GROSS, Ye.F.; NOVIKOV, B.V.

Fine structure of the spectrum curves of photoconductivity in cadmium sulfide crystals. Fiz. tver. tela 1 no.3:357-362 Mr '59. (MIRA 12:5)

1. Leningradskiy gosudarstvennyy universitet, Fizicheskiy institut.
(Cadmium sulfide crystals) (Photoelectricity)

GROSS, Ye.F.; NOVIKOV, B.V.

Effect of the mechanical processing of the surface on the fine structure of spectral curves of photoconductivity in cadmium sulfide crystals. Fiz.tver.tela 1 no.12:1882-1885 D '59. (MIRA 13:5)

1. Leningradskiy gosudarstvennyy universitet, Fizicheskiy institut.
(Cadmium sulfide crystals--Electric properties)
(Photoconductivity)

SOV/51-6-4-29/29

24(7), 24(6)

AUTHORS: Gross, Ye.F., Novikov, B.V., Razbirin, B.S. and Suslina, L.G.

TITLE: Absorption Spectra of Crystals of Certain Gallium Chalcogenides (Spektry pogloshcheniya kristallov nekotorykh khalkogenidov galliya)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 4, pp 569-572 (USSR)

ABSTRACT: Linear structure in the long-wavelength edge of fundamental absorption was observed in the spectra of some semiconductors (Refs 1-10). These lines were ascribed by some authors to exiton states and by others to excess of one of the components of the semiconductor or to a foreign impurity. The present paper reports an investigation of the absorption spectra of gallium sulphide and selenide crystals (GaS and GaSe) with hexagonal laminar structure and crystals of β-Ga_2S_3 and Ga_2Se_3. GaS crystals were obtained by melting together at 1000-1050°C stoichiometric amounts of gallium and sulphur in evacuated quartz ampules. Crystals of β-Ga_2S_3 were prepared similarly but at a higher temperature (1200-1250°C). Preparation of GaSe and Ga_2Se_3 (cubic symmetry) was described by Goryunova et al (Ref 13). GaS and GaSe were used in the form of monocrystals of thicknesses varying from several microns to 100 μ. Ga_2S_3 and Ga_2Se_3 were 50-100 μ thick. Structure in the fundamental absorption edge was observed in the spectra of GaS and GaSe at 77°K (Figs 1a and 2a respectively). Such structure was also visible in the

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Absorption Spectra of Crystals of Certain Gallium Chalcogenides

absorption spectrum of GaSe at room temperature. In contrast to GaS and GaSe, no structure was observed in the fundamental absorption edges of Ga_2S_3 and Ga_2Se_3 either at room temperature or at 77°K (Figs 1§ and 2§). The absence of structure in the absorption spectra of β-Ga_2S_3 and Ga_2Se_3 is probably due to a large number of randomly distributed imperfections in these crystals. Such imperfections impede formation and migration of excitons and consequently the exciton lifetime is very short. Under such conditions the exciton structure of the absorption bands may be very diffuse or it may disappear altogether. From the absorption spectra the authors deduced the energy gaps in these semiconductors. A table on p 571 lists the values of the energy gaps so deduced at 290°K (col 2) and 77°K (col 3). These values agree satisfactorily with those deduced from photoelectric measurements at room temperature, which are listed in col 3. Acknowledgments are made to N.A. Goryunova for supply of GaSe and Ga_2Se_3 and for advice on preparation of GaS and Ga_2S_3 crystals. There are 2 figures, 1 table and 17 references, 10 of which are Soviet, 5 French and 2 German.

SUBMITTED: November 27, 1958

USCOMM-DC-60,717

Card 2/2

NOVIKOV, B. V., and GROSS, Yevgeniy F.

"Fine Structure of Spectral Curves for Excitation of Photoconductivity and Luminescence and its Connection with Exciton Absorption."

REPORT TO be submitted for the Intl. Conference on Photoconductivity, IUPAP, Cornell University, Ithaca, N. Y., 21-24 Aug 1961.

Leningrad State Univ.

22059

S/181/61/003/004/025/033
B102/B209

9.4177(105,1482)

AUTHORS: Gross, Ye. F. and Novikov, B. V.

TITLE: The relation between background and the fine-structure maxima of the spectral curves of photoconductivity in CdS single crystals

PERIODICAL: Fizika tverdogo tela, v. 3, no. 4, 1961, 1249-1252

TEXT: In previous papers (ZhTF, vyp. 4, 913, 1956 and DAN SSSR, 110, no. 5, 761, 1956), the authors reported on the discovery of a complex structure of the spectral photocurrent distribution at T = 77°K in the range of the known exciton absorption lines. These distribution curves may be divided into two classes: The first class contains those in which the exciton absorption lines coincide with the photocurrent maximum, while the second class encompasses such in which the exciton absorption lines coincide with the photocurrent minima. According to this classification, the crystals differ essentially in the character of the short-wave drop of photoconductivity. In a later paper, the effect of defects and surface condition of CdS crystals upon absorption lines and photocurrent curves was studied. These studies

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The relation ...

have now been continued. Both classes of CdS crystals have a structureless background. Fig. 1 shows that the relative values of maxima and background differ greatly in different specimens. In the curves denoted by a, E was perpendicular to C (E - electric vector of the exciting light, C - optical axis of the crystal), whereas in those indicated by b, E was parallel to C. Like M. S. Brodin, the authors found that the background is considerably polarized in the direction of the electric vector E⊥C. The structure of the photoconduction curves vanishes in many cases if the surface of the crystal is subjected to a slight treatment. In this manner, curve a in Fig. 2 was obtained from a₂ (Fig. 1) by wiping the surface of the crystal with wet cotton. The sensitivity of the specimen decreased. The structure of the curve after polishing had such a shape that the crystal had to be assigned to the second class. The authors also determined the spectral distribution curves of polycrystalline CdS films sputtered upon glass backings. In such films which exhibited a structured absorption edge, also a structure of the photoconduction curves was found. The background was very high in this case, and the fraction of radiation used to determine the structure accounted only for some per cent. These facts speak in favor of an interrelation between the photoactive background (or part of it) and the lattice imperfections. Films

S/181/61/003/004/025/030
B102/B209

The relation ...

having no structure of the absorption edge had completely smooth photocurrent curves at 77°K. V. L. Broude, V. V. Yeremenko, V. S. Medvedev, M. K. Sheynkman, N. N. Chikovani, and M. S. Brodin are mentioned. There are 2 figures and 10 references: 7 Soviet-bloc and 3 non-Soviet-bloc. The two references to English-language publications read as follows: D. Dutton, Phys. Rev. 112, 785, 1958; D. G. Thomas, J. J. Hopfield, Phys. Rev. 116, 573, 1959.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova Fizicheskiy institut (Leningrad State University imeni A. A. Zhdanov, Institute of Physics)

SUBMITTED: September 26, 1960

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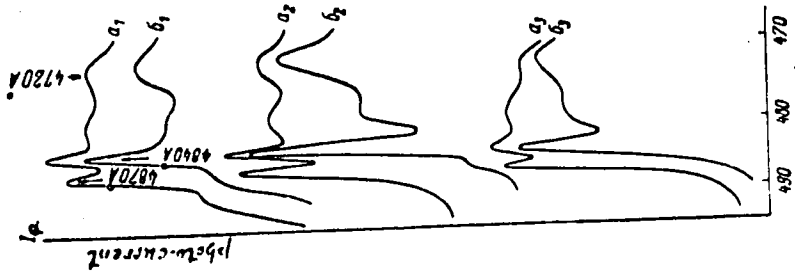
22059
S/181/61/003/004/025/030
B102/B209

The relation ...

Figs. 1 and 2



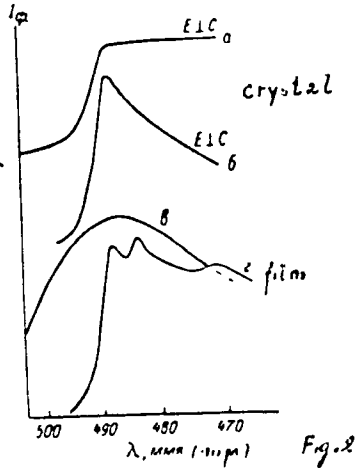


Fig. 2

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30794
S/181/61/003/011/040/056
B104/B102

9.4177 (1035,1041)
26.2421

AUTHORS: Grillot, E., Gross, Ye. F., Bancie-Grillot, M., and Novikov, B. V.

TITLE: Dissimilarities of spectral photosensitivity of pure CdS crystals

PERIODICAL: Fizika tverdogo tela, v. 3, no. 11, 1961, 3519-3521

TEXT: Studies are conducted on the influence of the method of manufacture, the thickness of the specimens, and the polarization of the exciting light on the spectral photosensitivity of CdS crystals of high purity. An instrument described in a previous paper (Ye.F. Gross et al., FTT, 1, 357, 1959) was used for the measurements. The specimens cooled down to 77°K were excited with ordinary and polarized light. At this temperature, the specimens exhibited a dark resistivity of about 10^{10} ohm.cm and, at the same time, a high photosensitivity. A rather characteristic fluorescence occurring at 20 and 4°K in specimens produced by sublimation had been detected earlier (E. Grillot et al., C.R., 242, 1794, 1956; M. Bancie-Grillot et al., C.R., 248, 213, 1959; ZnOS, 6,

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Dissimilarities of spectral photosensitivit...

polarization plane of the exciting light. This influence is particularly striking near the absorption edge.

