

SOV/124-57-9-10921

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 9, p 154 (USSR)

AUTHOR: Andreyev, G. A.

TITLE: Concerning the Testing of Soil Strength by Means of Uniaxial Com-

pression (K voprosu ispytaniya prochnosti gruntov odnoosnym

razdavlivaniyem)

PERIODICAL: V sb.: 15-ya nauch. konferentsiya Leningr. inzh.-stroit. in-ta,

Leningrad, 1957, pp 92-95

ABSTRACT: Bibliographic entry

Card 1/1

AMDR YEV, G.A., Cand Teah Sei - (diss) "The problem of testing the resistance two-whear of clay rocks (soils) by the method of monoaxial crushing." Len, 1950. 19 pr (Fin of Higher Education USSR. Len Order of Labor Red B nner Construction Engineering Inst. Ch ir of "Bases and Foundations"). 150 capies (13,40-59, 103)

D' CACHERO, P.Yo.; OSHCHEROV, P.K.; TOLKACHEVA, N.N.; ANDREYEV, G.A.;
CHUDOV, V.A.; GORTUROV, K.N.; DUBOVA, L.N.

Being irradiation procedures for surface hardening of metals.
Trudy Sem.po kach.poverkh. no.5:27-31 '61. (MIRA 15:10)
(Surface hardening)
(Materials, Effect of radiation on)

# "APPROVED FOR RELEASE: 03/20/2001

# CIA-RDP86-00513R000101510016-6

5/514/61/000/005/001/014 1007/1207

3 i AUNHORG: D'yachenko, P.Ye., Oshchepkov, P.k., Tolkacheva, N. H., Andreyev, G.A.,

Sandov, V.A., Goryanov, Kehe, and Dubova, L. H.

TITLE:

On the hardening of metal surface layers by irradiation

SOURCE:

Akademiya nauk JSSR. komissiya po tekhnologii mashinostroyeniya. Schainar no kachestvu poverkhnosti. Trudy. no. 5,1961. Kachestvo poversiments detailed machin; metody a pribory, uprochnemice

actallov, temmologiya asshinostroyemiya, 27-31

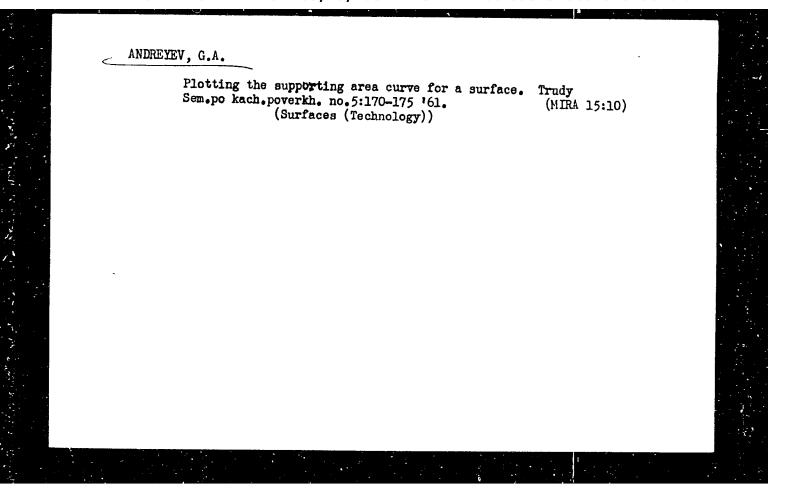
The thermal effect of nuclear irradiation in the surface layers of metals was investigated after electronic, louic and deuteron irradiation. The equipment consisted of a voltage-pulse generator, electron gun and a vacuum unit. Considerable increase in the wear registance of metals resulted from the levelling of viero-irregularities, fusion of viero-cracks and the sudden quanching of the surface layer. In a second test ionic irradiation was achieved in a unit for the electromagnetic separation of isotopes by irradiation with titalium ions. The titanium diffused Lato the surface of the specimens to a depth of 110 microns and wear resistance Card 1/2

3/514/61/000/005/001/014 100//1207

On the hardening of Letal...

increased by as much as 10 times compared to the initial resistance. Microhardness increased by as much as 1.5 times. Deuteron irradiation was performed in a cyclotron and resulted in in increase of microhardness by a factor of 2-3, and of wear resistance by a factor of 2-2.5. There are 4 figures.

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D'YACHENKO, Petr Yefimovich, doktor tekhn.nauk, prof.; TOLKACHEVA,
Nina Nikolayevna; ANDREYEV, Gavrill Alekseyevich; KARPOVA,
Tamara Mikhayloyna; BANKVITSER, A.L., red.izd-va; COLUB', S.P.,
tekhn. red.

[Area of actual contact of mating surfaces] Ploshchad' fakticheskogo kontakta sopriezhennykh poverkhnostei. Moskva, Izd-vo
Akad. nauk SSSR, 1963. 94 p.
(Surfaces (Technology))

ANDREYEV, G.A.

s/121/62/000/010/005/005 D040/D112

AUTHOR:

None given

TITLE:

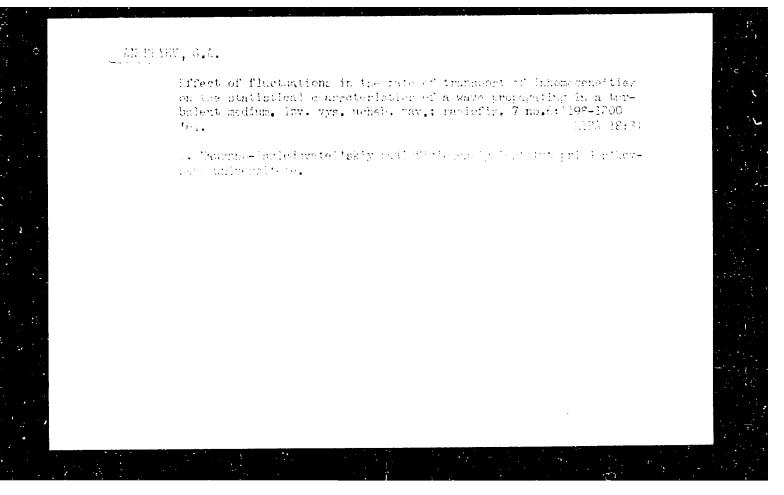
Dissertations

PERIODICAL:

Stanki i instrument, no. 10, 1962, 44

The following dissertations for the degree of Candidate of Technical Sciences were presented: L.D. Adamovich, at the Voyenno-inzhener-naya krasnoznamennaya akademiya im. V.V. Kuybysheva (Military Engineering "Red Banner" Academy im. V.V. Kuybyshev), "Some Aspects of the Geometry of Helical Surfaces"; G.A. Andreyev, at the VNII zh.-d. transporta (VNII of RR Trhnsportation), "Investigation of the Contact Formation Between Rough Surfaces"; A.V. Baltrushevich, at the Vsesoyuznyy ordena Trudovogo Krasnogo Znameni KII elektromekhaniki (All-Union "Order of the Red Banner of Labor" NII of Electromechanics), "Investigation of a Digital Servo System for Converting Digits into Movements"; A.P. Bezrodnyy, at the Leningradskiy politekhnicheskiy institut im. M.I. Kalinina (Leningrad Polytechnic Institute im. M.I. Kalinin), "Investigation of the Processes of Stepless Control of

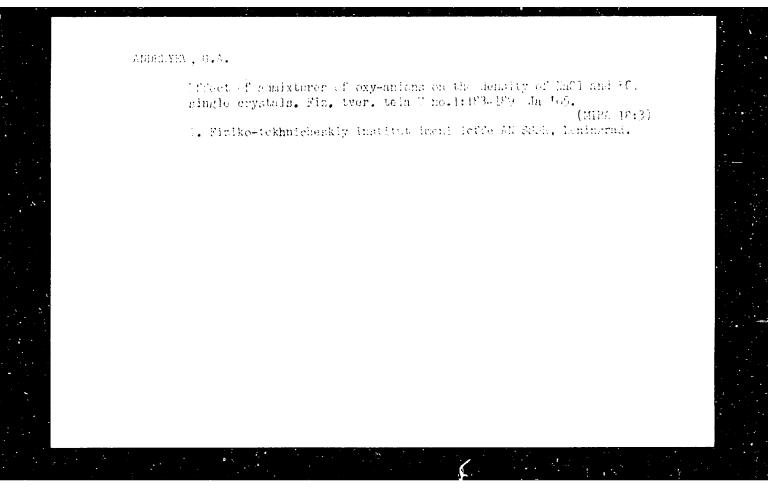
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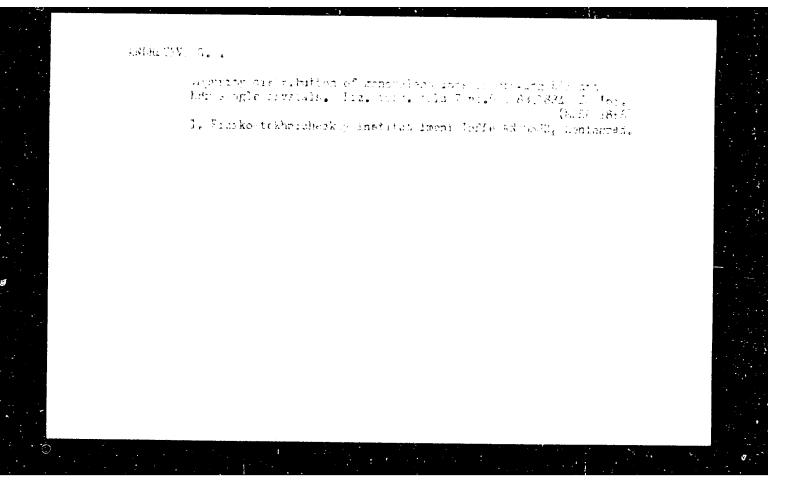


ANDREYEV, G.A.: ALEKSANDROV, B.P.

Flotation study of the distribution of singly charged impurity ions in growing MaCl single crystals. Fir. tver. tela 7 no.1: 177-182 da 165. (MIRA 18:3)

1. Firiko-tekhnicheskiy institut imeni Ioffe AN SSSR, Leningrad.



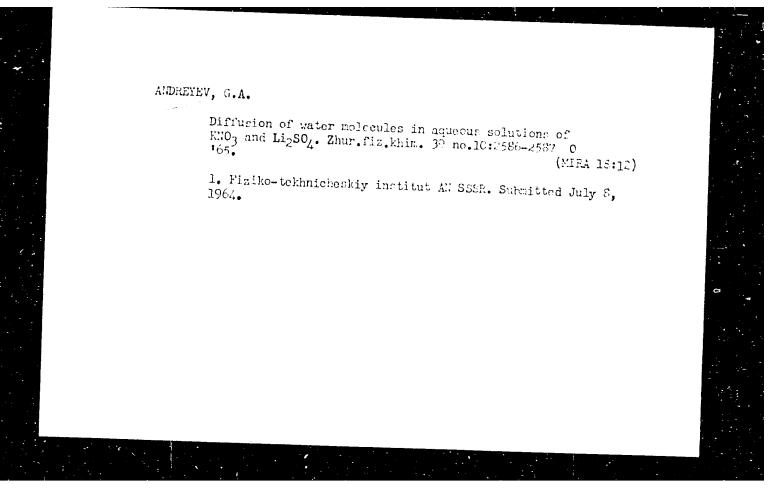


ANDREYEV, G.A.

