>) was studied with c.d.s. of 2-7 ma./sq. cm. The solns. were prepd. by the addn. of 3 g. Pd/l. to a soln. of 200 g. KOH/l. (the order of addn. is important) at room temp. and dilg. it as necessary. The current efficiency  $\eta$  with a brass electrode in a static electrolyte contg. 60 g. KOH and 0.5 g. Pd/l. increased from 6 to 20% as the c.d. decreased to 1 ma./sq. cm. In stirred solns.  $\eta$  increased, passing through a max. at 82% and a c.d. of 4 ma./sq. cm. The low  $\eta$  in a stationary soln. was ascribed to H formation and the max. in stirred solns. to the oxidation of H by atm. O<sub>2</sub>. Without stirring, highly reflective surfaces were obtained with c.d.s. of 1-10 ma./sq. cm. In stirred solns. cloudy, spongy deposits were obtained at c.d.s. of 0.4-2.0 ma./sq. cm., dark, spongy deposits at 2-3 ma./sq. cm., and highly reflective surfaces in the 3-10 ma./sq. cm. range. It was postulated that above the limiting c.d. (2.5 ma./sq. cm.) a phase formed, which after electrolysis, decompd. to form a phase and H.

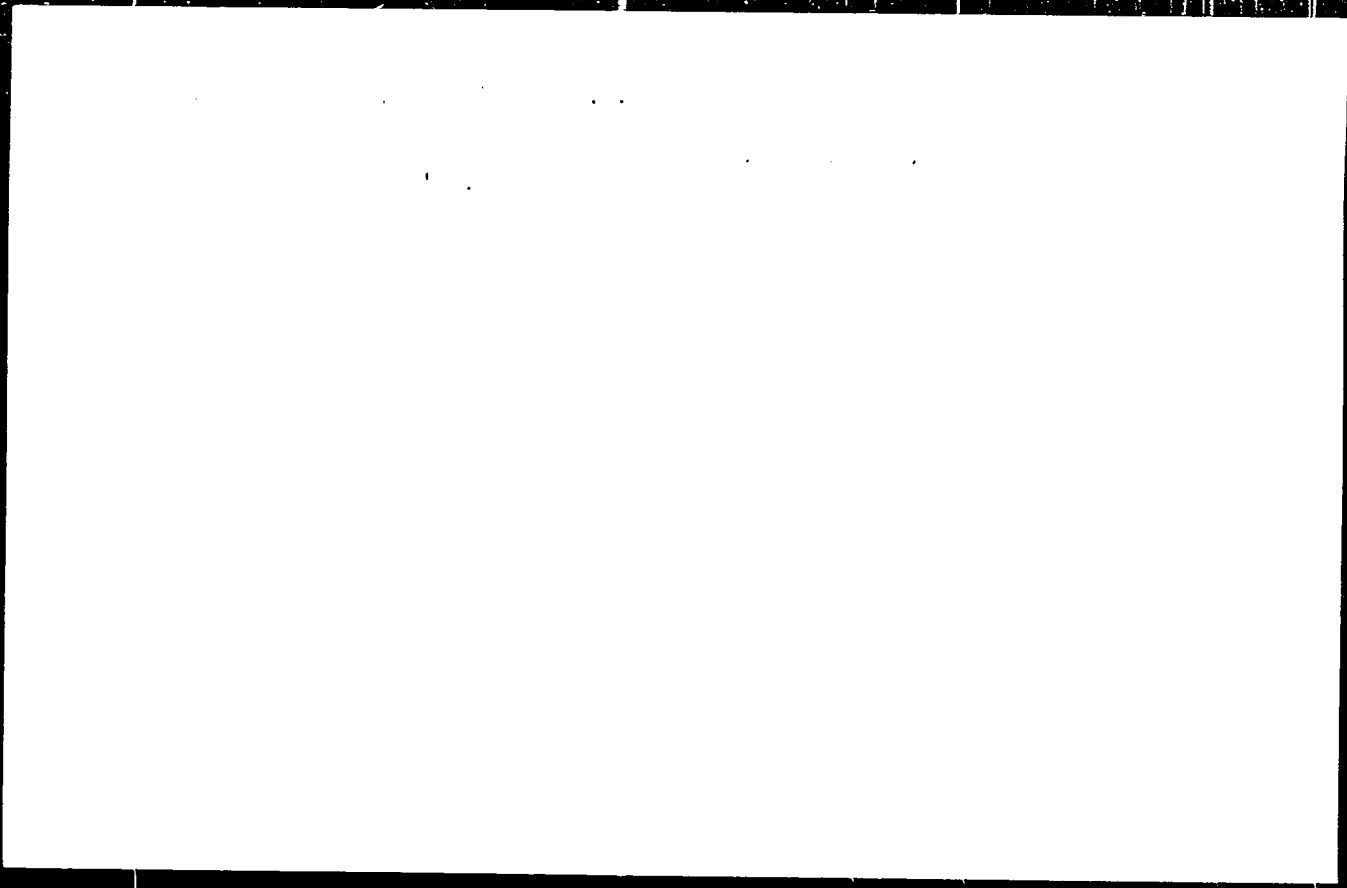
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ASTROM, V. V.