There are 2 figures and 10 references: 3 Soviet and 7 non-Soviet. The reference to the English-language publication reads as follows: R. H. Bube. J. Chem. Phys., 21, 8, 1409, 1953.

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

SUBMITTED: July 15, 1961

Card 3/4

24.2600

S/181/62/004/005/011/055
B125/B104

AUTHORS: Gross, Ye. F., Lider, K. F., and Novikov, B. V.

TITLE: Spectral examination of the photoconductivity curves of CdS crystals at 77 and 4°K in the region of the absorption edge

PERIODICAL: Fizika tverdogo tela, v. 4, no. 5, 1962, 1135 - 1139

TEXT: Plates of CdS single crystals affixed to quartz backings were used to study the effect of temperature on the shape of the spectral curves of photocurrent and the coincidence between the absorption maxima and the values of photocurrent. Cooling from 77 to 4°K produces the following effects: Like the absorption spectrum, the curves are also shifted toward shorter wavelengths. All curves obtained at 4 and 77°K may be divided into two groups according to the coincidence between their absorption maxima and their extreme values of photocurrent. In the first group, the absorption lines correspond to photocurrent maxima, and in the second, they correspond to minima. On the short-wave section of the curves, the photosensitivity of crystals belonging to the second group at 77°K was higher

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43126

S/181/62/004/011/026/049
B125/B186

AUTHORS: Novikov, B. V., Sokol'skaya, I. L., and Shcherbakov, G. P.

TITLE: Fine structure of spectral dependence of the autoelectronic emission from CdS monocrystals

PERIODICAL: Fizika tverdogo tela, v. 4, no. 11, 19-2, 3240-3243

TEXT: The fine structure of the electron spectra were studied in order to elucidate structures which show analogies to the spectral distribution of photoconductivity, also to obtain new data on autoelectronic emission, and to compare the data with those of photoconductivity. In the experiments, a Müller-type electron generator with a vacuum of $\sim 10^{-9}$ mm Hg was used. CdS crystals, measuring 0.5·0.01 mm², were used as emitters with no special impurities introduced. To restore the photosensitivity of the crystals which was lost at 480°C in the degassing process they were bombarded with electrons of 1.5 kev. For working at low temperatures the thermal equilibrium of the crystal temperature was established at 83°K with the aid of liquid nitrogen. A monochromator with a dispersion of 45 Å/mm and a spectral slit of 2-6 Å was used to illuminate the entire crystal together

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with the contact assembly. The autoelectronic emission was measured with an electrometric amplifier. The autoemissive current of the order of 10^{-12} to 10^{-9} A was recorded near the absorption edge at T = 90° K in two orientations of E with respect to the crystal's C-axis. These curves clearly revealed minima of autoelectronic emission which correspond to the exciton absorption lines, but no maxima were observed. To eliminate possible experimental errors, CdS crystals were studied in five different apparatus. It is concluded that the character of the absorption is related to the specific nature of autoelectron emission or, more probably, to the electron bombardment and excessive heating in the vacuum. On the other hand, repeated bombardment did not change the positions of the exciton minima. Photoconductivity and autoelectronic emission spectra studied on the same CdS crystal revealed qualitative agreement but a very sharply expressed maximum of the photoconductivity current. Autoelectronic absorption maxima obtained under certain conditions at $\lambda > \lambda_{edge}$ where no exciton lines exist, and were completely or partially quenched by IR light. The appearance of long-wave maxima is attributed to illumination and plate voltage conditions. These phenomena are provisionally explained by the following hypothesis

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the inhomogeneity of conductivity resulting from the strong field effect is experienced by the emitter point earlier than by the remainder of the crystal. Hence it generates a strong local field in certain parts of the crystal and consequently also a volume charge which is capable of oscillating. The electrooptical effect which may occur in the region of a strong field (L. V. Keldysh. ZhETF, 34, 1138, 1958) may possibly cause the excitation of electrons by light with $\lambda > \lambda$ edge. These electrons may diffuse into other parts of the crystal and may amplify the autoelectronic current. In this respect, the action of IR light is equal to that of visible light. The possibility of electrons being overheated in the strong field region and of non-equilibrium electrons diffusing into adjacent parts of the crystal is not excluded. There are 4 figures.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: June 26, 1962

NOVIKOV, B. V.

Dissertation defended for the degree of Candidate of Physicomathematical Sciences at the Technical Physics Institute imeni A. F. Ioffe in 1962:

"Spectral Investigations of Photoconductivity in the Region of the Absorption Limit of Several Crystals at T= 77° K."

Vest. Akad. Nauk SSSR. No. 4, Moscow, 1963, pages 119-145

LIDER, K.F.; NOVIKOV, B.V.

Absorption, luminescence, and photoconductivity of polycrystalline AgI films in the region of the absorption edge at low temperatures. Vest. LGU 18 no.10:45-51 '63. (MIRA 16:8)
(Silver iodide--Absorption spectra)

AKOPYAN, Y. Kh.; GROSS, Ye. F.; DREYNGOLD, F. I.; NOVIKOV, B. V.; TITOV, R. A.; SHERKHMAMETYEV, R. I.

"The investigation by the photoconductivity and luminescence method of the exciton states near the edge and in the depth of the fundamental absorption in crystals."

paper submitted for Intl Conf on Physics of Semiconductors, Paris, 19-24 Jul 64.

Leningrad State Univ.

ACCESSION NR: AP4039642 S/0181/64/006/006/1612/1618

AUTHORS: Kreyngol'd, F. I.; Novikov, B. V.

TITLE: A study of the reasons for the variability of spectral lines of photoconductivity of CdS crystals in the boundary region of absorption

SOURCE: Fizika tverdogo tela, v. 6, no. 6, 1964, 1612-1618

TOPIC TAGS: spectral line, photoconductivity, cadmium sulfide, absorption, excitation, modulated light, thermal conductivity/ ISP 28 spectrograph, SVDSh 500 illuminator

ABSTRACT: The authors investigated the correlation between the changes in the fine structure spectral lines of photocurrent in CdS crystals (originating from the process of cooling the crystals from 77 to 4K) and the changes occurring in the photocurrent spectra during transition from the modulated regime of excitation to the unmodulated regime. Experiments were performed to study the thermally stimulated current and the luminiscence spectra at 77K. Ye. F. Gross and B. V. Novikov had shown earlier (FTT, 1, 357, 1959) that it was possible to classify these crystals into two groups according to the spectral lines. It is shown in the present work that the first group is characterized by one peak (0.15 ev) of the

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thermally stimulated current in the interval of temperature from -196C to 20C; also, they do not show luminescence. The crystals of the second group are characterized by two peaks (0.15 and 0.35 ev) in the same range of temperature, and they show strong green or orange luminescence at 75K. Data on the spectra of photocurrent revealed that in a series of cases the spectral lines differed essentially in the range of 77-4K. In the second group, some lines transformed into the first group on cooling from 77 to 4K. The role played by the collector was investigated by the method of thermally stimulated conductivity, outlined by A. P. Trofimenko and G. A. Fedorus (UFZh, 3, 468, 1958) and by I. I. Boyko, E. I. Rashba, and A. P. Trofimenko (FTT, 2, 109, 1959). The crystal was first cooled to 77K, and subjected to intensive illumination. Then the light was shut off, and the dependence of dark current on temperature was measured. The rate of heating (at a value between 0.07 and 0.3C/sec, depending on the experiment) was kept constant. The intensity of the collector was obtained from the following formula

$$\frac{E}{kT_m} = \ln\left(\frac{T_m^2}{\beta}\right) + \ln\left(\frac{A}{E}\right),$$

where E is the intensity of the collector, β the rate of heating, T_m the temperature at which the thermally stimulated conductivity is a maximum, and A is a constant. Along with this the luminescence of CdS crystals was also studied. The spectra were observed, using an ISP-28 spectrograph and a SVDSh-500 illuminator.

ACCESSION NR: AP4039642

These experiments revealed the connection between the luminescence and the presence of collectors at 0.15 ev. Luminescence originated at 77K only in such crystals in which collectors were present. The authors thank Associate Member of the AN SSSR, Professor Ye. F. Gross, for his interest in this work and valuable discussions, and Ye. Andreyev, graduate student at LGU, for helping with the experiments. Orig. art. has: 3 figures, 2 tables, and 1 formula.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: 18Nov63

ENCL: 00

SUB CODE: SS NO REF SOV: 012 OTHER: 006

Card 3/3

ACCESSION NR: AP4039660 S/0181/64/006/006/1724/1728

AUTHORS: Shekhmamet'yev, R. I.; Novikov, B. V.