Distribution of divalent impurities in growing NaCl single crystals. Fig. tver. tela 7 no.5:1653-1656 Je '65.

(MIRA 18:6)

1. Figiko-tekhnicheskiy institut imeni Ioffe AN SSSR, Leningrad.



ANDREYEV, G. A.

Andreyev, G. A. [Tomsk, Politekhnicheskiy institut (Polytechnical Institute)] Oscillographic Investigation of the Thermal Breakdown of Kock Salt at Constant Voltage

(The Physics of Dielectrics; Transactions of the All-Union Conference on the Physics of Dielectrics) Moscow, Izd-vo AN SSSR, 1988. 245 p. 3,000 copies printed.

This volume publishes reports presented at the All-Union Conference on the Physics of Diplectrics, held in Onepropetrovsk in August 1956 sponsored by the "Physics of Diplectries" Laboratory of the Piricheskiy institut insul Labedevs An SSSR (Physics Institute Itemi Labedev of the AS USSR), and the Electrophysics Department of the Dnepropetrovskiy gosuderstveneyy universitet (Unepropetrovsk State University).

ANDREYEV. G. A.: Master Tech Sci (diss) -- "Oscillographic investigation of thermal breakdown of some solid dielectrics". Tomak, 1958. 7 pp (Min Higher Educ USSR, Tomak Order of Labor Red Banner Polytech Inst im S. M. Kirov, Chair of "Technology of High Voltages"), 150 copies (KL, No 2, 1959, 120)

AUTHOR: Andreyev, G. A.

SOV/139-58-4-20/30

TITLE: Breakdown of Some Alkali-Haloid Crystals at Elevated Temperatures (Proboy nekotorykh shchelochno-galoidnykh kristallov pri vysokikh temperaturakh)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, 1958, Nr 4, pp 123-126 (USSR)

ABSTRACT: The breakdown voltage and the electric strength were measured for NaCl, KCl and KBr at 20 to 440 C for increasing rectified voltages. The results are graphed in Figs.1-3 and can be summarised thus:

1) The temperature dependence of the breakdown voltage and of the electric strength of NaCl, KCl and KBr in the case of a uniform field produced by a rectified voltage increasing with a speed of 0.63 kV/sec shows a minimum.

2) In the temperature range 20 to 100°C the change of the breakdown voltage and of the electric strength is in accordance with that of an electric type of breakdown; above 200 C the thermal breakdown theory of V. A. Fok was found valid and partly the "high temperature" breakdown theory of Frohlich. In the range 100 to 200°C a range

Cardl/2 was detected which was intermediate between the electrical

SOV/139-58-4-20/30

Breakdown of Some Alkali-Haloid Crystals at Elevated Temperatures

and the thermal types of breakdown. In the entire investigated temperature range the breakdown voltage and the electric strength of the crystals decreases with the following sequence: NaCl, KCl, KBr. Acknowledgments are made to Professor A. A. Vorob'yev under whose guidance this work was carried out.

There are 3 figures and 13 references, 9 of which are Soviet, 3 English, 1 German.

ASSOCIATION: Tomskiy politekhnicheskiy institut imeni S.M. Kirova (Tomsk Polytechnical Institute imeni S. M. Kirov)

SUBMITTED: February 25, 1958

Card 2/2

SOV/139-58-4-29/30

AUTHORS: Vorob'yev, A. A. and Andreyev, G. A.

TÎTLE: Thermal Breakdown of Ionic Crystals and the Lattice Energy

(Teplovoy proboy ionnykh kristallov i energiya reshetki)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika,

1958, Nr 4, pp 172-173 (USSR)

ABSTRACT: Paper presented at the Inter-University Conference on Dielectrics and Semiconductors, Tomsk, February, 1958. At room temperature a direct relation exists between the electric properties of the crystals and their lattice energy (Refs 1-4). The authors of this paper investigated the electric strength and the current in strong and pre-breakdown fields in single crystals of NaCl, KCl and KBr inside a uniform field in the temperature range 20 to 440°C. In the temperature range 25 to 440°C the electric strength of NaCl, KCl and KBr increases in proportion to the energy of the crystal lattice, Fig.1. With increasing energy of the crystal lattice, the pre-breakdown current at elevated temperatures decreases according to the linear law, Fig.2; the linear dependence of the current measured at fields equalling 20 to 100% of

Cardl/3 the breakdown fields on the energy of the crystal lattice

sov/139-58-4-29/30

Thermal Breakdown of Ionic Crystals and the Lattice Energy is conserved in the temperature range 100 to 440°C in The Volt-Ampere-sec characteristics obtained for each of the specimens of the investigated NaCl, KCl and KBr. salts (Ref 6) were used for calculating the electrical energy generated in the specimen during the action of the high voltage, i.e. from the beginning of an increase in the high voltage up to the instant of breakdown of the specimen. In the temperature range 20 to 440°C a decrease of the electric energy was observed with the following sequence NaCl, KCl, KBr. Thus, during a thermal breakdown crystals with lower energies of the crystal lattice have a lower electric strength and require a smaller quantity of electric energy for effecting the breakdown. relation between the electric strength and the physicochemical properties of the crystals is maintained in the In Fig.1 the dependence is graphed of the electric strength of NaCl, KCl, KBr on the energy of the crystal lattice at the temperatures 25 to 350 C (top graph) and 400 to 440 C (bottom graph). In Fig.2 the dependence of the pre-breakdown current on Card 2/3the energy of the crystal lattice is graphed for the NaCl,

Thermal Breakdown of Ionic Crystals and the Lattice Energy

KCl and KBr at the temperatures of 100 to 250°C (top graph) and 300 to 440°C (bottom graph). There are 2 figures and 4 references, all of which are Soviet.

(Note: This is a complete translation)

ASSOCIATION: Tomskiy politekhnicheskiy institut imeni S,M,Kirova (Tomsk Polytechnical Institute imeni S, M, Kirov)

SUBMITTED: February 25, 1958

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307/139-58-5-4/35

AUTHOR: Andreyev, G. A.

TITLE: Currents in Ionic Crystals at High Temperatures and in Strong Fields (Toki v ionnykh kristallakh pri vysokikh temperaturakh i sil'nykh polyakh)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, fizika, 1958, Nr 5, pp 16-21 (USSR)

ABSTRACT: The paper was presented at the Conference of Higher Educational Establishments on Dielectrics and Semiconductors, Tomsk, February, 1958. The author reports studies of current in NaCl, KCl and KBr crystals in a wide range of temperatures (20-440°C) and the relationship between currents and electrical breakdown. In his studies he used the apparatus shown schematically in Fig.1. Plates F<sub>2</sub> of a double-beam cathode oscillograph were used to measure U<sub>n</sub> which was proportional to the voltage across the sample and the measuring resistance R<sub>izm</sub>. Plates F<sub>1</sub> were used to measure the voltage across R<sub>izm</sub>.

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Currents in Ionic Crystals at High Temperatures and in Strong Fields when a current, equal to the current through the sample, was passed through  $R_{i,zm}$  . The resistance of the sample was F<sub>inm</sub> . Restified voltage was inalways much higher than creased uniformly at the rate of 0.63 kV/sec using a motor  $M_1$  and the associated apparatus (P-1, AT-2). Motion of the points on the oscillograph screen was recorded on a moving film. The time scan of the oscillograph was replaced by this mechanical motion of the film. Using another motor Mo and the associated apparatus P-2) it was possible to vary the rate of motion of the film from 0.1 to 180 cm/sec. Fig.2 gives a typical record for NaCl, KCl and KBr. The curves of the type shown in Fig.2 yielded information on the breakdown voltage, electric strength and currents flowing in the sample from the moment of application of the voltage to breakdown of the sample. The temperature dependences of the electric strength and the breakdown voltage were given in Ref.7; the present paper deals only with the currents flowing in the samples. Fig. 3 gives the dependence of the logarithm of current on the relative field strength E/E<sub>br</sub> for NaCl O.1 mm

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Currents in Ionic Crystals at High Temperatures and in Strong Fields thick in the temperature range 20-440°C (E<sub>br</sub> is the electric strength). With increase of the value of E/E<sub>br</sub> from 20 to 100% the current in NaCl increases exponentially at all temperatures. This current can be represented by an empirical equation:

 $1 = a \exp \left[ \text{bt} + (c + \text{dt}) E/E_{\text{tr}} \right] , \qquad (2)$ 

where a, b, c and d are coefficients whose values for NaCl O.1 mm thick are given in Table 1. At t = const the above equation is similar to the expression obtained by Poole, given in Ref.8. Values calculated from Eq.(2) agree satisfactorily with mean experimental values of current. The equations for samples of NaCl, 0.2 and 0.05 mm thick, and for KCl and KBr are identical with Eq.(2) but the coefficients a, b, c, d have now different values. The results obtained suggest that the mechanisms of flow of current in crystals of NaCl, KCl and

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Currents in Ionic Crystals at High Temperatures and in Strong Fields

KBr are identical in the temperature range 20-440°C, or at least very similar. Fig.4 gives the temperature dependence of the pre-breakdown current (the current flowing when E/E br = 100%) for NaCl 0.1, 0.2 and 0.05 mm thick. Fig.5 gives the temperature dependence of the pre-breakdown currents in NaCl, KCl and KBr, all O.1 mm thick. With increase of temperature the pre-breakdown currents in NaCl, KBl and KBr increase exponentially. In the 20-180°C temperature range, the currents rise faster with temperature than in the range 180-440°C. The author also obtained the temperature dependences of the total electrical energy P dissipated in a sample between the time of application of the voltage and the breakdown. These dependences are given for samples of NaCl in Fig. 6 and for KCl and KBr in Fig.7. A maximum of the total dissipated energy cccurs near 200°C in all the 3 types of crystal studied. The final general conclusion is that breakdown of NaCl, KCl and KBr crystals at temperatures above 200°C is a thermal process. This thermal process is satisfactorily explained by V. A. Fok's theory (Ref.9). Below 200°C, dependence of current on the temperature and sample thickness suggests a purely electrical breakdown. The author thanks Professor Dr. A. A. Vorob'yev. Card 4/5

SOV/139-58-5-4/35

Currents in Ionic Crystals at High Temperatures and in Strong Fields who directed this work. There are 7 figures, 1 table and 11 references, 6 of which are Soviet, 4 English and 1 Japanese in English.