Electrolytic deposition of germanium. Zhurnal Fiz. Khim. 38:1190-1191, 1964. J1 '64. MIRA 18:1

"APPROVED FOR RELEASE: 06/15/2000

CIA-RDP86-00513R001238510003-8



APPROVED FOR RELEASE: 06/15/2000

CIA-RDP86-00513R001238510003-8"

I 34478-65 EWT(m)/EWP(t)/EWP(b) IJP(c) JD

ACCESSION NR: AP5008264

3/0054/65/000/001/0106/0114

AUTHOR: Styrkas, A. D.; Ivanov, A. I.; Ostroumov, V. V.TITLE: Electrolytic deposition of indium 21SOURCE: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii, no. 1, 1965,  
106-114TOPIC TAGS: indium deposition, electrolytic deposition, cathodic deposition, bright  
indium deposit

ABSTRACT: Cathodic deposition and anodic dissolution of indium in aqueous indium sulfate solutions have been studied because of increasing demand for indium, especially for the manufacture of transistors. Experiments were carried out with an indium-plated platinum disc electrode in an electrolyte which contained indium sulfate (with or without sodium sulfate addition), and in a CO<sub>2</sub> atmosphere. The pH was adjusted with sulfuric acid. A porous membrane separated the cathodic from the anodic compartment. Cathodic and anodic polarization curves revealed the great influence of the pH on the equilibrium potential of the indium electrode and the value of exchange current for the electrode. The limiting current value for indium deposition increased with an increase in pH or by stirring the electrolyte at a pH above a

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ACCESSION NR: AP5006264

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certain [unspecified] value. The effect of the pH is explained by the change in concentration of potential-forming hydrolysed indium ions. The role of disproportionation of  $In^{3+}$ ,  $In^{2+}$ , and  $In^{1+}$  ions as the deposition rate-controlling process is stressed and a tentative mechanism of deposition is proposed. In this connection, the crystalline structure of deposits was examined. The assumption was made on the basis of disproportionation reactions that bright, fine crystalline indium deposits could be obtained by means of a periodically reversed current. Bright indium deposits with above 70% reflecting power were obtained in preliminary tests by using the technique of periodically reversed current. Orig. art. has: 5 figures, 1 table, and 8 equations. [JK]

ASSOCIATION : none

SUBMITTED: 05Nov63

ENCL: 00

SUB CODE: IC, CC

NO REF SOV: 008

OTHER: 010

ATD PRESS: 3213

Card 2/2



L 41382-65 EWT(m)/ENG(m)/EWP(b)/T/EWP(t) IJP(c) RWF/JD/JK  
ACCESSION NR: AP5009302 S/0364/65/001/003/0304/0310

AUTHOR: Ostroumov, V. V.