TITLE: Excitation spectra of photoconductivity and edge emission in CdS crystals

SOURCE: Fizika tverdogo tela, v. 6, no. 6, 1964, 1724-1728

TOPIC TAGS: excitation spectrum, photoconductivity, edge emission, cadmium sulfide, modulated excitation, monochromatic illuminator UM 2, spectrograph ISP 51, photoelectric attachment FEP 1, amplifier 28 IM

ABSTRACT: Excitation spectra of edge emission and of photocurrent in CdS crystals were studied at modulated and unmodulated exposures at a temperature of 77K. It was desired to compare the characteristics of photoconductivity and excitation of edge emission in a single specimen. The excitation of green emission was produced by means of a monochromatic illuminator UM-2; the source of light was an incandescent lamp; and the exciting radiation fell at an angle of 10-15°. For recording the spectrum the apparatus used included a spectrograph ISP-51 with photoelectric attachment FEP-1, which gave a good resolution in the narrow ranges of emission of 20-30 Å. The spectrum of excitation of photoconductivity was measured both at

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ACCESSION NR: AP4039660

stationary and unmodulated exposures. At stationary exposure the photocurrent was registered by an electrometric amplifier. Registration of photocurrent at modulated exposure was accomplished with an amplifier 28-IM. The signal was recorded by a mirror galvanometer with photopaper attachment. The modulation of light was produced by a rotating disk with a notch cut in it. The frequency of modulation was 600-900 cps. In the spectra of excitation of edge emission the lines of excitation corresponded to maxima in the spectrum for sample 3 and to minima for sample 43. In the spectra of excitation of photocurrent at unmodulated exposure the lines of absorption corresponded to minima in both specimens. The authors thank Ye. F. Gross, associate member of the AN SSSR, for his valuable comments. Orig. art. has: 1 figure.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: 29Dec63

ENCL: 00

SUB CODE: SS

NO REF SOV: 008

OTHER: 009

Card 2/2

L 30956-66 EWT(1)/EWT(m)/T WW/JW/WE

ACC NR: AP6013390 SOURCE CODE: UR/0096/66/000/005/0081/0084

AUTHOR: Novikov, B. V. (Engineer)

ORG: none

TITLE: Some problems in designing centrifugal injectors

SOURCE: Teploenergetika, no. 5, 1966, 81-84

TOPIC TAGS: fuel injector, centrifugal fuel injector, centrifugal injector

ABSTRACT: Experimental and theoretical studies were made to determine the reasons for the discrepancies in experimental and theoretical values of centrifugal fuel-injector discharge coefficients. Previous investigations have shown that discharge coefficients based on Abramovich's theory (which assumes that in a nonviscous flow, the total pressure head in the injector is constant) are lower than those obtained experimentally. Experimental and theoretical relationships are derived for calculating the hydraulic and cavitational losses in the tangential inlet ports of a centrifugal injector. It is concluded that: 1) Hydraulic losses in the tangential inlet ports result in a decrease in the actual discharge coefficient. 2) The pressure head drop increases as the relative velocity head at the inlet increases. 3) In fully opened injectors, ($d_n = D_{ch}$, where d_n = nozzle diameter, and D_{ch} = swirl chamber diameter), during discharge into an atmosphere at large pressure gradients, the formation of cavitation is possible at the injector inlet, and therefore the

Card 1/2 UDC: 621.43.037

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ACC NR: AP6013390

discharge coefficient is reduced. 4) The injector's geometric characteristics are affected by the deflection of the jet issuing from the tangential port. Orig. art. has: 4 figures, 2 tables, and 8 formulas. [AS]

SUB CODE: 21/ SUBM DATE: none/ ATD PRESS: 4239

Card 2/2

ACC NR: AP6036321 SOURCE CODE: GE/0030/66/018/011/K001/K004

AUTHOR: Lider, K. P.; Novikov, B. V.; Permogorov, S. A.

ORG: Institute of Physics, State University, Leningrad

TITLE: Application of bound-exciton optical spectra in the study of radiation damage in crystals

SOURCE: Physica status solidi, v. 18, no. 11, 1966, K1-K4

TOPIC TAGS: radiation damage, ~~irradiation damage~~, ionizing irradiation, exciton, crystal lattice defect, optic spectrum, luminescence spectrum

ABSTRACT: Radiation damage in crystals was investigated by means of excitons bound to lattice defects. The radiative annihilation of bound-exciton states gives rise to emission lines which are resonant with the absorption lines. Of the bound-exciton lines, the most intensive are the I_1 line (4888.6 Å) and the group of I_2 lines (I_{2A}: 4867.2 Å; I_{2B}: 4869.1 Å; I_{2C}: 4870.2 Å). Bound-exciton emission was studied at 77 and 4.2K in CdS crystals bombarded with ions and deuterons. Ion bombardment caused the I_2 to appear in the luminescence spectrum at 77K of those specimens for which it had not been observed before bombardment; it intensified those which had been present before bombardment. At 4.2K a new line with a 4870.1 Å wavelength appeared in the luminescence

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ACC NR: AP6036321

and absorption spectra of ion-bombarded crystals. The stimulated line corresponded to the I_{2C} line. To prove that the changes observed in the luminescence spectrum resulted from the radiation damage, CdS crystals were bombarded with a flux of $10^{16}/cm^2$ 6-Mev deuterons. Essentially the same changes occurred in the luminescence spectrum as occurred after bombardment with ions. At 77K a line appeared in the luminescence spectrum with its center near 4886 Å. As compared to the line obtained by ion bombardment, it was considerably broader and did not exhibit an apparent dependence on light polarization. All the radiation induced changes were stable at room temperature. The appearance of an emission line at 4886 Å at 77K as well as the emission and absorption line at 4870.1 Å corresponding to it at 4.2K can be associated with the increased sulphur vacancies in the near-surface layer. They act as donors and produce a change of dark resistance. When such crystals are excited by light, exciton neutral-donor complexes are formed near these vacancies, which cause the appearance of a new spectral line. The energy of the bombarding ions and deuterons is sufficient to displace atoms of both sulphur and cadmium. However, in this case sulphur vacancies are primarily formed. [WA-95]

SUB CODE: 20/ SUBM DATE: 29Aug66/ ORIG REF: 003/ OTH REF: 005

Card 2/2

ACC NR: AP6036321 SOURCE CODE: GE/0030/66/018/011/K001/K004

AUTHOR: Lider, K. F.; Novikov, B. V.; Permogorov, S. A.

ORG: Institute of Physics, State University, Leningrad

TITLE: Application of bound-exciton optical spectra in the study of radiation damage in crystals

SOURCE: Physica status solidi, v. 18, no. 11, 1966, K1-K4

TOPIC TAGS: radiation damage, ~~irradiation damage~~, ionizing irradiation, exciton, crystal lattice defect, optic spectrum, luminescence spectrum

ABSTRACT: Radiation damage in crystals was investigated by means of excitons bound to lattice defects. The radiative annihilation of bound-exciton states gives rise to emission lines which are resonant with the absorption lines. Of the bound-exciton lines, the most intensive are the I_1 line (4888.6 Å) and the group of I_2 lines (I_{2A}: 4867.2 Å; I_{2B}: 4869.1 Å; I_{2C}: 4870.2 Å). Bound-exciton emission was studied at 77 and 4.2K in CdS crystals bombarded with ions and deuterons. Ion bombardment caused the I_2 to appear in the luminescence spectrum at 77K of those specimens for which it had not been observed before bombardment; it intensified those which had been present before bombardment. At 4.2K a new line with a 4870.1 Å wavelength appeared in the luminescence

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ACC NR: AP6036321

and absorption spectra of ion-bombarded crystals. The stimulated line corresponded to the I_{2C} line. To prove that the changes observed in the luminescence spectrum resulted from the radiation damage, CdS crystals were bombarded with a flux of $10^{16}/cm^2$ 6-Mev deuterons. Essentially the same changes occurred in the luminescence spectrum as occurred after bombardment with ions. At 77K a line appeared in the luminescence spectrum with its center near 4886 Å. As compared to the line obtained by ion bombardment, it was considerably broader and did not exhibit an apparent dependence on light polarization. All the radiation induced changes were stable at room temperature. The appearance of an emission line at 4886 Å at 77K as well as the emission and absorption line at 4870.1 Å corresponding to it at 4.2K can be associated with the increased sulphur vacancies in the near-surface layer. They act as donors and produce a change of dark resistance. When such crystals are excited by light, exciton neutral-donor complexes are formed near these vacancies, which cause the appearance of a new spectral line. The energy of the bombarding ions and deuterons is sufficient to displace atoms of both sulphur and cadmium. However, in this case sulphur vacancies are primarily formed. [WA-95]

SUB CODE: 20/ SUBM DATE: 29Aug66/ ORIG REF: 003/ OTH REF: 005

Card 2/2

NOVIKOV, D.A.

Settling of the pressure filter mud in the field of centrifugal forces. Trudy MTIPP 16:67-77 '60. (MIRA 16:6)

(Sugar manufacture)
(Separators(Machines))

NOVIKOV, D.A.

Investigating the settling of pressure filter mud in the field of gravitation forces. Trudy MTIPP 16:114-122 '60. (MIRA 16:6)

(Sugar manufacture)
(Separators(Machines))

NOVIKOV, D.A.