ASSOCIATION: Tomskiy politekhnicheskiy institut imeni S. M. Kirova (Tomsk Polytechnical Institute imeni S. M. Kirov)

SUBMITTED: February 25, 1958.

Card 5/5

ANDREYEV, G.A.

AUTHOR: Kuchin, V. D.; Candidate of Technical SCY/105-58-7-24/32

Sciences

TITLE: Conference on Solid Dielectrics and Semiconductors (Konferentsiya

po tverdym dielektrikam i poluprovodnikam.n)

PERIODICAL: Elektrichestvo, 1958, Nr 7: pp. 85 - 85 (USSR)

ABSTRACT: The conference took place from February 3rd to February oth,

1958, in the Tomsk Polytechnical Institute, Section of Breakdown of Solid Dielectrics and Semiconductors. I.Ye.Balygin, Candidate of Technical Sciences (Leningrad), reported that from the calculation data of the resistance of the discharge channel and on the basis of the obtained oscillographs he could draw final conclusions concerning the dynamics of the development and the physical nature of the breakdown of titanium-containing ceramic material with £=20. G.A.Vorob'yev (TPI), Candidate of Technical Sciences (TPI) constructed an oscillograph with pulse feeding. This oscillograph permits the reliable registration of phenomena of a duration of 10.9 sec. M.A.Mel'nikov (TPI) found that the

Card 1/3 electric strength and the time of lagging of the discharge in

Conference on Solid Dielectrics and Semiconductors SOV/105-58-7-24/32

the breakdown of NaCl-, KCl-, KBr-, KJ crystals and methylmethacrylate crystals with pulses of a front length of (5 - 7).10-9 sec are almost independent of the chemical composition. A.V. Astafurcv (TPI) reported on voltage vs. time characteristics and the dependence of the breakdown voltage on the thickness in the electric breakdown of solid dielectrics of considerable thickness (2 - 34 mm). The applicability of the empiric formula of Gorev-Mashkileyson for the latter is shown. G.A. Andreyev (TPI) found by means of the double-ray oscillograph that the temperature dependence of the electrical strength on NaCl, KCl and KBr has a maximum in the case of a breakdown due to thermal instability in the range of room temperatures. V.D.Kuchin (TPI) found, proceeding from the single electron model, the dependence of the electrical strength on the temperature in the following form:  $F^*(T) = kT/2e\lambda(T)$ , where  $\lambda$  denotes the free length of puth of the electron. K.K. Sonchik (TPI) found that the time of lagging of the discharge in the ion crystals is the shorter, the higher the excess voltage at the sample and the crystal lattice energy are. M.P. Tonkonogov and Ye.T. Nadirov (Karaganda Mining Institute) investigated the destruction of coal by an electrohydraulic shock.

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Conference on Solid Dielectrics and Semiconductors SOV/105-58-7-24/32

The calculation showed that the discharge channel formed in the breakdown of the water is the source of the shock wave which destroys the coal. V.I.Obukhov (TFI) showed that the introduction of O-10% solid powdery dielectrics into transformer oil, castor oil, glycerin, and distilled water influences to a very small extent the amount of the resistivity to electric pulses. The strength of the systems is to a great extent increased in the case of a content of admixtures of 30%.

ASSOCIATION: Tomskiy politekhnicheskiy institut (Tomsk Polytechnical Institute)

1. Dielectrics--USSR 2. Semiconductors--USSR 3. Conferences

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ANDREYEV, GA.

AUTHOR:

Andreyev, G. A.

48-22-4-13/24

TITLE:

Investigation of Thermal Breakdown of Rock Sali at Constant Voltage by Means of Oscillographic Methods (Ostsillografi-cheskoye issledovaniye teplovogo proboya kamennoy soli na postoyannom napryazherii)

PERIODICAL:

Izvestiya Akademii Nauk SSSR Seriya Fizicheskaya, 1958; Vol. 22, Nr 4, pp. 415-418 (USSR)

ABSTRACT:

Opinions established in science on the existence of electric and thermal breakdown of solid dielectrics are based on the different phenomena accompanying these breakdowns, besides others also the temperature dependence of dielectric strength. At a constant voltage (refs. 1 to 4) the dielectric strength of alkali-halide crystals at first increases with temperature (domain of electric breakdown), and then, from a certain temperature onward, decreases (domain of thermal breakdown). The experimental control of the thermal breakdown theory conducted by A. V. Valiter and L. D. Inge must be supplemented by data on the current passing through the dielectric previous to the breakdown. This was the purpose of the present paper. The author investigated the breakdown of natural rock salt

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Investigation of Thermal Breakdown of Rock Salt at Constant 48-22-4-13/24 Voltage by Means of Oscillographic Methods

in an homogeneous field at a constantly increasing voltage by means of a two-ray cathode-ray oscillograph. The electric diagram of the equipment is shown in figure 1. The method described by the author permits to determine the characteristic of voltage vs. ampereseconds of common salt at various temperatures. Figure 4 shows the temperature dependence of the dielectric strength, Epr of common salt in samples of three different thicknesses - 50 100 and 200 . The diagrams show, that a maximum exists at 40°C. At a further temperature rise  $E_{pr}$  decreases rapidly. Above 150°C an increase of  $E_{pr}$  is observed on a thinning of the samples. This is explained by the better heat conduction in thin samples, corresponding to the thermodynamic theory by V. A. Fock (V. A. Fok'). Figure 6 shows, that the current through the samples previous to the breakdown is independent of the thickness of the samples. Above 150°C the pre-breakdown current is greater in thicker samples, the general resistance of the thicker samples at the same time being smaller. In samples of all whicknesses a marked reduction of resistance was observed previous to the moment of breakdown. By means of an interpretation of oscillographs the temperature dependence of the general

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Investigation of Thermal Breakdown of Rock Salt at Constant 48-22-4-13/24 Voltage by Means of Oscillographic Methods

energy generated previous to the breakdown was obtained for samples of varying thickness (figure 7). This dependence exhibits a maximum at 200°C which presumably is connected with the transition from electric to thermal breakdown. The figure also shows, that the electric generated previous to the breakdown increases almost linearly with the thickness. The author expresses his gratitude to A. A. Vorob'yev for the direction of his work. There are 7 figures and 9 references, 4 of which are Soviet.

ASSOCIATION: Tomskiy politekhnicheskiy institut im. S. M. Kirova (Tomsk Polytechnical Institute imeni S. M. Kirov)

AVAILABLE: Library of Congress

Alkali metal halide crystals—Dielectric properties
 Dielectric properties—Temperature factors 4. Voltage—Applications

Card 3/3

S/003/60/000/008/001/002 E073/E535

AUTHORS:

1/5

Vorob'yev, A.A., Professor, Doctor of Physico-Mathematical

Sciences and Andreyev, G. A., Candidate of Technical

Sciences

TITLE:

The Problem Laboratory Stimulates Major Creative Work

PERIODICAL: Vestnik vysshey shkoly, 1960, No.8, pp.48-51

TEXT: The problem laboratories which were created in 1957 are now fully in operation and have yielded the first results. The scientific activity of the Chairs has considerably expanded as a result of these laboratories, both as regards research on acute problems and the teaching activity of the Chairs. Positive results have been achieved by a number of Chairs of the Tomsk Polytechnical Institute imeni S. M. Kirov after establishing a problem laboratory on electronics, dielectrics and semiconductors. The laboratory, which was created in 1957 jointly by the Chairs of Physics, High-voltage Engineering, Electrical Insulation and Cable Engineering, has brought about full coordination of the activities of the 32 scientific workers of these Chairs. During the three years which have elapsed since the establishment of this laboratory, the

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The Problem Laboratory Stimulates Major Creative Work

personnel of these Chairs have prepared two doctor dissertations and six candidate dissertations and have published over 100 articles, although before hardly any scientific work was carried The relevant feature of the out in the Chair of Physics. laboratory is its unified clientific leadership. At present, 73 scientific workers of the Institute participate in the investigations, of which three are doctors of science, 16 are candidates of science The laboratory consists of three and 21 are post-graduates. sections, each of which deals with a subject relating to the following two problems: physical and chemical properties, strength and failure of dielectrics and semiconductors; development of radio circuits for instruments incorporating semiconductors. In the individual sections of the laboratory, the electrical, mechanical, physical and chemical properties of single crystals of alkalihaloid salts, solid solutions, oxides of the metals of the second group of the periodic table are being studied. The results enabled the theoretically and practically important conclusion on the existence of an inter-relation between the electrical,

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The Problem Laboratory Stimulates Major Creative Work

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mechanical and other characteristics of simple dielectrics and the energies of their crystal lattice, thus providing a theoretical basis for developing dielectrics with pre-determined properties. In the second on the physical and chemical properties of dielectrics, the mechanism of formation of a contact layer in dielectrics and semiconductors was studied. Extensive data on the conditions and causes of generation of cando-luminescence of industrial crystal phosphors due to the effect of flames were obtained by Docent V. A. Sokolov and formed the basis of a recent doctor dissertation, Considerable successes have been obtained in the High-voltage Division (headed by Candidate of Technical Sciences I. I. Kalyatskiy) relating to the electric strength of ionic solid dielectrics; it was found that short duration impulses produce in solid dielectrics a discharge which develops in a similar manner to gas discharges. It was also found that in the case of the point electrode being of positive polarity, the average speed of the discharge increases with decreasing temperature and with increasing energy of the crystal lattice of the dielectric; the results were presented in candidate dissertations (defended in 1958) by G A Andreyev,

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The Problem Laboratory Stimulates Major Creative Work

A. F. Astafurov and V. D. Kuchin. Under the leadership of Docent V. S. Dmitrevskiy and senior reader M. F. Pisartsev, the electrophysical properties of electrically insulating concretes have been investigated. This laboratory participates in the work relating to establishing the largest teaching and research high-voltage laboratory in Siberia. The High-voltage Hall of this laboratory is already equipped with test transformers for 200 and 350 kV, surge generators of 3 million volt, 1 million volt and 600 kV. A series of transformers for 1 million volt have already been installed and the erection has begun of a unique 5 million volt surge generator and of a 2.5 million volt electrostatic generator. This laboratory will be used for testing industrial equipment rated for voltages up to 220 kV. In the division on millimicrosecond techniques (headed by Candidate of Technical Sciences G. A. Vorobyev), the volt-second characteristics of various dielectrics are being investigated. It was found that for equal electric strength of gaps the breakdown of the dielectrics occurs in the following sequence: solid dielectric, gas, liquid dielectric, a conclusion of great importance from the point of view of insulation coordination. Circuits and instruments Card 4/5

The Problem Laboratory Stimulates Major Creative Work

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were devised which enable recording on a film ultrashort (of 10<sup>-10</sup> sec duration) voltage surges and also a fast-action arrestor for overvoltage protection of high voltage apparatus Furthermore, generators for single high voltage surges with amplitudes up to 40 kV and durations up to 3.2 x 10<sup>-9</sup> sec were developed. Under the leadership of Docent I. A. Suslov, methods of calculation of video amplifiers and of designing miniature transistorized television cameras have been developed. The theoretical and experimental work of this laboratory is reflected in 206 papers and 6 books published by the personnel at present 12 books and 76 papers are in the process of publication. In addition 87 papers and communications were presented at conferences. The laboratory is in

building a 22 m insulated tower for the 5 million volt surge generator was reduced considerably.
ASSOCIATION: Tomskiy politekhnicheskiy institut imeni S.M.Kirova Card 5/5 (Tomsk Polytechnical Institute imeni S.M.Kirov)

contact with numerous other Soviet scientific establishments and also with the Polytechnical Institutes of "Tsinkhua" (China) and Jassy (Roumania). The studies of the Power Engineering Department have established the possibility of using concrete as a dielectric in high voltage engineering. As a result of this, the cost of

# Poterming the energy of destruction following breakdown in solid dielectrics. Fig. twer. tela 2 no.5: 987-992 My '60. (MIRA 13:10) 1. Politekhnicheskiy institut, Tomsk. (Dielectrics)

S/046/62/008/001/003/018 B139/B102

24,1300

AUTHORS:

Andreyev, G. A., Zverev, V. A.