TITLE: Electrodeposition of metals on the surface of germanium

SOURCE: Elektrokhimiya, v. 1, no. 3, 1965, 304-310

TOPIC TAGS: electroplating, electrochemistry, germanium electrode, copper plating, gold plating, cyanide electrolysis

ABSTRACT: The processes of electrocrystallization of copper and gold on the surface of germanium during electrolysis of cyanide solutions ( $\text{CuCN}$ ,  $\text{NaCN}$ ,  $\text{HAuCl}_4$ ) were investigated. Current - potential curves were used to study the deposition processes. A layer of copper-germanium alloy was found to be formed (for which the formula  $\text{Cu}_3\text{Ge}$  is proposed) between germanium and copper. Similarly, a gold-germanium alloy was formed during the electrodeposition of gold on germanium. These processes are not similar, however: the absence of polarization peaks during the deposition of copper from a pure cyanide electrolyte and their presence during the deposition of gold indicates that the electrodeposition of the gold-germanium alloy takes place with greater difficulty than that of the copper-germanium alloy. Orig. art. has: 10 figures.

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L 41382-65

ACCESSION NR: AP5009302

ASSOCIATION: None

SUBMITTED: 17Jan64

ENCL: 00

SUB CODE: IC, MM

NO REF SOV: 005

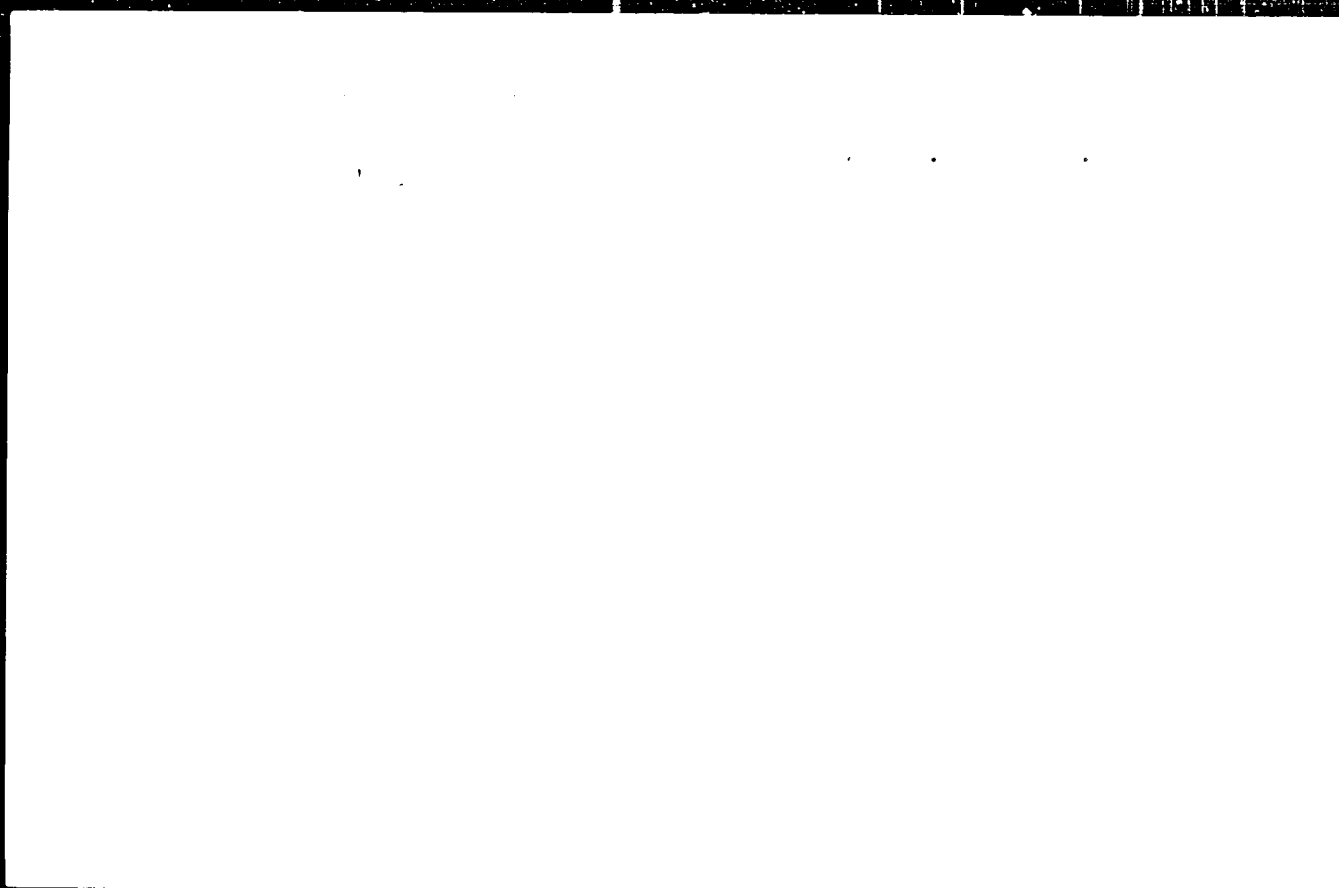
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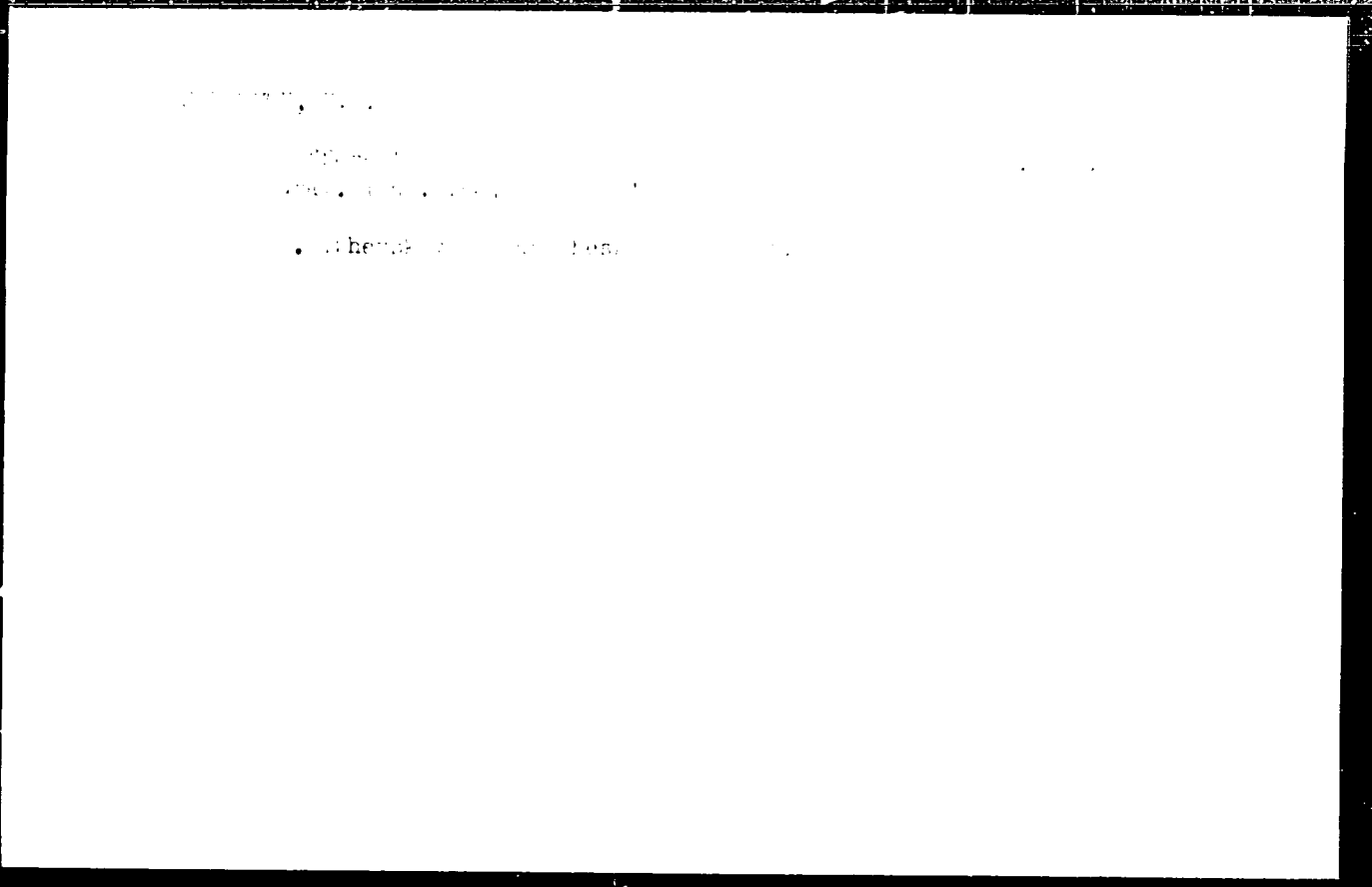
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APPROVED FOR RELEASE: 06/15/2000