Investigating the performance of separators with variable inclination of partitions. Trudy MTIPP 16:143-148 '60. (MIRA 16:5)

(Separators(Machines))

NOVIKOV, D. A. Cand Tech Sci -- "Study of the settling process of saturation mud in a field of centrifugal forces." Mos, 1961 (Min of Higher and Secondary Specialized Education RSFSR. Mos Technological Inst of Meat and Dairy Industry). (KL, 4-61, 199)

NOVIKOV, D.A.

Efficiency of separators for settling carbonation mud. Izv. vys. ucheb. zav.; pishch. tekh. no. 2:144-151 '61. (MIRA 14:5)

1. Moskovskiy tekhnologicheskiy institut pishchevoy promyshlennosti. Kafedra protsessov i apparatov.
(Sugar manufacture)

NOVIKOV, D.D., ref.gornyy inzhener.

Analysis of traumas occuring in Czech mines. Gor.zhur.no.8:56-57 Ag '56. (Czechoslovakia--Mine accidents) (MLRA 9:10)

HORAK, R. inzh. MRNKA, Z. inzh.; PROKOP, S., inzh.; NOVIKOV, D.D. [translator], gornyy inzh.

Mining iron ores in Ejpovice. Gor.zhur. no.10:34-39 O '57. (MIRA 10:12)

(Czechoslovakia--Iron mines and mining)

Novikov, D. D.

SHTILLER, V. [Stiller, V.], inzh.; NOVIKOV, D.D. [translator], gornyy inzh.

Ore mining at the Chvaletice open pit mine. Translated by D.D. Novikov. Gor.zhur. no.10:40-43 O '57. (MIRA 10:12)
(Czechoslovakia--Iron mines and mining)

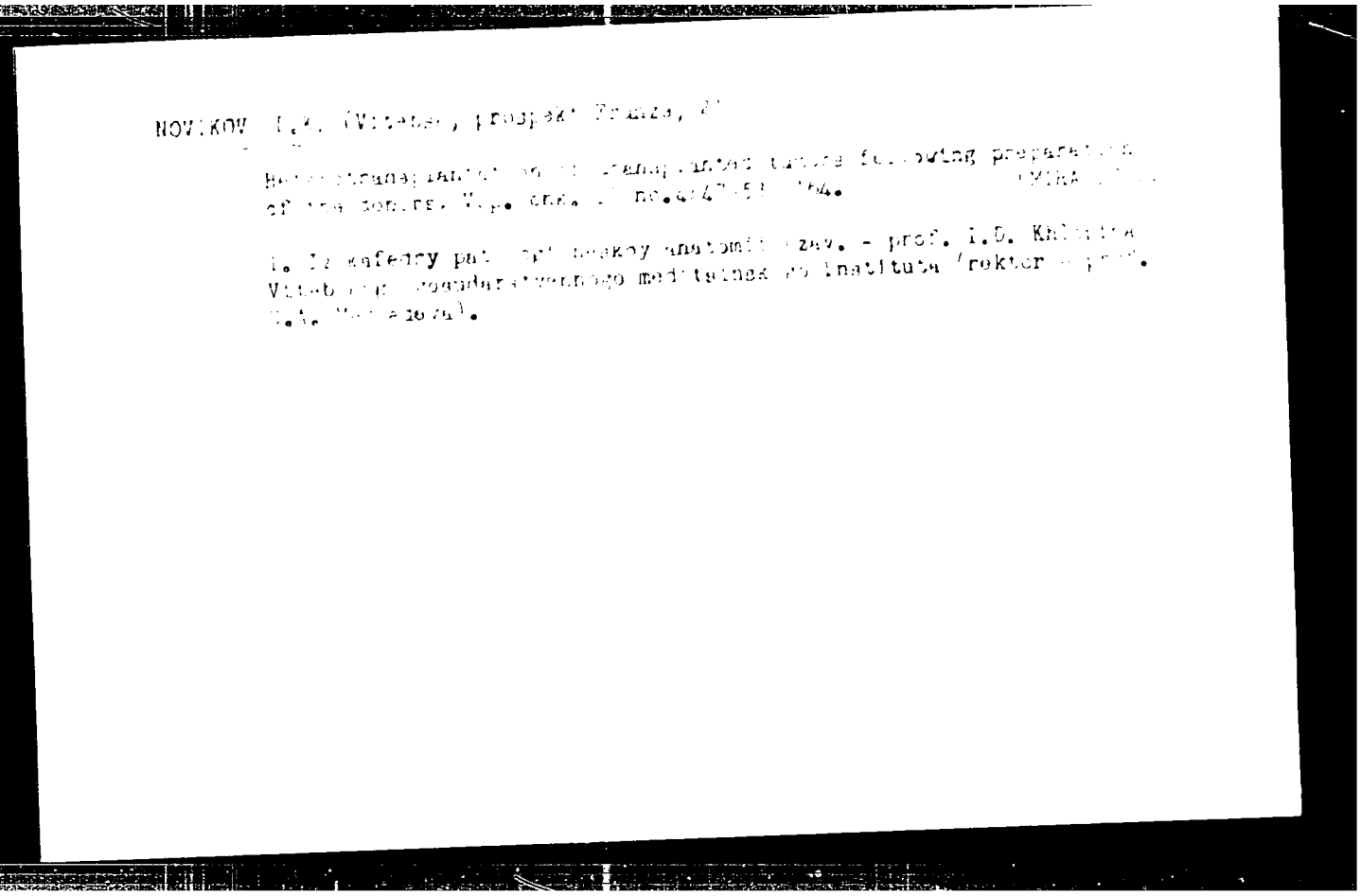
NOVIKOV, D. G., Docent of the North Caucasus Mining Inst

Pyrometallurgy of Cooper." Sub 3 Feb 47, Moscow Inst of Nonferrous Metals and Gold imeni M. I. Kalinin

Cand Technical Sc.

Dissertations presented for degrees in science and engineering in Moscow in 1947.

SO: Sum.No. 457, 18 Apr 55



NOVIKOV I.A. (Vitebsk, prospekt Frunze, 27)

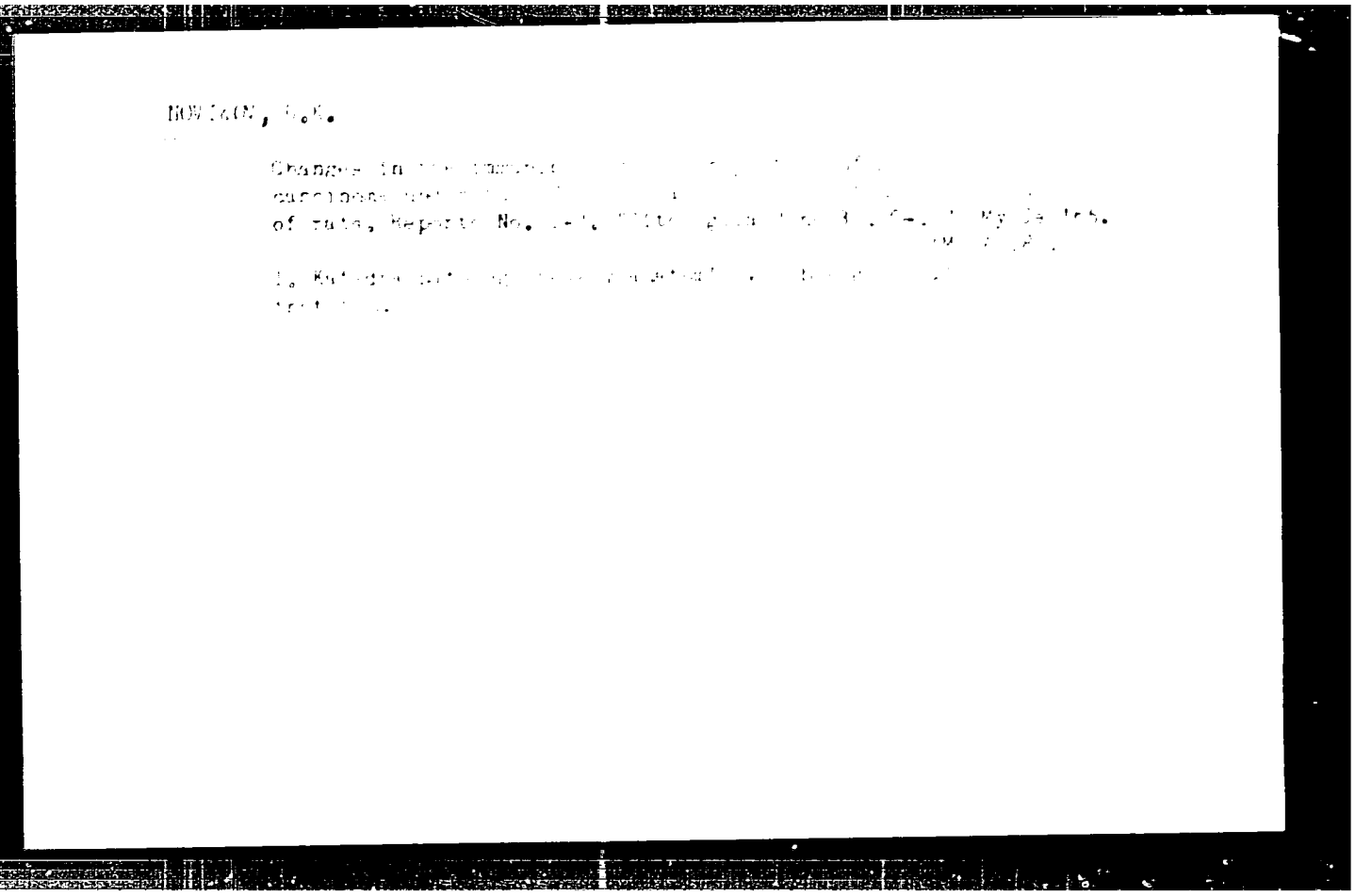
[illegible] of the bones. Ortop. i travm. no.4:47-51 '64.