TITLE:

Method of investigating the statistical properties of media with random inhomogeneities by means of continuous frequency-modulated acoustic irradiation

PERIODICAL: Akusticheskiy zhurnal, . 8, no. 1, 1962, 42 - 48

TEXT: When investigating the propagation of waves in static inhomogeneous media, the characteristics of inhomogeneities and the signal parameter changes caused by them must be known. The authors conducted experiments with saw-tooth sound waves. The signals arriving at the receiver are delayed against the carrier wave by the time  $\theta_i(t) = 2r_i(t)/c$   $(r_i(t) = delayed)$ 

distance between the i-th elementary scattering space and the sound pickup). The correlation function of the sum of signals equals the sum of correlation functions of the summands, i.e.,

of correlation functions of the summands, i.e.,
$$\psi_{\mathbf{u}}(\tau) = \frac{1}{\mathbf{u}(t)\mathbf{u}(t+\tau)} = \sum_{i=1}^{N} \frac{\mathbf{u}_{i}(t)\mathbf{u}_{i}(t+\tau)}{\mathbf{u}_{i}(t)\mathbf{u}_{i}(t+\tau)} \quad (3). \quad \text{Via the expression}$$

Card 1/3

interval  $\tau_0$  of the scattered signal can be determined, and from formula (7) the mean square velocity of motion of inhomogeneities. The statistical evaluation of test results was made by means of a block diagram, the signals being transmitted on films. The films came into an optical correlometer the signals of which were again recorded on films by means of a loop oscilloscope. The correlation function  $\gamma_{\rm H}(\tau)$  was measured in

tests with air as well as in sea water under various hydrometeorological conditions. To check the effect of all factors in their totality on the correlation function, an experiment was conducted where the scattering of frequency-modulated sound occurred by stable inhomogeneities. Some frequency modulation periods were then evaluated. The experimental parameters were:  $f_0 = 4 \text{ kcps}$ ,  $\Delta F = 300 \text{ ops}$ , T = 1 sec, integration time  $T_u$  Card 2/3

Method of investigating the statistical .. S/046/62/008/001/003/018 B139/B102

in the correlemeter = 12 sec. The functions  $\gamma(\tau)$  arrived at in this control test proved the sufficient stability of the apparatus used. There are 14 figures and 12 Soviet references.

ASSOCIATION: N.-1. radiofizicheskiy institut pri Gor'kovskom gosudarst-

vennom universitete (Scientific Research Institute of

Radiophysics of the Gor'kiy State University)

SUBMITTED: December 16, 1960

Card 3/3

PY-LI/Peb VII/AM/OS 8/0000/64/000/000/0104/0108 ACCESSION NRI AT4049819 AUTHOR: Konobeyevskiy, S.T.; Levitskiy, B.M.; Sokurskiy, Yu. N.; Andreyev, G. A TITLE: The possibilities and prospects of hardening metals and alloys by irradiation SOURCE: Soveshchaniye po uprochneniyu detaley mashin, 1962. Protsessy uprochneniya detaley mashin (Processes of the hardening of machine parts); doklady soveshchaniya. Moscow, Izd-vo Nauka, 1964, 104-108 TOPIC TAGS; metal irradiation, alloy irradiation, gamma irradiation, beta irradiation, neutron bombardment, metal hardening, motal surface hardening, radiation hardening ABSTRACT: «It is well known that irradiation may cause not only a deterioration of metal properties; but also their improvement. Thus, radiation sharply increases the yield point and moderately increases the ultimate strength and wear resistance. Hardening under irradiation is accompanied by lowering of plasticity. Different types of radiation. however, act differently on the atoms of the irradiated material. When the primary particles interact with the atoms of metals; energy is transmitted to the metal atoms. When this energy exceeds about 25-35 electronvolts, the atom is displaced from the lattice, and the energy of the first displaced atom may be sufficient for the displacement Cord 1/8

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of other atoms. Thus, clusters of displaced atoms are formed. This displacement affects the properties of alloys considerably. The number of secondary displaced atoms affects the properties of alloys considerably. The number of secondary displaced atoms depends on the energy of the primary displaced atoms. Under neutron bombardment, when the energy of the primary displaced atoms is great, this number may be several hundred, the energy of the primary displaced atoms is great, this number may be several hundred, the energy of the primary displaced atoms is great, this number may be several hundred, while gamma and beta irradiation only produces I to 2. Point defects arise under while gamma and beta irradiation only produces I to 2. Point defects arise under while gamma irradiations in hardening, which can in some cases be increased are formed by irradiation. The luture of radiation hardening lies in a combination of by additional irradiation. The luture of radiation hardening lies in a combination of irradiation with subsequent heat irradiation being the initiating factor. It irradiation with subsequent heat irradiation, irradiation with different properties should be noted that new elements are created by irradiation with different properties should be noted that new elements are created by irradiation with different properties. At the present stage of development of incleanics, the cost of irradiation in an atomic At the present stage of development of incleanics, the cost of irradiation in an atomic and it may be used in the future since the material does not become radioactive. Electron and it may be used in the future since the material does not become radioactive. Electron and it may be used in the future since the material does not become radioactive. Electron and it may be used in the future since the material does not become radioactive. Electron in the surface layer, causing surface hardening by heating. Heavy ions are also being in the surface layer, causing surface hardening by heating.

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ACC NR: AP7005328

SOUNCE CODE: UR/0181/67/009/001/0063/0087

AUTHOR: Andreyev, G. A.

ONG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-

teknnicheskiy institut AN SSSR)

TITLE: Interaction of impurities in a melt of NaCl

SOURCE: Fizika tverdogo tela, v. 9, no. 1, 1967, 83-67

TOPIC TAGS: sodium chloride, crystal growing, crystal impurity, copper

ABSTRACT: The author investigated the influence of monovalent and divalent copper impurity added to molten NaCl on the density of the crystals grwon from the melt, and also the dependence of the effect on further addition of  $SiO_2$  and  $B_2O_3$  to the melt and on the time that the salt remains in the molten state. The copper was added to the melt in the form of anhydrous  $CuCl_2$ , CuCl, and  $CuSO_4$ , and also in the form of CuO. To determine the composition of the complex ions produced when the additives were introduced, an investigation was made also of the effect of the addition of impurity combinations  $OH^- + SiO_2$  and  $OH^- + B_2O_3$  on the crystal density, at different contents of the oxides in the melt. The technique of growing the crystals from the melt and of measuring the density was described earlier (FTT v. 7, 177, 1965). The results show that the copper impurity in the NaCl melt is always monovalent, regardless of its initial form. The solubility of the copper oxide in the melt increases greatly with addition of  $SiO_2$  or  $B_2O_3$ . If an excess alkali is present in the melt, the  $SiO_2$ 

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ACC NR: AP7005328

impurity ionizes to  $\mathrm{SiO}_4^{4-}$ . If there is not enough alkali,  $\mathrm{SiO}_3^{2-}$  ions are produced. Similarly, the  $\mathrm{B}_2\mathrm{O}_3$  molecule forms  $\mathrm{BO}_3^{3-}$  in an excess of alkali and  $\mathrm{BO}_2^{2-}$  in a shortage of alkali. It is also shown that transition metals other than copper can be introduced ( $\mathrm{Mg}^{2+}$ ,  $\mathrm{Mn}^{2+}$ ,  $\mathrm{Co}^{2+}$ , and  $\mathrm{Ni}^{2+}$ ), provided small amounts of  $\mathrm{B}_2\mathrm{O}_3$  or  $\mathrm{SiO}_2$  are added to the melt. Orig. art. has: 5 figures and 10 formulas.

SUB CODE: 20/ SUBM DATE: 19May66/ ORIG REF: 005/ OTH REF: 004

Card 2/2

ALEKSANDROV, B.P.; ANDREYEV, G.A.

Effect of impurities on the density of Lif single crystals.
Fiz. tver. tela 3 no.8:2445-2450 Ag '61. (MIRA 14:8).

1. Fiziko-tekhnicheskiy institut im. akademika A.F. Ioffe AN SSSR, Leningrad. (Lithium fluoride crystals)

ALEKSANDROV, B.P.; ANDREYEV, G.A.

Formation of an (OH) impurity during the growth of Lif crystals from a melt. Fiz. tver. tela 3 no.9:2835-2840 S '61.

(MIRA 14:9)

1. Fiziko-tekhnicheskiy institut ineni A.F. Ioffe AN SSSR, Leningrad.

(Lithium fluoride crystals—Growth)

ANDREYEV, G.A.; ALEKSANDROV, B.F.