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L 57732-65 EWT(m)/T/EWP(t)/EWP(k)/EWP(b)/EWA(c) Pf-4 IJP(c) JD

ACCESSION NR: APS017093

UR/0032/165/031/017/0829/0829

AUTHOR: Voyevodskiy, A. S.; Isayev, V. V.; Ostroumov, V. V.

TITLE: Electrolytic cutting of monocrystals of indium antimonide

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B

SOURCE: Zavodskaya laboratoriya, v. 31, no. 7, 1965, 829

TOPIC TAGS: electrolytic cutting, indium antimonide, anodic cutting, ethylene glycol, glycerin, anode slime, platinum string, cutting string, monocrystal cutting, reversible current, electrolyte, acetic acid

ABSTRACT: The current methods of electrolytic cutting, developed for germanium and silicon, are not suitable for indium antimonide. The authors established that the anodic cutting of indium antimonide is in principle possible in diluted aqueous and anhydrous (ethylene glycol) solutions of hydrofluoric and acetic acids. This is not, however, an efficient technique because the cut is too wide (2-3 mm) and clogged with anode slime, and the cutting rate is too slow. Therefore, the authors experimented with electrolytic cutting by means of reversible current which ensures the alternating action of anode and cathode polarization on the specimen. The periodic short cathode-current pulses remove the anodic oxide film. The elec-

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ACCESSION NR: AP5017093

trolytic cutting was performed with the aid of a vertical stretched string of 0.1-mm diameter platinum wire continually wetted with a stream of electrolyte containing (in % by volume): acetic acid 20, glycerin 20, water 60. The monocrystal was clamped in a holder and advanced at a uniform rate against the string by means of a synchronous motor. The periodic reversal of the direct current was automated. Cutting regime: anode-current pulses of 4 sec duration; current density, 10.5 a per  $\text{cm}^2$  of active surface of the string; voltage 4 volts; cathode-current pulses of 1 sec duration; current density 4.2 a per  $\text{cm}^2$ ; voltage 46 volts. Under these conditions a sufficiently level, clean cutting surface is obtained, with the cut being 0.3 mm wide. The cutting rate for a 1.5 mm thick sheet reached 14 mm/hr. To reduce the cut width to ~0.1 mm, electrolyte of the following composition (in % by volume) was used: acetic acid 1, ethylene glycol 99. Anode and cathode current density ~3.5 a/ $\text{cm}^2$ ; voltage ~40 volts. Diameter of platinum string: 30  $\mu$ . Duration of anode and cathode current pulses: the same as above. Owing to the reduced current density the cutting rate slowed down to 6 mm/hr.

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: EE, PM

NR REF SOV: 002

OTHER: 000

Cell 2/2

ACCESSION NR: AP4041801

8/0080/64/037/007/1612/1615

AUTHOR: Ostroumov, V. V.; Anan'yeva, G. V.