1. Iz kafedry patologicheskoy anatomii (zav. - prof. I.D. Khlistkina) Vitebskogo [illegible] meditsinskogo instituta (rektor - prof. [illegible]).

NOVIKOV, D.K.

Skin homotransplantation in rats following administration of the recipients' spleen suspension to the donors. Biul. eksp. biol. i med. 59 no.6:95-97 Je '65. (MIRA 18:6)

1. Kafedra patologicheskoy anatomii (zav. - prof. I.I. Khlopina) Vitebskogo meditsinskogo instituta.



BOWMAN, F.O.

24(3)
AUTHORS: Glazov, A.A., Novikov, D.L.

SOV/57-28-10-31/40

TITLE: Investigation of a High-Frequency Resonance Discharge (Issledovaniye rezonansnogo vysokochastotnogo razryada)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, Vol 28, Nr 10, pp 2294-2301 (USSR)

ABSTRACT: This paper contains a description of the theoretical and experimental investigation of a high-frequency resonance discharge in a magnetic field in the frequency range of 50 to 100 Mc. This investigation was carried out in the Laboratoriya yadernykh problem Ob"yedinennogo instituta yadernykh issledovaniy (Laboratory for Nuclear Problems at the United Institute of Nuclear Research in 1956 - 1957. A special apparatus had to be constructed for the investigation of the properties of a high-frequency resonance discharge, henceforth referred to by the term RHD. The RHD is produced due to the secondary electrons, the time of flight of which in the most simple case is equal to the half-period of the high frequency. The conditions prevailing in the formation of a RHD are investigated for the following two cases: 1) The cathode is simultaneously the high-frequency electrode, $l = 0$. 2) The cathode projects into the high-frequency electrode, $l > 0$. The experimental investigation of the RHD proceeded in two sections:

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Investigation of a High-Frequency Resonance Discharge

1) An investigation of the conditions prevailing in the formation of the RHD and the resonance properties of the RHD. 2) An investigation of the characteristics of the discharge plasma. The experience gained in a series of experiments substantiated the correctness of the results of the theoretical study of the sparkover conditions of the RHD with $\Delta = 0$ and also with the existence of a drift space ($l > 0$). The relations obtained in this connection can be utilized in the analysis of the sparkovers in the acceleration chambers for the purpose of an effective arc suppression and in the design of ion sources utilizing a RHD mechanism. The analysis of the discharge characteristics showed that an ion source operating on RHD principles exhibits certain advantages as compared to a high-frequency arc discharge and to ordinary high-frequency E-discharges. It differs from the first by a high percentage of H_3^+ and a practically unlimited life of the cathodes. From the second it differs by the low values of sparkover voltages and a stable performance in a high vacuum. This work was undertaken due to the initiative of V.S.Kotyshev (deceased). The mechanic V.A. Teperin assisted in the experiments.

Card 2/3

Investigation of a High-Frequency Resonance Discharge

SOV/57-28-10-31/40

There are 3 figures, 1 table, and 9 references, 3 of which are Soviet.

SUBMITTED: October 26, 1957

Card 3/3

DANILOV, V.I.; YENCHEVICH, I.B.; ZAMOLODCHIKOV, B.I.; MARCHENKO, B.N.; NOVIKOV, D.L.; POLFEROV, E.A.; ROZANOV, Ye.I.; SAVENKOV, A.L.; SAFONOV, A.N.

Increase in intensity of a proton beam in a six-meter synchro-cyclotron of the United Institute of Nuclear Research. Atom. energ. 16 no.1:9-11 Ja '64. (MIRA 17:2)

S/0057/64/034/007/1272/1284

ACCESSION NR: AP4042004

AUTHOR: Glazov, A.A.; Kochkin, V.A.; Novikov, D.L.; Onishchenko, L.M.

TITLE: A high frequency resonant cavity for accelerating protons to 1 MeV

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.7, 1964, 1272-1284

TOPIC TAGS: particle accelerator, proton accelerator, injector

ABSTRACT: A re-entrant resonant cavity is described which, when operated as a single stage proton accelerator, produces 20 microsec 10 mA pulses of approximately 1 MeV protons at a repetition rate of 50 sec^{-1}. The accelerator was developed during the years 1960 to 1962 at the Joint Institute for Nuclear Research as an injector for the phasotron described elsewhere by D.P.Vasilevskaya and 13 other authors (Preprint OIYaI R-930, Dubna, 1962; Nucl. Instr. 21, 85, 1963). The accelerator consisted of a 1 m diameter 1 m long steel cylinder with 30 cm diameter copper cylinders projecting radially inward from each end to within 2 cm of the center. One of these cylinders was movable in the axial direction for adjustment of the 4 cm accelerating gap, and the other contained the cold cathode Penning discharge ion source. The interior of the cavity was covered with polished copper; a Q of 14 000 was thereby achieved.

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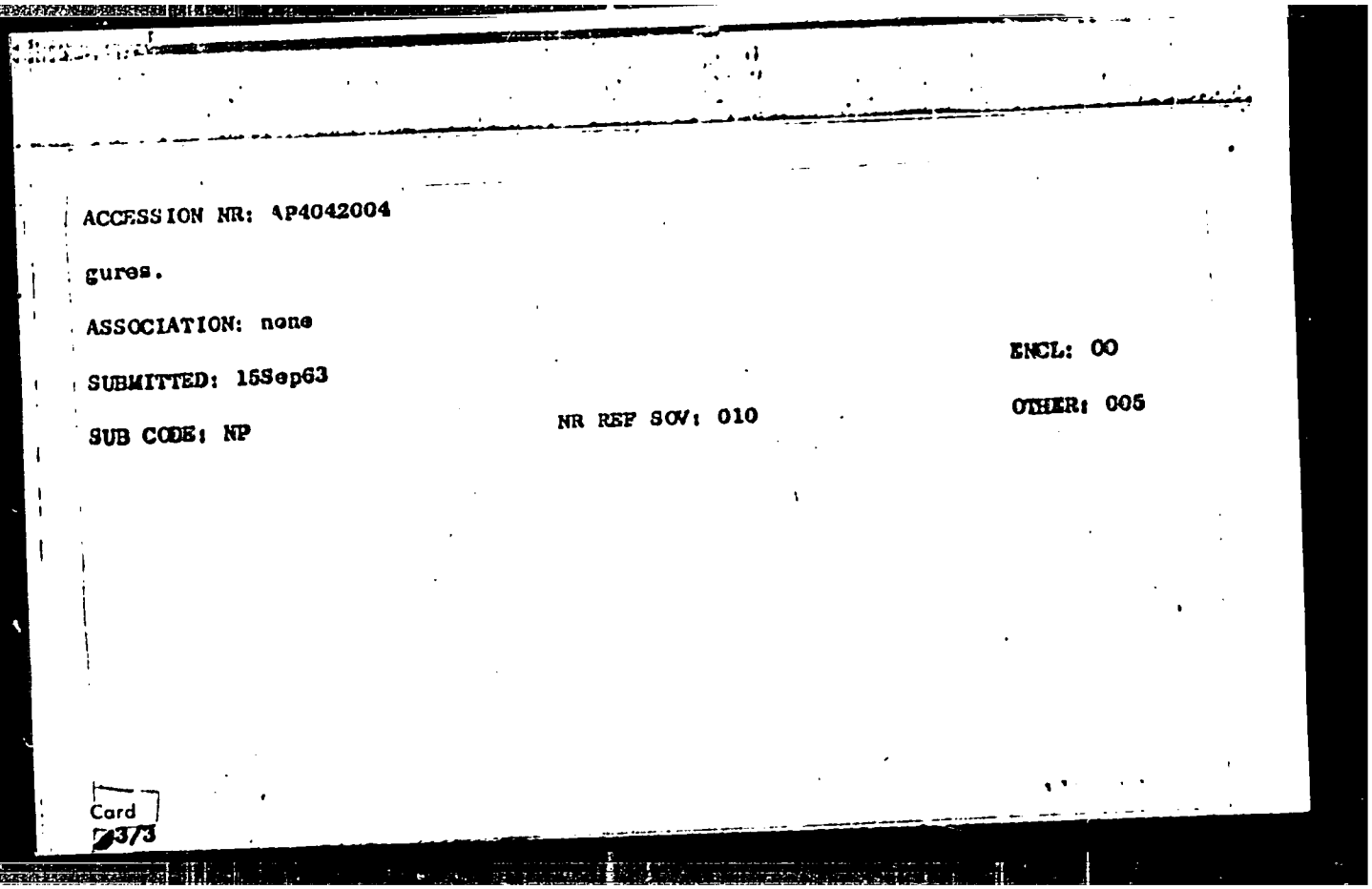
ACCESSION NR: AP4042004