Solubility of lithium oxalate in water at various temperatures.
Zhur. neorg. khim. 6 no.7:1727-1723 Jl '61. (MIRA 14:7)

1. Fiziko-tekhnicheskiy institut imeni A.F. Ioffe, AN SSSR (Lithium oxalate)

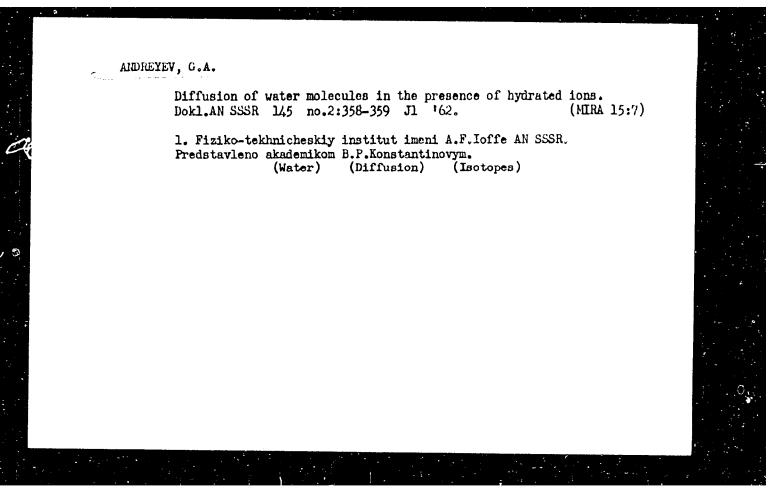
Alexademov, B.P.; Ambreyev, G.A.; Borisov, S.A. [deceased]; IVAROV, I.A.

Increasing the accuracy and spood of the flotation determination of single crystal density. Zav.lab. 28 no.6:70%-709 162.

(ETRA 15:5)

1. Figiko tekhmichoskiy institut imeni A.F. Iofic AR CSSR.

(Crystals)



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S/076/63/037/002/009/018 B101/B186

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AUTHOR:

Andreyev, G. A. (Leningrad)

TITLE:

Diffusion in the  ${\rm H_2O}$  -  ${\rm HDO}$  system

FERIODICAL:

Zhurnal fizicheskoy khimii, v. 37, no. 2, 1963, 361-365

TEXT: The present paper is one of a series of physicochemical studies made under the guidance of B. P. Konstantinov, Academician. To resolve inconsistencies in the published data on the mutual diffusion of  $\rm H_2O$  and HDO molecules, the diffusion coefficient D was determined at 5-45°C according to the method developed by R. H. Stokes (J. Amer. Chem. Soc., 72, 763, 1950). A glass diaphragm of 10  $\mu$  pore diameter was used in the diffusion cell. The apparatus was calibrated with NaGl, since  $\rm D_{NaGl}$  is independent of the

concentration in the range 0.2-0.7 N NaCl. In the  $\rm H_2O$  -  $\rm HDO$  system

 $D=2.57\cdot10^{-2}$  exp(-4162/RT) cm<sup>2</sup>·sec<sup>-1</sup>. The root mean square deviation was 0.5/5. The deviation increased, however, at temperatures below 15°C and at 5°C D was too low by 4%. This is explained by an increasing degree of the extent that H<sub>2</sub>O is crystallized near its m.p. The data are compared with Card 1/2

Diffusion in the  $\rm H_2O$  - HDO system

S/076/63/037/002/009/018 B101/B166

those of other scientists. They are consistent with those of J. R. Partington, R. F. Hudson, K. W. Bagnal (Nature, 169, 583, 1952) at low temperatures, and with those of J. H. Wang, C. V. Robinson, J. S. Edelman (J. Amer. Chem. Soc., 75, 446, 1953) at higher temperatures. The activation energy of  $\rm H_2O$  diffusion (E = 4.16 kcal/6-mole) is compared with that of

ions with infinite dilution of the aqueous solution. E was calculated from  $D = D_0 \exp(-E/RT)$  and D was calculated according to Nernst-Einstein. E (kcal/g-mole) is for: Li<sup>+</sup> 4.57; Na<sup>+</sup> 4.36; K<sup>+</sup> 3.96; Rb<sup>+</sup> 3.87; Cs<sup>+</sup> 3.84; Cl<sup>-</sup> 4.08; Br<sup>-</sup> 4.00; I<sup>-</sup> 3.98. The value exceeding  $E_{\rm H_2O}$  for Li and Na is

explained by hydration of the ions. There are 2 figures and 2 tables.

ASSOCIATION:

Akademiya nauk SSSR, Fiziko-tekhnicheskiy institut im. A. F. Ioffe (Academy of Sciences USSR; Physicotechnical Institute imeni A. F. Ioffe)

: SUBMITTED:

November 13, 1961

Card 2/2

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1/ 58651-65 EFT(8)/FSS-2/EEC-1/I ACCESSION NR. AP5011879	REG(+) - ProjePh-128985/000/002/0101/0103 . 621.317.35 . Chandaysy, A. K.
Link Alatribu	621.317.22  yerev. v. A.: Chandaysv. A. K.  tion of probabilities of infralow-frequency thod
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TOPIC TAGS: Infralow (request	Acr measuring the distribution of
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1 56653-65 ACCESSION NR: AP5011879				
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University)				
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BiT(n)/1/BiP(t)/BiP(t) IJP(c) JD L 25111-65 8/0181/65/007/001/0177/0182 AP5003432 ACCESSION MR: AUTHOR: Andrevey, C. A. Aleksandrov, B. P. TITLE: Flotation investigation of the distribution of impurities of singlycharged loss in the growth of Matt single crystals ( SOURCE: Fisika tverdogo tela, v. 7, no. 1, 1965, 177-182 TOPIC TAGE: impurity distribution, distribution coefficient, single crystal, crystal growth, sodium chloride, electron configuration, ionic radius ABSTRACT: A method is proposed for finding the distribution coefficient (the ratio of the impurity concentrations in the solid and liquid phases, respectively) by measuring the density of crystals after each of two successive crystallizations from a melt containing the impurity. The method is a refinement of the flotation method and is used to determine the distribution of impurities of singly-charged ions in MaCl crystallized from the melt. The impurities were ions of sikall metals and halogens, which have, like the ions of the host substance, a spherically-symmetrical electron configuration. The single crystal was grown Cord 1/3

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by the Kiropoulos method. A study of the dependence of the effective distribution coefficient on the impurity concentration and on the crystal growth rate has shown that the impurities have a practically equilibrium distribution at growth rates 0.5 mm/min and below, and that the crystal density depends linearly on the impurity content in the melt. A correlation was observed between the impurity distribution coefficient and the amplitude difference between the ionic radii of the impurity and substitutional ions. A list of the obtained distribution coefficients is given in Table 1 of the enclosure. Orig. art. has: 4 figures, 5 formulas, and 1 table.

ASSOCIATION: Fiziko-teknnicheskiy institut im. A. F. loffe AN SSSR, Leningrad (Physicotechnical Institute, AN SSSR)

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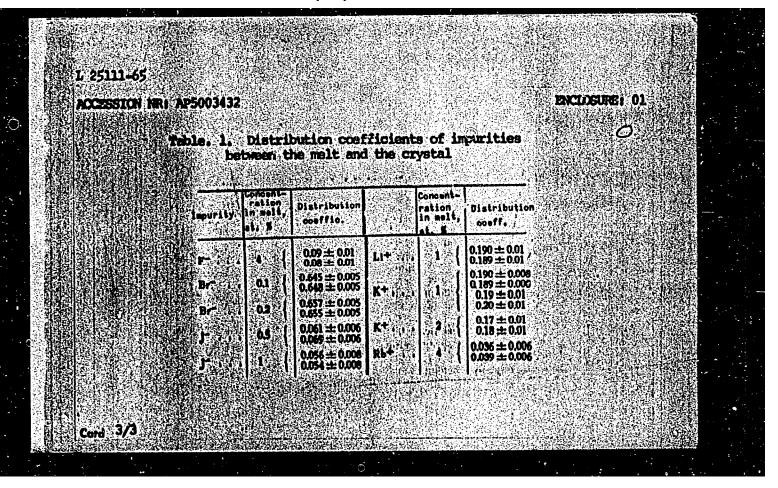
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L 25112-65 EWT(m)/T/EWP(t)/EWP(t) IJP(a) JD

ACCESSION MR: AP5003433

AUTHOR: Andreyev, G. A.

TIVLE: On the influence of impurities of oxygen-containing anions on the density of Nacl and KCl single crystals (

SOURCE: Fisika tverdogo Sela, v. 7, no. 1, 1965, 183-189

TOPIC TAGS: single crystal, sodium chloride, potassium chloride, crystal density, crystal impurity, distribution coefficient

ABSTRACT: The author reports results of measurements of the density of NaCl and KCl single crystals, grown from melts with different oxygen-containing anion impurities, and the results of a study of the distribution of these impurities because the crystal and the melt by the flotation method. The experimental procedure is the same as described in a companion paper by the author in the same dure is the same as described in a companion paper by the author in the same issue of the source (with B. P. Aleksandrov, FTT v. 7, 177, 1965, Accession 1880e of the source (with B. P. Aleksandrov, FTT v. 7, 177, 1965, Accession AP5003432). The results have shown that addition of SOG and BO2 has little effect on the crystal density. An appreciable effect was observed for impurities fect on the crystal density. An appreciable effect was observed for impurities of nitrate, mitrides, and carbonate salts (with the exception of K2CO3 in KO1);

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and also hydroxide; and peroxides. The magnitude of the effect depended on the atmosphere and on the duration of the prior souking of the melt. In a 32 atmosphere, a carbonate salt impurity did not influence the density of the resultant crystals. The obtained results are attributed to thermal decomposition of the impurities and to the interaction of the decay products with CO, and with HoO in the air. The double crystallization method described in the preceding paper was used to measure the distribution coefficients of impurities NaNO3, NaRO2, and NaOH in NaCl and the impurities of KNO3 and KOH in KCl. The values obtained were 0.07 ± 0.02 and 0.06 ± 0.01 for NaNO3 and NaNO6 ( 4 and 2 mol. % content) and NaOH (4% content) in NaCl and 0.21 ± 0.01 and 0.09 ± 0.02 for KNO3 (2%) and KOH (2 and b) in KOl, respectively. The larger distribution coefficients in KCl (compared with NaCl) are apparently due to the fact that the NCl lattice energy is lower than that of MaCl. Orig. art. has: 6 figures and 1 table.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Loffe AN SSSR, Leningred (Physicotechnical Institute, AN BSSR)

SUBMITTED: 08Jul64

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BUB CODE: 88

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SOURCE	Fizika tverdogo tela, v. 7, no. 6, 1905, 1055-1050	7
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ent ar	ticle the author reports results of an investigation of the constitution of the divalent impurities Mg 2+, Ca 2+, Sr 2+, Ba 2+, and Cd 2+, Ca 2+, Sr 2+, Ba 2+, and Cd 2+, Sr 2+, and Cd 2+, and C	F -:-
on the	e of the divalent impurities Mg . Ca , Sr , Ba , and od , density of the single crystals of NaCl obtained from a melt, esent the equilibrium distribution coefficients of these im-	

L 1605-66 ACCESSION NR: AP5014559

purities. The procedure for measuring these coefficients is also given. Small crystals weighing 2 -- 4 mg were prepared in platinum crucibles in open air, with a crystallization rate of ~3 mm/min. The crystal density was measured by a procedure described in one of the earlier papers. The increase in density was found to be nonlinearly connected with the content of impurity in the melt. The measured distribution coefficient was also found to be dependent on the concentration of the impurity, decreasing with increasing impurity concentration; the greatest decrease takes place at low concentrations (up to 0.1 atomic per cent of impurity in the melt). The decrease in the distribution doefficient was also found to decrease with increasing disparity between the dimensions of the impurity and host ions. Orig. art. has: 5 figures and 1 table.