TITLE: Electrolytic layer of germanium

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 7, 1964, 1612-1615

TOPIC TAGS: germanium, electrodeposition, electroplating, nonaqueous electrolyte, impurity reduction, ethylene glycol, ethylene chlorohydrin, deposit brightness, amorphous structure, polycrystalline structure, electrical resistance, p type conductivity, annealing, scaling, vacuum deposition, hole conductivity

ABSTRACT: The conditions for electrodepositing germanium from nonaqueous solution, and the structure and properties of the electrodeposit were examined. The amount of impurities was reduced by separating the cathode and anode with a porous glass filter and using high purity graphite anode. The electrolyte comprised a 5% solution of  $\text{GeCl}_4$  and ethylene glycol. The ethylene chlorohydrin formed at the anode during the electrolysis decreased the cathodic yield and reduced the brightness of the deposit. A 20 micron deposit of germanium was obtained in 7-9 hours of electrolysis. X-rays indicated this material to be amorphous, but heating to

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ACCESSION NR: AP4041797

8/0080/64/037/007/1483/1490

AUTHOR: Ostroumov, V. V.

TITLE: Electrodeposition of germanium

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 7, 1964, 1483-1490

TOPIC TAGS: germanium, electrodeposition, electroplating, electrolysis, aqueous solvent, nonaqueous solvent, copper germanium alloy, germanium containing alloy, germanium tetraiodide, germanium tetrachloride, ethylene glycol, propylene glycol, ethylene chlorohydrin

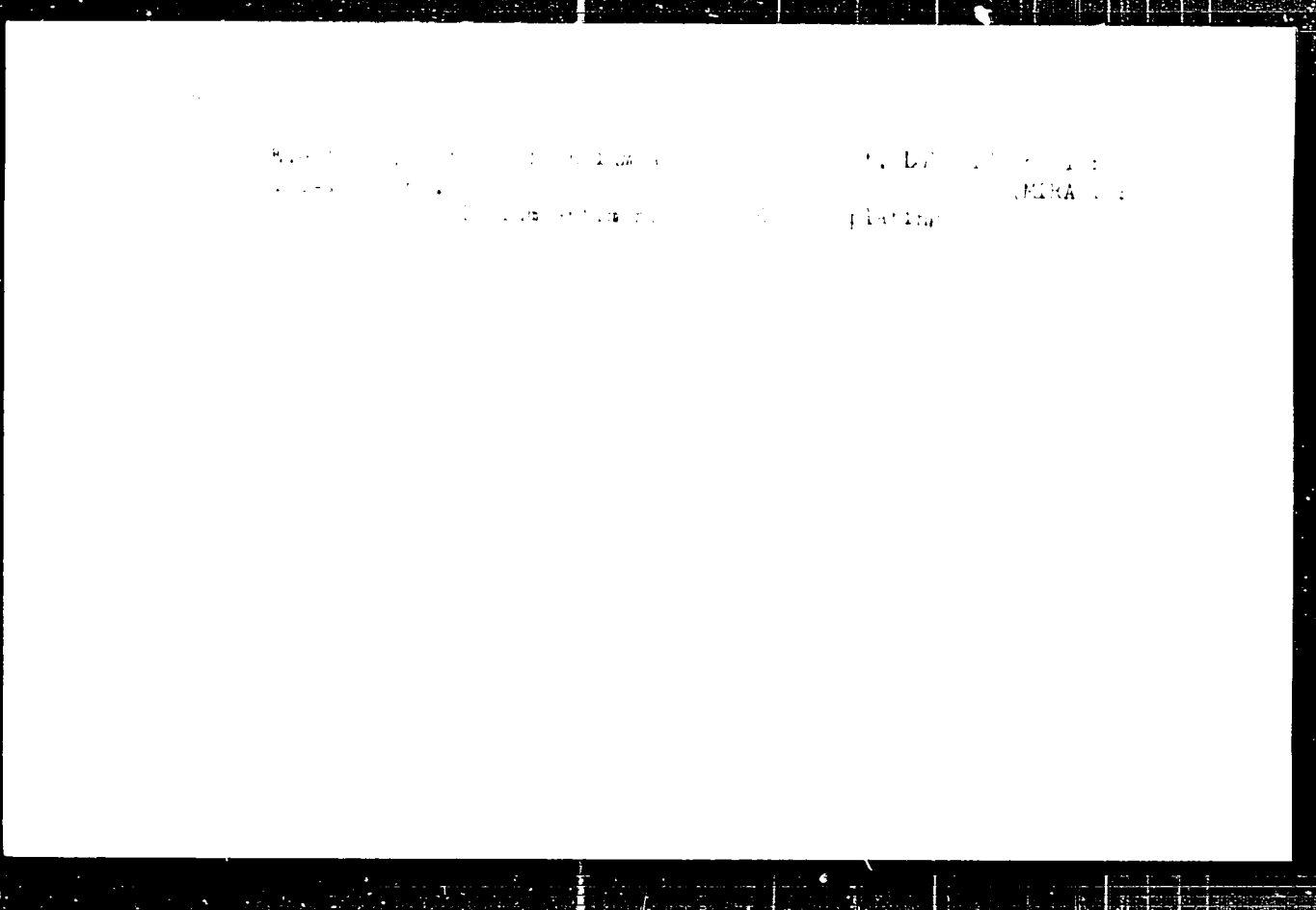
ABSTRACT: The electrolysis of solutions of germanium salts in aqueous and non-aqueous solvents was investigated and the properties of the electrodeposits were determined. It was found that not even thin layers of germanium were formed on the cathode by electrolysis of aqueous alkali or sulfide solutions using platinum cathodes. When copper or brass cathodes were used there was no electrodeposition at first, but then a series of bright germanium-containing deposits were obtained. The copper cathode first dissolved in the aqueous alkaline electrolyte, then was deposited as a copper-germanium alloy. The attempted electrolysis of solutions of