The cavity was excited by a self-excited grounded grid oscillator of which the cavity was the frequency determining element. Difficulty was experienced with resonant reflex discharge in the accelerating gap at an amplitude of about 1000 V. The cavity was therefore pre-excited at each pulse by a separately excited oscillator, and the self-excited oscillator took over only after the resonant discharge region was past. When the instrument was operating under presumably typical conditions, the beam was 3 cm in diameter and contained protons with energies from 0.7 to 1.1 MeV with half the protons in the energy range from 0.83 to 0.95 MeV. The possibility of employing a buncher between the ion source and the accelerator to obtain a more nearly monoenergetic beam is discussed, and it is concluded that this would be feasible. It is pointed out that although the accelerator was designed as an injector for a phasotron, it would be suitable as a primary accelerator for low energy nuclear research. For this purpose it has over electrostatic accelerators the advantages of compactness, low cost, and high pulse current. "In conclusion, the authors thank V.P.Dmitriyevskiy for valuable advice in planning the work and for discussing the results, Ye.Shvabe and M.Kuzmyak for assistance in developing certain critical parts of the accelerator, and also comrades V.V.Kudryushov, V.A.Akkuratov, P.T.Rybakov and M.G.Akimov for participating in the assembly of the electronic accessories and the construction of the accelerator." Orig.art.has: 17 formulas and 8 fi-

Card
2/3



ACCESSION NR: AP4042004

gures.

ASSOCIATION: none

SUBMITTED: 16Sep63 ENCL: 00

SUB CODE: NP NR REF SOV: 010 OTHER: 005

Card 3/3

ACCESSION NR: AP4018359 S/0120/64/000/001/0034/0037

AUTHOR: Glazov, A. A.; Kuzmyak, M.; Novikov, D. L.; Onishchenko, L. M.

TITLE: Ion source for a 1-Mev proton accelerator

SOURCE: Pribory* i tekhnika eksperimenta, no. 1, 1964, 34-37

TOPIC TAGS: proton accelerator, 1 Mev proton accelerator, ion source, impulse ion source, Penning discharge, ion beam focusing

ABSTRACT: A Penning-discharge impulse ion source in which a cold aluminum cavity-type cathode is used is described. The source is intended for mounting in the hollow projection of a torus-type resonator-accelerator. The anti-cathode aperture towards the ion escape is 120°, the drawing-electrode angle is 90°. The source is supplied by an electronic device which develops 50-microsec-long ignition pulses and 20-microsec-long ion-drawing pulses. It was experimentally found that a system of different-potential electrodes with grids ensures the best

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ACCESSION NR: AP4018359

focusing. The effects of the size of the emission aperture in the anti-cathode and of the drawing voltage upon the extraction current were experimentally determined (curves supplied). It was found that the source is capable of producing a current of 20-40 ma (pulse) at 20-25 kv, and a focusing of 10 mm. The cold cathode ensures the constancy of characteristics during long periods of operation. The source is used in a linear accelerator that employs a high frequency of 1.2 Mv and a pulse intensity of 10 ma. Orig. art. has: 5 figures.

ASSOCIATION: Ob"yedinenny*y institut yaderny*kh issledovaniy (Joint Nuclear Research Institute)

SUBMITTED: 01Feb63 DATE ACQ: 18Mar64 ENCL: 00

SUB CODE: PH, NS NO REF SOV: 004 OTHER: 005

Card 2/2

DANILOV, V.I.; YEVSEYEVICH, I.S.; NOVIKOV, .L.; KOLPAKOV, E.A.; SAFONOV, A.N.; [illegible]V, B.V.

[Calculation of the initial region of stable phase oscillations in a synchrocyclotrone] Raschet nachal'noi oblasti ustoichivykh kolebanii v sinkhrotsiklotrone. Dubna, Ob"edinennyi in-t iadernykh issl. 1963. [illegible] p. (MIRA 17:7)

L 58861-65 EPA(w)-2/EWT(m)/EWA(m)-2 Pt-7 IJP(c) GS

ACCESSION NR: AT5007940 S/0000/64/000/000/0591/0594

AUTHOR: Danilov, V. I.; Yenchevich, I. B.; Zamolodchikov, B. I.; Marchenko, B. N.; Novikov, D. L.; Polferov, E. A.; Rozanov, Ye. I.; Savenkov, A. L.; Safonov, A. N.; Shestov, A. V.

TITLE: Increasing the internal beam current of the OIYaI synchrocyclotron to 680-Mev

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy. Moscow, Atomizdat, 1964, 591-594

TOPIC TAGS: synchrocyclotron, high energy accelerator

ABSTRACT: The Laboratory of Nuclear Problems of OIYaI modified the synchrocyclotron to increase the intensity of the internal beam, with the work being conducted in two directions: (a) obtaining a high-frequency program in the synchrocyclotron such that the current at the terminal radius of the accelerator would be a maximum; and (b) creating a focusing system that compensates for the defocusing action of the spatial charge at the center of the accelerator and thus increases the mean current of accelerated protons. The phase motion in the synchrocyclotron is analyzed in

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ACCESSION NR: AT5007940

two principal stages: first, the capture of the particles at the center of the synchrocyclotron during the accelerating regime; and second, their phase motion during the acceleration process up to the terminal radius. The equations of D. Bohm and L. Foldy (*Phys. rev.*, 72, 649 (1947)) are insufficient for the solution of the problem of the optimum capture of charged particles in the accelerating regime in synchrocyclotrons of several hundred Mev. This is explained by the fact that the growth in energy per revolution in the first stage for a constant accelerating potential (U_0=const.) depends upon the radius of the orbit. The curve describing the relative growth of proton energy per revolution as a function of radius was calculated by means of pictures of the dee potential field which were obtained from a model of the central region of the OIYaI synchrocyclotron in an electrolytic tank. Experimental measurements of the current at the radius R=30 cm determined the magnitude of $\dot{\omega}_{s\ init}$ (growth of the circular frequency in units of radians per second^2) that ensures optimum capture conditions. Choice of this radius necessitates excluding the influence of variations in the phase conditions during proton acceleration in the region of the middle and terminal radii. The magnitude of $\dot{\omega}_{s\ init}$ varied over a wide range with variation of the magnetic field strength at the center of the accelerator. For voltage at the dee of U_0=12 kilovolts and for existing geom-

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ACCESSION NR: AT5007940

etry of the accelerating gap, the dependence of the intensity (capture effectiveness) upon $\dot{\omega}_{s\ init}$ for the OIYaI synchrocyclotron showed the optimum value to be 2.25x 10^{10} rad/sec^2 (B.I. Zamolodchikov, et al. Preprint OIYaI P-720, Dubna, 1961). Correction of the parameters of the accelerator's resonance system in January 1961 led to a frequency program with the indicated value of $\dot{\omega}_{s\ init}$ at the beginning of acceleration, which led in turn to increasing the internal beam from 0.3 to 0.8 microamperes at the terminal radius R=274.5 cm. The proton current was measured by means of the induced activity of an aluminum target, according to the reaction $Al^{27}(p,3pn)Na^{24}$, obtained at radii R=270 to 280 cm. A target with a lead backing was calibrated against a beam of protons, extracted from the synchrocyclotron chamber, by means of a Faraday cylinder. The second stage of the work consisted in creating high-frequency characteristics of the synchrocyclotron $\omega_g=\omega_g(t)$ and $U_0=U_0(\omega_g)$ such that they ensure simultaneously the optimum conditions for the capture of the ions and their subsequent acceleration up to the terminal radius without phase loss. During selection of the frequency program of the synchrocyclotron consideration was taken of the damping of phase oscillations during the process of proton acceleration up to the terminal radius of the accelerator. Use was made of the invariance of the integral of action J during the adiabatic variations of the system's parameters.

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ACCESSION NR: AT5007940

Further increase in the intensity of the synchrocyclotron was reached by introduction of additional vertical (axial) focusing of the accelerated ion beam in the central region of the accelerator. Investigations of the focusing systems demonstrated the advantage of electrostatic focusing over magnetic focusing at the center of the accelerator. The system of focusing electrodes used in the OIYaI synchrocyclotron was constructed with the possibility of regulating the gap between the dee and supplementary electrodes. Moreover, the configuration of the electric field can be varied by regulation of the arrangement of the grounded screen placed between the dee and the potential electrodes. The Hill equation can describe the motion of the ions in the accelerator's magnetic field and in the electrostatic field created by the supplementary electrodes. The optimum arrangement of the electrodes of the focusing installation was found by experimental study of the properties of the system according to the dependence of the beam current upon U_f (focusing voltage in kilovolts) for various distances of the electrodes from the center of the accelerator. The internal beam current for the indicated conditions was approximately doubled, amounting at the present time to 2.2-2.3 microamperes. Orig. art. has: 7 figures.

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L 58861-65
ACCESSION NR: AT5007940

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy, Dubna (Joint Institute of Nuclear Research)

SUBMITTED: 26May64 ENCL: 00 SUB CODE: NP

NO REF SOV: 001 OTHER: 002

Card 5/5

L 58859-65 EPA(w)-2/EWT(m)/EWA(m)-2 Pt-7 IJP(c) GS

ACCESSION NR: AT5007941 S/0000/64/000/000/0595/0599

AUTHOR: Danilov, V. I.; Yenchevich, I. B.; Novikov, D. L.; Polferov, E. A.; Safonov, A. N.; Feoktistov, B. V.