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

SUBMITTED: 13Nov64

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OTHER: 003

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-	L 2510-66 EWT(1)/T/ IJP(c) GG ACCESSION NR: AP5014601 UR/0181/65/007/006/1883/1884	
	AUTHOR: Andreyev, G. A. 44,55  TITLE: Distribution of impurities of singly charged ions in growing KCl and KBr	
. 1	SOURCE: Fizika tverdogo tela, v. 7, no. 6, 1965, 1883-1884	
	TOPIC TAGS: single crystal growing, alkali-halide potassium chloride, potassium bromide, crystal impurity, distribution coefficient	-
	ABSTRACT: This is a continuation of earlier work (FIT v. 7, 177, 1965) on the impurity distribution in NaCl single crystals. The present study is devoted to similar experimental data for KCl and KBr. The crystals were grown from aqueous	o e
• •	solutions. The impurity distribution coefficient for NaCl, RbCl, CsCl, KF, KBr, and KI impurities in KCl single crystals and NaBr, RbBr, CsBr, KCl, and KI impurities in KBr single crystals were measured by floatation measurements of the	
-	crystal density after each of two successive crystallizations from the melt, in a manner described in the earlier paper. The values of the distribution coefficients for all the impurities are tabulated. The results do not confirm the data of	
•	V. S. Rylov (ZhAKh v. 16, 14, 1961), who claim that the impurity distribution  Cord 1/2	

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L 31158-66 EWT(1)/EWP(e)/EWT(m)/T/EWP(t)/EWP(k) IJP(c) JD/JG ACC NR: AP6006809 SOURCE CODE: UR/0181/66/008/002/0327/0331

AUTHOR: Andreyev, G. A.

ORG: Physicotechnical Institute im. A. F. Ioffe AN SSSR, Leningrad (Fizikotekhnicheskiy institut AN SSSR)

TITLE: Imperfections in alkali halide single crystals with a low impurity concentration

SOURCE: Fizika tverdogo tela, v. 8, no. 2, 1966, 327-331

TOPIC TAGS: alkali halide, single crystal, crystal defect, crystal lattice parameter, crystal impurity, ion

ABSTRACT: Data are given on variations in the impurity lattice constants of sodium chloride, potassium chloride and potassium bromide crystals based on experimentally observed increments in density. An analysis of the tabulated results shows that the rates of change in the lattice parameters for NaCl, KCl and KBr with impurity concentration based on precision density measurements for lightly doped crystals differ considerably on the positive side from the values calculated according to Vegard assuming volumetric additivity. This discrepancy is due to distortions in

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ACCESSION NR. AP5005035

8/0141/64/007/006/1198/1200

AUTHOR: Andreyer, G. A.

22

TITIE: Concerning the incidence of Plantuations in the speed of transport of inlossogeneities on the statistical characteristics of a wave propagating in a turbulent medium

SOURCE: TWEE, Radiofisika, v. 7, no. 6, 1964, 1198-1200

TOPIC TACA; turpulence, statistical analysis, transport velocity, velocity

ABSTRACT: The article deals with the includes of cluctuations in the speed of cramport of immesopens(iss) with its an emept the calculation of the coufficient of the speed in the speed of clear of the speed into the transport of the coufficient of the spectime transport particle of the cluctuations of the logarithm of the septimise of a plane accommunity wave propagating in a turbulent medium. It is pointed out that it is customary to use in such calculations as idealisation, wherein the transport valocity is assumed to be constant in time; but there is no published estimate of the correctness of such an idealization. The correlation assemble is calculated under the assumption that the transverse

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ANDREYEV, C.A., kand. tekhn.nauk; SERGEYEVA, A.I., inzh., red.;

KHITROVA, N.A., tekhn. red.

[New equipment and advanced technology in the operation, maintenance and repair of tracks; work practice of the track workers of the Oktiabr' Railrond | Nowhia tekhnika i peredovaia tekhnologiia v putevom khosiaistve; opyt puteitsev Oktiabr'skoi dorogi. Moskva, Transzheldorizdat, 1963. 161 p.

(Railroads--Track)

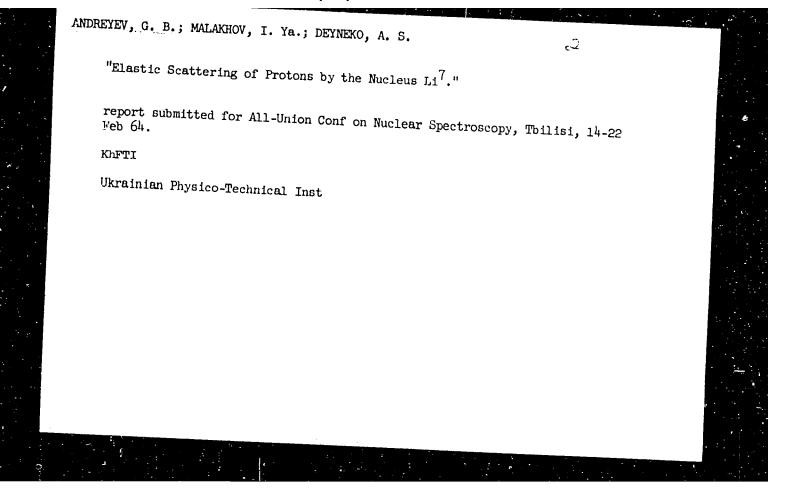
ANDREYEV, G.A.

Giant epithel'oma of the cranial vault. Vop.neiro/h/r. 28 no.4:59-61 J1-Ag (4. (MIRA 18:3)

1. Kafedra neyrokhirurgii Leningradskogo ordena Lenina instituta usovershenstvovaniya v achey imeni Kirova (nav. - prof. 1.8. Babehin) I Leningradskiy nauchno-isolodovateliskiy neyrokhirurgicheskiy institut imeni Polenova (dir. - prof. V.M.Ugryumov).

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ACCESSION NR: AP5005941			32	
AUTHOR: Andreyev, G.B.;	Deyneko, A.S.; Malakho			
AUTHOR! ANTI-	a 19	uolei Report, 14th	Annual	
AUTHOR: Andreyev, Q.B.; TITLE: Blastic scatter on Nuclear Spectroscopy	held in Thilisi, 14-22	Feb 1964/		
on Nuclear Spectroscop	a toheaka	va. v.29, no.2, 1965	, 210-212	
on Nuclear Spectroscopy  SOURCE: AN SSSR. Isves	Liya: Berly	illiam harvl	lium /	
	ttering, elastic, scare	English San		
TOPIC TAGS: Proton	ttering, elastic scatte stering cross sections of at angles of 90, 109 irements were undertaken	of Li nuclei for 1.	2 to 3 mer of	
ABSTRACT: Blastic scs	stering cross sections of at angles of 90, 109, grements were undertaken t is hoped that the spi	9, 125.3 and 140.6	a phase-shift	
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that appears in the	pgles. The existence of fgy of 2.1 MeV. correspond an anomaly in the elastic threshold for neutron emitting the proton energy sections have been determed when the	o scattering cross	e level	
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ANDREYEV, G.B.; DEYNEKO, A.S.; MALAKHOV, I.Ya.

Elastic proton scattering by Be<sup>9</sup> and B<sup>11</sup> nuclei. Izv. AN SSSR.

Ser. fiz. 27 no.10:1305-1307 0 '63. (MIRA 16:10)

1. Fiziko-tekhnicheskiy institut AN UkrSSR.

S/120/61/000/006/039/041 E032/E514

AUTHORS .

Andreyev, G.B., Deyneko, A.S., Malakhov, I.Ya., Sorokin, P.V. and Taranov, A.Ya.

TITLE

Production of thin Al<sub>2</sub>0<sub>3</sub> films

PERIODICAL: Pribory i tekhnika eksperimenta, no.6, 1961, 149-150 The aim of this work was to produce  ${\rm Al}_2{\rm O}_3$  backing films having a thickness of less than 0.1  $\mu$  for targets evaporated onto them in vacuum. Such targets are suitable for scattering experiments in nuclear physics. The films are prepared as follows. A 40  $\mu$  aluminium foil is first etched in a 30% solution of NaOH in order to clean the surface from contamination. When a thickness of about 3  $\mu$  has been reached the foil is oxidised for 2 to 3 min in a bath containing an electrolyte which consists of 1.5% (by weight) of acetic acid and 1.5% of aluminium acetate. lytic bath are two aluminium plates and the foil to be oxidised The initial current density is varied between 1 and 100 mA and the final oxidation voltage between

UVAROV, G.A., kand.tekhn.nauk; SHESTAKOV, B.I., kand.tekhn.nauk;

PEDOROV, V.E., inzh.; GOPRO, N.K., inzh.; ANDREYEV, G.B., inzh.

Simultaneous burning of anthracite culm and gas with different methods for supplying the gas to the furnace. Teploenergetika (MIRA 14:8)

1. Kuybychevskiy industrial'nyy institut i Kuybyshevenergo. (Furnaces)

ANDREYEV, Georgiy-Borisovich, inzh.; VOLOBUYEV, Viktor Mikhaylovich, inzh.; CORYUNOV, Boris Fedorovich, doktor tekhm.nauk; nouk,prof.; SMIRHOV, Nikolay Andreyevich, kand.tekhm.nauk; SOLOLEV, Georgiy Aleksandrovich, inzh.; Prinimali uchastiye: ANNENKOV, Ye.I., inzh.; ZLATOVERKHMIKOV, L.F., kand.tekhm.nauk; KONCHAGHRA, A.Ya., inzh.; KRIVITSKIY, S.I., inzh.; RUMYANTSEV, A.N., inzh.; LAPINA, Z.D., red.; MOSHAROVA, T.F., red.; TIKHONOVA, Ye.A., tekhm. red.

[Tochnical operation of hydraulic engineering structures in harbors]Tekhmicheskaia ekspluataisiia portovykh gidrotekhmicheskikh socruzhenii. [By] G.B.Andreev i dr. Moskva, Izd-vo Morskoi transport, 1962. 375 p. (MIRA 15:8)

(Hydraulic structures) (Harbors)

#0866 5/048/62/026/009/002/011 B125/B186

21. 7400 ATTHORAS

careyev, G. B., Deyneko, A. S., and Malakhov, I. Ya.