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· EWP(q)/EWT(m)/BDS/ES(v)-2 AFFTC/APGC/ASD/ESD-3/SSD Pub-4

RH/JD

ACCESSION NR: AP3004082

S/0069/63/025/004/0392/0397

AUTHOR: Voyevodskiy, A. S. (Moscow); Ostroumov, V. V. (Moscow)

TITLE: Electrophoretic deposition of strontium titanate

SOURCE: Kolloidnyy zhurnal, v. 25, no. 4, 1963, 392-397

TOPIC TAGS: ferroelectric film, high-dielectric-constant film, strontium titanate, barium titanate, methanol, organic dispersing media, colloidal suspension, strontium titanate suspension, electrophoresis, electrophoresis rate, zeta potential, suspension aging, strontium oxide dissolution, streaming potential, strontium titanate diaphragm, titanium dioxide diaphragm, isopropyl alcohol

ABSTRACT: The electrophoresis of strontium titanate [colloidal] suspensions has been investigated as a method of depositing a ferroelectric film with a high dielectric constant on a platinum glass plate. Suspensions containing 1-10 g of strontium titanate per 100 ml of a liquid dispersing phase were prepared by grinding the mixtures in a colloid ball mill. Suspensions prepared with methanol or isopropyl alcohol were found to be the most stable. Only methanol was used in the subsequent experiments. Electrophoretic films deposited on

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L 14419-63

ACCESSION NR: AP3004082

the cathode [at room temperature] acquired high mechanical strength after heat treatment at 1200C for 2-3 hr. They had a dielectric constant of about 3000 at room temperature. The weight, and hence the thickness, of the films was found to increase when suspension concentration, electrophoresis time, or potential gradient were increased. The weight increase was linear in the 2-10 min interval. Commutation (or dispersion) time is also a factor determining cathodic deposit weight, as shown in Fig. 1 of the Enclosure. Two sets of experiments showed that 1) electrophoresis of a freshly prepared suspension produced a deposit heavier than that of a suspension previously subjected to electrophoresis, and 2) a weight decrease occurred on electrophoresis of a suspension prepared with methanol pretreated by application of an electric current. It was concluded that current flow through either a suspension or pure methanol produces an accumulation in the liquid of electrolysis products which are detrimental to the electrophoretic-deposition rate. These products cause the anomalous peak on the curves of weight versus dispersion time (Fig. 1). The decrease in deposit weight with aging of the suspension is a result of the change in zeta potential and in electrophoresis rate caused by partial dissolution of strontium oxide in methanol. Comparative measurements of the streaming potential in methanol across a diaphragm of titanium dioxide or of strontium

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