TITLE: Calculation in the region of the origin of the stable phase oscillations in the synchrocyclotron 19

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy. Moscow, Atomizdat, 1964, 595-599

TOPIC TAGS: synchrocyclotron, high energy accelerator

ABSTRACT: The capture and acceleration of charged particles in the central region of the synchrocyclotron is not adequately described by the phase equation primarily because the maximum possible energy growth per revolution is an increasing function of the radius and approaches the slit value only at radii 5-10 times larger than the aperture of the dee. The phase motion of protons in the central region of the synchrocyclotron is now obtained by solving the equations of motion of charged particles in electric and magnetic fields of an accelerator on high-speed digital computers. Considering only the motion of charged particles in the median plane of the magnetic field possessing axial symmetry, one has the following set of differential

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L 58859-65

ACCESSION NR: AT5007941

equations (S. P. Lomnev and G. A. Tyagunov, in *Uskoriteli*, G. A. Tyagunov, Editor, No. 2, Moscow, Atomizdat, 1960):

$$\left.\begin{aligned}\ddot{r} &= A_0(1-\beta^2)^{1/2}[A_r(1-\dot{r}^2)-A_\theta\dot{r}\alpha]+\frac{\alpha^2}{r^2},\\ \ddot{\theta} &= \frac{1}{r}\left\{A_\theta(1-\beta^2)^{1/2}[A_\theta(1-\alpha^2)-A_r\dot{r}\alpha]-\frac{2\alpha\dot{r}}{r}\right\},\end{aligned}\right\} \quad (1)$$

where the dot indicates differentiation with respect to ct, z_0 is the impedance of free space, and $A_\theta = e/m_0c^2$; $\alpha = r\dot{\theta}$; $A_r = \mathscr{E}_r + \alpha Z_0 B_z$; $A_\theta = \mathscr{E}_\theta - \dot{r}Z_0B_z$; B_z-magnetic induction; E_r, E_θ-components of the electric field strength. After a number of transformations the dependence of the electric field strength upon radius is represented in the following form

$$\mathscr{E}_r = \frac{\mathscr{E}_0 \sin\theta}{1+\frac{\pi^2}{D^2}r^2\sin^2\theta}\cos(1+\Delta)(1-\gamma\omega_0 t)\,\omega_0 t, \quad (2)$$

where

$$\Delta = \frac{\dot{\varphi}}{\omega_\theta}, \quad \gamma = \frac{1}{2}\cdot\frac{d\omega_r}{dt}\cdot\frac{1}{\omega_\theta^2}; \quad (3)$$

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L 58859-65

ACCESSION NR: AT5007941

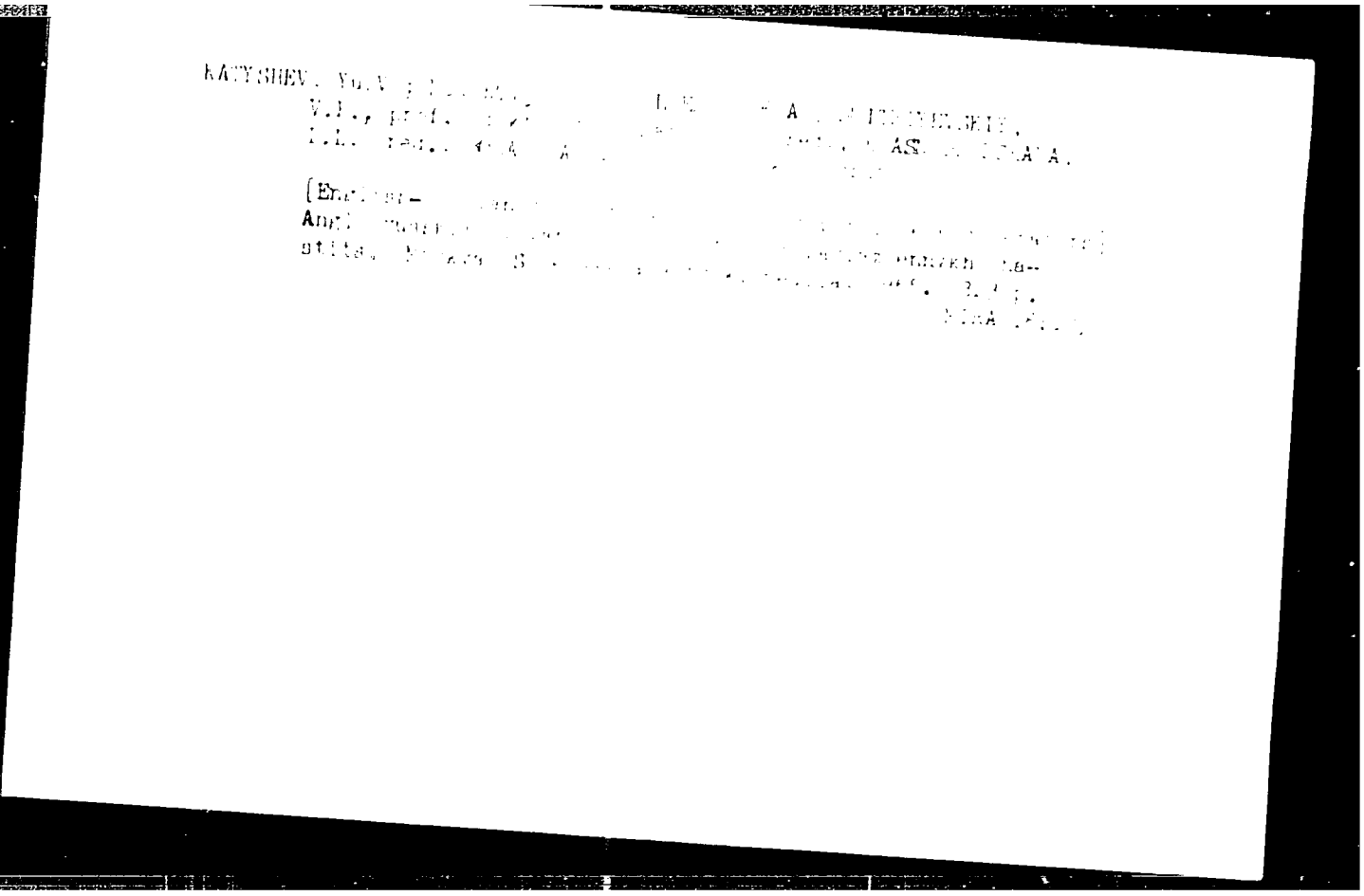
$E_0=U_0/D$; U_0-amplitude of the accelerating voltage; D-dee aperture; ω_0-frequency of revolution of an ion at the center. The present report discusses the solution of the equations of motion (1) for given boundary value conditions and parameters in the case of the OIYaI synchrocyclotron. A high-speed digital computer was used to obtain curves of (a) radius and phase versus time, (b) capture effectiveness versus gamma-coordinate for various accelerator parameters (e.g. aperture), (c) damping of amplitude of radial-phasal oscillations versus radius, and (d) regions of stability of $\dot{\phi}$ versus ϕ (ϕ -phase). The trajectories of radial-phase oscillations were used to determine the effectiveness of capture as a function of various accelerator parameters and also the ion beam configuration during the acceleration of the ions from the center to a radius of 50 cm. Orig. art. has: 5 figures.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy, Dubna (Joint Institute of Nuclear Research)

SUBMITTED: 26May64 ENCL: 00 SUB CODE: NP, EM

NO REF SOV: 002 OTHER: 001

Card 3/3



NOVIKOV, D.P.

Basic problems of the chemical community in the struggle for further development of chemical science and industry. Soob.o nauch.rab.chl. VKHO no.4:18-23 '59. (MIRA 10:10)

1. Zamestitel' ministra khimicheskoy promyshlennosti SSSR.
(Chemistry) (Chemistry, Technical)

NOVIKOV, D.P.; SOKOLOV, A.D.

Scientific and technical conference on plastic materials held in Stockholm. Khim.nauka i prom. 2 no.5:642-643 '57. (MIRA 10:12)
(Stockholm--Plastics--Congresses)

3779?
S/661/61/000/006/002/081
D205/D302

5 3700

AUTHOR: Novikov, D. P.

TITLE: Development of the organosilicon products industry and the task of the scientists

SOURCE: Khimiya i prakticheskoye primeneniye kremneorganicheskekh soyedineniy; trudy konferentsii. no. 6, Doklady, diskussii, resheniye. II Vses. konfer. po khimii i prakt. prim. kremneorg. soyed., Len., 1958. Leningrad, Izd-vo AN SSSR, 1961, 20-23

TEXT: In their resolution of July 23, 1958, the Central Committee of the Communist Party of the Soviet Union and the Soviet Government have designed the production rises of the organosilicon industry. If the output in 1958 is taken as 100%, the output in 1965 will be 10 times as much in organosilicon varnishes, 20 times as much in hydrophobic liquids, 5 times as much in ethyl silicate, etc. The present methods of production are far from satisfactory. The following problems should be solved: Design of new methods of

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Development of the ...

synthesis suitable for industrial application. Design of methods for the economical use of byproducts. Production of new silico-organic materials having better mechanical properties and higher thermal stability. Improvement of the technology of alkyl and aryl chlorosilanes. A process for cheaper production of $SiCl_4$ from ferro-silicon and the waste of Ti industry is also to be designed, the technology of polysiloxane resins is to be improved and the use of silicon plastics in the industry is to be widened. Until the necessary high output of organosilicon products is achieved, they have to be used economically and only where they are indispensable.