TITLE:

Elactic proton (cattering by B10 nuclei

PERIODICAL: Akademiya nauk SOSR. Izvestiya. Seriya fizicheskaya, v. 16, no. 9, 1962, 1134-1136

That: The B<sup>10</sup>(p,p)B<sup>10</sup> differential elastic scattering cross section was measured at proton energies from 1 to 3.5 MeV at the c. m. s. angles  $110^{\circ}$ ,  $125^{\circ}$  and  $141^{\circ}$ . The proton beam from the electrostatic accelerator of the FTI MM USAR was deflected through by  $90^{\circ}$  by a magnetic analyzer, it passed through several diaphragms and made to impinge on the target (100,0)B<sup>10</sup>). The elastically scattered protons were separated from the products of the reactions  $90^{\circ}$  + p and  $90^{\circ}$  + p by a double focusing apectrometer. It discriminator enabled the protons elastically scattered from B<sup>10</sup> nuclei to be easily separated at the scattering angles  $90^{\circ}$  and  $90^{\circ}$ 

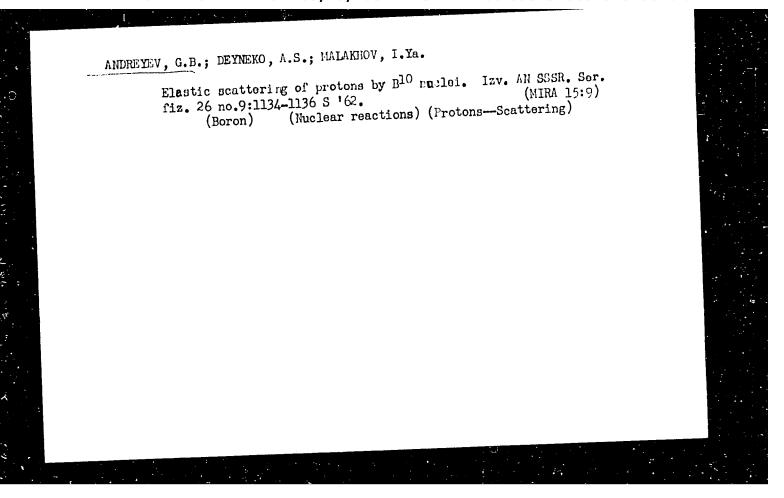
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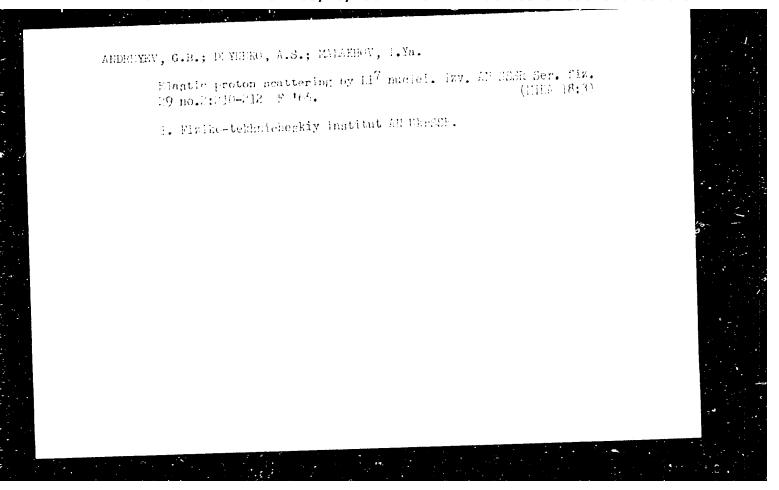
Elastic proton scattering by B<sup>10</sup> nuclei B125/B186

from the a particles arising in the accompanying reactions B<sup>10</sup>(p,a) and Be<sup>9</sup>(p,d). The maxima of the three resonances observed are at 1.5; 2.2

(9 = 141°) and 3.5 Mev. The wide resonance at 2.2 Mev (F>200 kev) does not occur in the reactions B<sup>10</sup>(p,P)C<sup>11</sup> and B<sup>10</sup>(p,a)Be<sup>7</sup>. In the procent measurements the renonance at 1.15 Mev remains with the statistical limits of error. The absolute elastic scattering cross section B<sup>10</sup>(p,p)B<sup>10</sup> and the phase shift analysis of the data obtained will be dealt with in a future paper. There are 2 figures and 1 table.

Fig. 2: B<sup>10</sup>(p,p)B<sup>10</sup> differential elastic scattering cross section with 6 cent. and a 141° (the data of Day R. B., Huus J., Phys. Rev., 95, 1005 (1954) were used for establicating the absolute scale). The lower curve whomat the theoretically calculated Rutherford scattering cross section.





SOURCE CODE: UR/0120/66/000/003/0218/0219

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AUTHOR: Malakhov, I. Ya.; Deyneko, A. S.; Andreyev, G. B.

ORG: Physics and Engineering Institute, AN UkrSSR, Khar'kov (Fiziko-tekhnicheskiy institut AN UkrSSR)

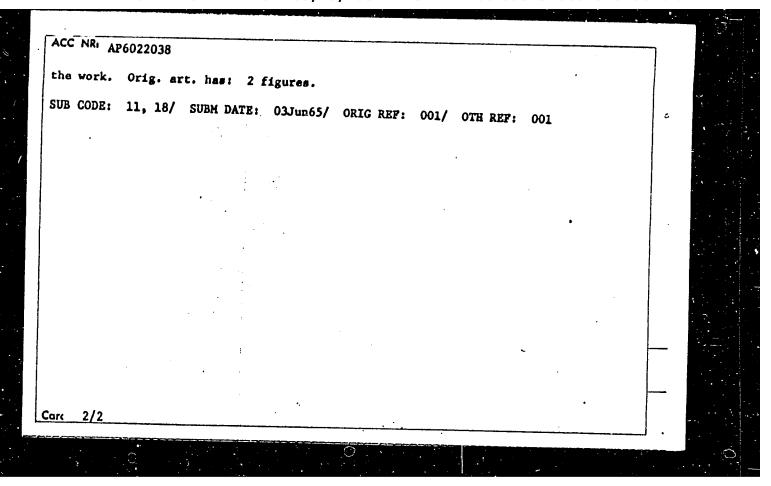
TITLE: The production of beryllium and carbon thin films

SOURCE: Pribory i tekhnika eksperimenta, no. 3, 1966, 218-219

TOPIC TAGS: thin film, thin plate, nuclear reactor technology, beryllium, carbon,

ABSTRACT: A method for producing beryllium and carbon thin films to be used either as targets or backings in nuclear reaction studies is described. The thin films were obthin\_film=production tained as follows. Beryllium and carbon were evaporated in a metallic vacuum chamber. The vapor was then deposited on glass plates covered with a thin layer of potassium soap; the layer of soap was washed away to separate the film from the glass. In this manner thin films 0.05 to 0.3 µ thick and 7 to 12 mm in diameter were obtained. Experiments have shown that carbon films are mechanically stronger and can withstand greater ray currents than beryllium films of the same thickness. The maximum proton greater ray currents than beryllium rilms of the same thickness. The maximum proton current with ray diameter of 2 mm and proton energy of 2 MeV is 0.5  $\mu\alpha$  for beryllium films 0.1  $\mu$  thick; carbon films with the same thickness can easily withstand currents of 1  $\mu\alpha$ . The authors express their gratitude to V. V. Zolochevskiy for assistance in of 1  $\mu\alpha$ . The authors express their gratitude to V. V.

Card 1/2



ALICHKIN, S.L.; AGRINSKIY, N.I.; ANDREXEY, Q.F.; BAKUMENKO, G.D.;
VORONTSOV, S.M.; VOYSTRIKOV, I.V.; GRADYUSHKO, G.M.; ZYKOV, A.V.
IVANOVYSEV, P.V.; KINBURG, M.Ta.; KOVALEV, P.A.; KOZLOVSKIY, Ye.V.
KORNIYENKO, A.P.; KOLYAKOV, T.R.Y.G.; LAKTIONOV, A.M.; LEVANNYY, B.A.
MEDVEDEV, I.D.; NOVIKOV, N.V.; ORLOV, F.M.; OSTROVSKIY, A.A.;
ORTSKV, V.P.; PENIONZHKO, A.M.; POLOZ, D.D.; PRITULIN, P.I.;
PETUKHOVSKIY, A.A.; ROGALEV, G.T.; RYRAK, P.Ta.; SUTTAGIN, G.P.
TUKOV, R.A.; KHAVCHENKO, D.F.; CHERNETSKIY, T.I.; SHPAYER, N.M.
SHUSTOVSKIY, F.A.

Nikolai Vasil'evich Spesivtsev, Veterinariia 35 no.2:96 F '58,
(MIRA 11:2)
(Slesivtsev, Nikolai Vasil'evich, 1901-1957)

ARONOV, B.A.; RAPOTA, T.D.; ANDREYEV, G.F.; SLIN'KO, B.I., red.;
LEUSHCHENKO, N.L., tekhn. red.

[Installation of "woodstone" floors] Opyt ustroistva ksilolitovykh polov. Kiev, Gosstroiizdat USSR, 1962. 18 p.

(MIRA 16:5)

1. Akademiya budivnytsva i arkhitektury URSR. Instytut
vprovadzhennis peredovoho dosvidu v budivnytstvo i tekhnichnoi informatsii.

(Floors)

Soldviver, A.A., prof.; ANLESTEV, G.G., inch.

Testing the raking and loading equipment for inclined workings.

Inv. vys. uchel. dav.; ger. zhur. 6 no. 0:140:0424 (65.

(MPA 18.9)

1. Khar'kovekiy institut comnage muchimostroyaniya, avtomatiki i vichimititel'nor tekhniki. dekomandevena kafednoy pirmyah machim i rudnichnogo transputa.

#### ANDREYEV, G.G.

Improving the clamping mechanism of the Park-2 cross-cut saw for parquet cutting. Sbor.vnedr.rats.pred. v les. i meb.prom. no.2: 72-73 159. (MIRA 13:8)

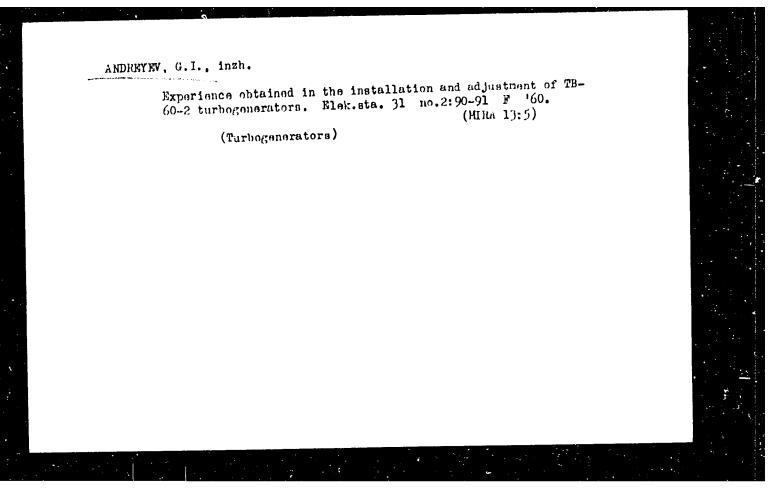
1. Derevoobrabatyvayushchiy zavod No.1 tresta "Stroydetal' No.82" Glavleningradstroya.

(Saws)

ANDRHYMY, Georgiy Ivanovich, ZHAK, Iyubov' Yefimovna; POPELLO, A.P., red.;
GORDHOCHIK, G.M., red.; KOGAH, V.V., tekhn. red.

[Machine for separating fibers from wasta] Mashina dlia vydelenia volikna iz uliuka, Pod red. A.P. Popello, Moskva, Gos. nauchnovolikna iz uliuka, Pod red. A.P. Popello, Moskva, Gos. nauchnovolikna izd-vo lit-ry po legkoi promyshl., 1958. 27 p. (MIRA 11:7)

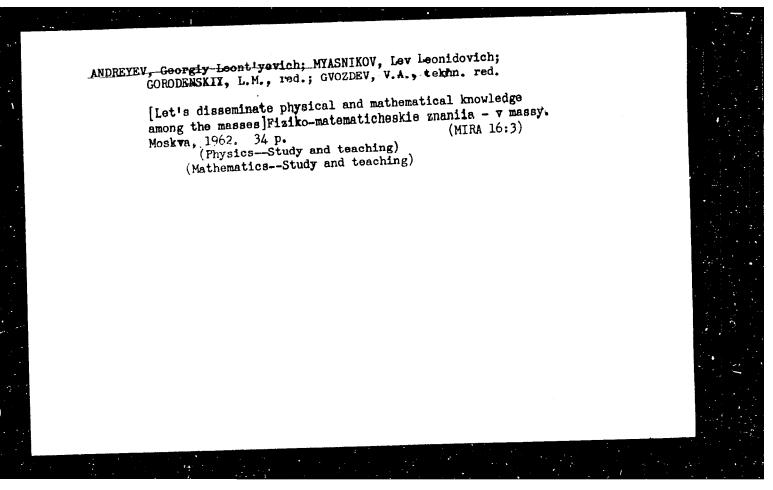
(Gotton gins and ginning)

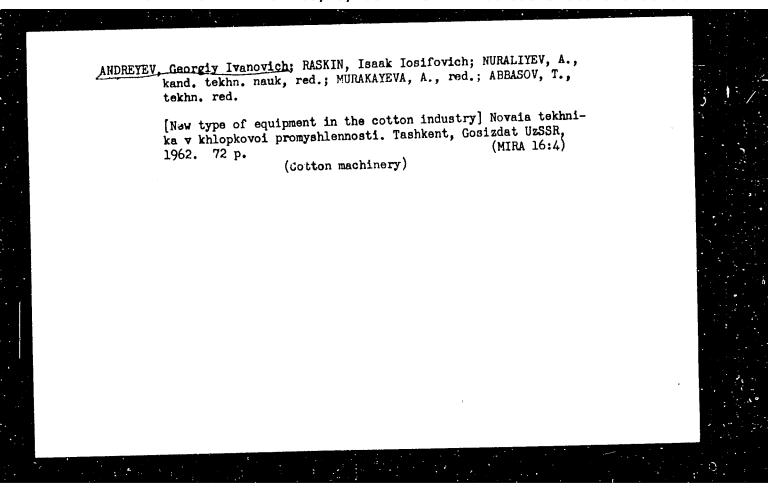


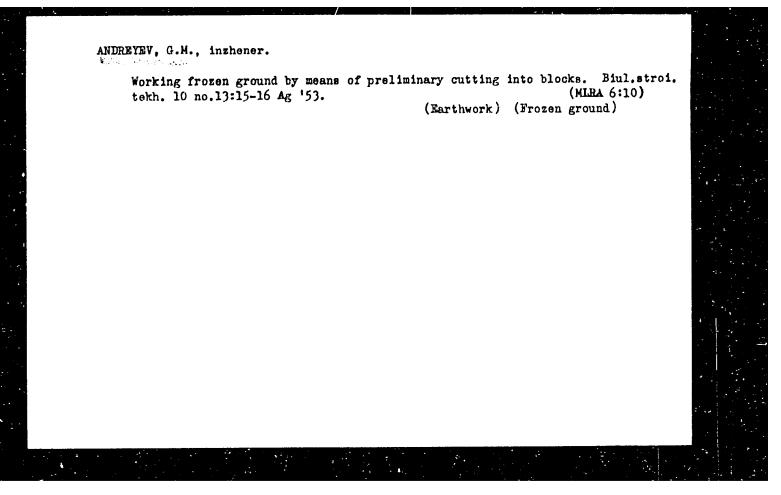
ANDREYEV, Georgiy Ivanovich; TARASOV, V., red.; SALAKHUTDINGVA, A.,
tokin. red.

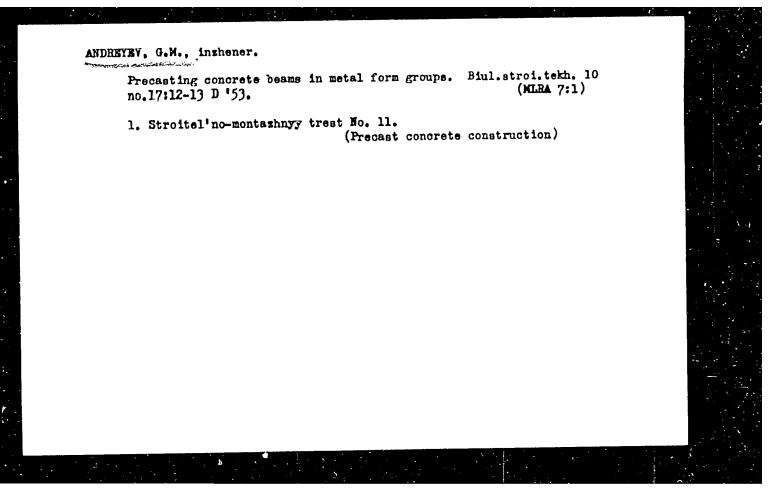
[The FNTS file-sharpening machine] Poluavtomaticheskii pilonasekatel'nyi stanok PNTs. Tashkent, Gosizdat UzSSR, 1961. 45 p.
(Grinding machines)

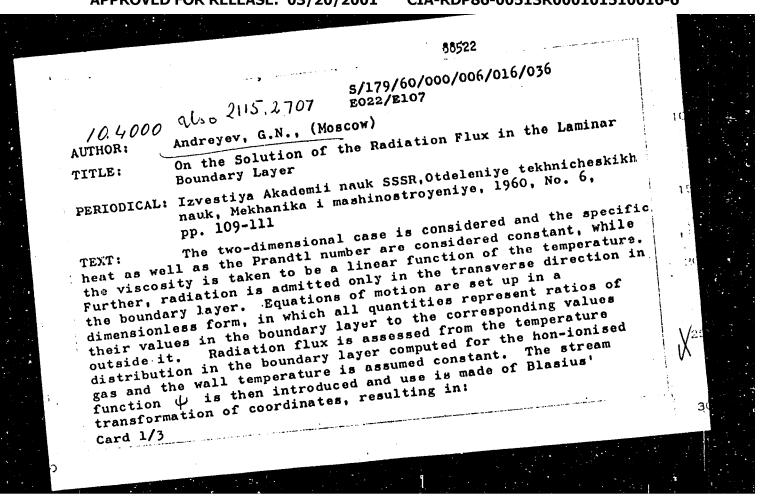
(Grinding machines)











 $\frac{88522}{5/179/60/000/006/016/036}$ On the Solution of the Radiation Flux in the Laminar Boundary Layer  $\frac{\partial^2 T}{\partial \eta^2} + \text{Pf } \frac{\partial T}{\partial \eta} - \text{Pf'} \not \xi \frac{\partial T}{\partial \xi} = -\frac{Y-1}{4} \text{PM}^2 f^{**}^2 + 2B \not \xi \frac{\partial H}{\partial \eta} \qquad (7)$ with the boundary conditions  $T = \alpha$  at  $\eta = 0$ , and T = 1 at  $\eta = \infty$ . Since the streamwise radiation is neglected, the whole radiation flux may be represented as a stratified field parallel to the wall as given by:  $H = 2N\xi \int_0^\infty dv \int_0^\infty x_i I_v E \left[N\xi \tau_v(t_i,\eta)\right] dt - \int_0^\infty dv \int_0^\infty x_i I_v E \left[N\xi \tau_v(\eta_i,t_i)\right] dt\right] \qquad (9)$ in which  $I_{ij}$  is the spectral intensity of radiation from the

in which  $I_{\gamma}$  is the spectral intensity of radiation from the absolutely black body.  $\sigma$  is Stefan's constant,  $\ell_{\gamma}$  is the unit spectral interval,  $\varkappa_{\gamma}$  is the dimensionless mass coefficient of absorption, and  $\varkappa^*$  is its characteristic value. The further analysis follows the line employed by D. Chapman and Card 2/3

88522

s/179/60/000/006/016/036 E022/E107

On the Solution of the Radiation Flux in the Laminar Boundary Layer

M. Rubesin (Ref.2). This enables the author to evaluate the difference between the temperature fields in the boundary layer in the case of ionised and non-ionised gas, which eventually leads to a formula for the heat flux in the layer. This formula is in the form of an infinite series of N and x. Since for air the values of N are small, the higher powers of N are neglected and a simplified expression for the ratio q/H is obtained which appears to have a constant value of about 10-15%. Thus it is concluded that the ionised gas partially screens the body but that the effect is not very strong.

There are 2 references: 1 Soviet and 1 English.

SUBMITTED: February 4, 1960

Card 3/3

IJP(c) L 1408-66 ENT(d)/ENP(v)/ENP(k)/ENP(h)/ENP(1) UR/0286/65/000/018/0079/0079 ACCESSION NR: AP5025725 621.317.757 AUTHOR: Atamanenko, V. G.; Andreyev, G. H.; Artemenko, I. N.; Bokhenek, Transfer function analyzer operating at infralow frequencies. Class 42, No. 174805 SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 18, 1965, 79 TOPIC TAGS: automatic pneumatic/control, automatic control system, Transfer function, automatic control analysis, ABSTRACT: This Author Certificate introduces a transfer function analyzer which operates at infralow frequencies. The device contains integrators based on operational amplifiers, a low-frequency oscillator, multiplying units, and an indicator display. The installation is designed for improved accuracy in analyzing systems with random disturbances and for reduced analysis time. The sine output from the electropneumatic low-frequency oscillator is connected to all the first inputs of the units for sine multiplication. The second inputs of these multiplication units are connected through input converters to the output of the system to be analyzed. The cosine output from the low-frequency oscillator is connected to all the Card 1/4