ASSOCIATION: Gosudarstvennyy komitet Soveta Ministrov SSSR po khimii (State Committee for Chemistry of the USSR Council of Ministers)

Card 2/2

NOVIKOV, D.R.

Arboretum of the White Russian Agricultural Academy. Sbor.nauch.rab. Bel.otd.VBO no.1:110-122 '59. (MIRA 14:4)
(White Russia--Arboretums)

30(1)

AUTHOR: Timofeyev, A.F., Docent, and Novikov, [illegible], Senior Instructor (Gorki, [illegible])

TITLE: The 40th Anniversary of the Foundation of Hydro-Melioration Activities in Belorussia

PERIODICAL: Gidrotekhnika i melioratsiya, 1959, Nr 9, pp 67-74 (USSR)

ABSTRACT: 1959 marked the 40th anniversary of the founding of the Hydro-Amelioration Faculty at the Belorussian Agricultural Academy in Gorki. At present, the Faculty has 236 attending students and 137 external students. The Department has three Chairs: Agricultural Amelioration and Forestry, Water Supply and Hydraulics, and Hydrotechnical Constructions and Resistance of Materials. The teaching staff includes Academician [illegible] Garkusha and Professor S.S. Zakharov. In the years from 1918 - 1934, the co-workers of the Faculty wrote over 50 scientific works and 6 textbooks. In the post-war years, co-workers of the Land Reclamation Chair

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The 40th Anniversary of the Foundation of Hydro-Melioration Activities in Belorussia

are working on the problem "Methods of Amelioration of Mineralized, Periodically Overwatered Soils in the BSSR". Docent P.I. Yakovlev, Senior [illegible] Leushev and Senior Instructor [illegible] Bogdanovich are participating in this work. Assistant V.I. Klippert is conducting research on the computation and operation of draining systems in peatbogs. Docent [illegible] Ignatenok is carrying on with his work on improvement of drainage constructions. Docent V.I. Puchko is working out schemes for the rural economy water supply. Docent V.N. Tsinger is busy with questions of maximum consumption transformation of rivers by water storage basins. The Chair of Hydroinstallations under Docent M.Ya. Novikov is working on the problem "Auto-Roads in the Drained Swamps of Poles'ye".

Card 2/2

NOVIKOV, D.R.

Introduced trees and shrubs in the arboretum of the White Russian Agricultural Academy. Sbor. nauch. rab. Bel. otd. VBO no.3:99-110 '61. (MIRA 14:12)

(Gorki (Mogilev Province)--Arboretums)
(Gorki (Mogilev Province)--Plant introduction)

NOVIKOV, D.S.

Performance of glass furnaces operating on fuel oil. Stek. i ker. 19 no.3:36-37 Mr '62. (MIRA 15:3)
(Glass furnaces)

UL'YANOV, I.A.; KOTOMIN, L.I.; NOVIKOV, L.P.; SOLDATENKOV, A.P.

Introduction of electronic computers into coal supply planning.
Ugol' 39 no.11:45-48 N '64. (MIRA 18:

NOVIKOV, D.Z., kandidat tekhnicheskikh nauk.

Speeding up wood gluing processes. Der. prom. 6 no.5:3-5 My '57.
(MLRA 10:6)

1. Nauchno-issledovatel'skiy institut derevoobrabatyvayushchego mashinostroyeniya.

(Gluing)

NOVIKOV, D.Z., kand.tekhn.nauk

Experience in gluing parquet board flooring. Der.prom. 7 no.3:3-5 Mr '58. (MIRA 11:4)

1.Nauchno-issledovatel'skiy institut derevoobrabatyvayushchego mashinostroyeniya.
(Parquet floors)

NOVIKOV, D. Z.

"Investigation of the Process of Pressing Lump Sugar." Sub 5 May 5., Moscow Technological Inst of the Food Industry.

Dissertations presented for science and engineering degrees in Moscow during 1955.

SO: Sum. No. 480, 9 May 55

NOVIKOV, D. Z.

Sugar Industry

Making sugar cubes by pressure from two sides. Sakh.prom. 27, No. 3, 1953

Monthly List of Russian Accessions, Library of Congress, June 1953. UNCLASSIFIED.

NOVIKOV, D.K.

Importance of dimensions and form of lumps in the process of pressing refined sugar. Sakh.prom. 28 no.6:24-25 '54. (MLRA 7:11)
(Sugar industry)

NOVIKOV, D.Z.; LUK'YE, Ye.B., nauchn. red.; MARKOV, L.A., red.; POLYANSKAYA, Z.P., tekhn. red.

[Standard automatic lines for the production of particle boards] Tipovye avtomaticheskie linii dlia proizvodstva struzhechnykh plit; obzor. Moskva, 1963. 59 p. (Seriia III-7?) (MIRA 17:1)

1. TSentral'nyy institut nauchno-tekhnicheskoy informatsii po avtomatizatsii i mashinostroyeniyu.

MOVIKOV, E., mladshiy nauchnyy sotrudnik

Sand deserves justice. Zman.sila 34 no.2:29 F '59. (MIRA 12:3)
(Sand) (Clay)

NOVIKOV, Energiy Alekseyevich; ZIL'BERMINTS, L.V., red.; KRYUCHKOVSKIY, S.A., bibliograf.red.

[Engineering in every-day life] Tekhnika v bytu. Leningrad, Gos.publichnaia biblioteka im. M.E.Saltykova-Shchedrina, 1960. [7 parts in folder]. (MIRA 13:11)
(Technology)

NOVIKOV, Energiy Alekseyevich; KRYUCHKOVSKIY, Semen Arkad'yevich; ZIL'BERMINTS, L.V., red.

[The world in which we live; conversations about books] Mir, v kotorom my zhivem; besedy o knigakh. Leningrad, 1960. 12 fold. l. (MIRA 16:4)

1. Leningrad. Publichnaya biblioteka.
(Bibliography--Astronomy)
(Bibliography--Geology)

NOVIKOV, E., inzh.-geolog

Houses are built on permafrost. Znan.-sila 35 no.2:3 F '60. (MIRA 13:5)
(Frozen ground) (Building--Cold weather conditions)

NOVIKOV, E., inzh.-geolog

Foundations. Znan.sila 35 no.8:44-45 Ag '60.
(MIRA 13:9)
(Soil mechanics)

S/004/60/000/011/002/005
A114/A126

AUTHOR: Novikov, E.

TITLE: Mineral resources - visible from the aircraft

PERIODICAL: Znaniye-sila, no. 11, 1960, 16-17

TEXT: The author describes experiments with the first Soviet pre-war air-borne magnetometer on Lake Kovgolovskoye near Leningrad. Magnetic bars were stuck into the soft bottom of the lake and the place marked with buoys. In a boat, the scientists made their observations by means of different measuring instruments and of a rotating drum with a paper tape. On this tape the attracting magnetic forces were recorded. The recorder showed upward deflections when the boat came to the marked places. It was an ideal anomaly model. Soon after these studies the first test-flight of an aircraft with an aeromagnetometer was made on the route Novgorod - Valday. The chief designer of the first Soviet aeromagnetometer, Aleksandr Andreyevich Logachev, now doctor of physical-mathematic sciences and professor at the Leningradskiy gornyy institut (Leningrad Mining Institute) participated in this flight. The aeromagnetometer and its operation are described. It is a plastic frame with

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windings of wire on it. When moved in a magnetic field, an electromotive force is induced. Not only iron-ore is prospected in this way. It is also used with success at tectonic fissures, e. g. in Siberia along the Lena River, or in the Tungusskaya Depression, where years ago - it is the place of an extreme anomaly - Turchinskiy, an engineer-geophysicist, made explorations. The author then describes Oersted's fundamental electromagnetic experiment of 1820: the deflection of a compass needle by a current sent through a near cable. It is the principle of another method of geophysical prospecting, with an air-borne electromagnetic device. It is used where non-magnetic deposits are expected. The writer himself worked once with the Soviet UR-4 radiometer in the taiga together with a geologist drawing field maps. They made every day 25 km. Now the radioactivity prostpecting is already done by aircraft. In this geophysical prospecting method γ-rays are measured. They are, however, very weak. They are measured by a radiometric computer. But this prospecting can not immediately be done by an aircraft; a preliminary radiometric survey is to be made. An automatic machine or geophysicist evaluate the data and with the aid of a geological map the maximum γ-ray radiation can be plotted. Not only radioactive elements are traced by that means,

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but also oil resources, diamonds, usually embedded in kimberlite rock, and uranium, thorium and radium, showing different radiation intensities. Finally the author points out that the nuclear aeromagnetometer, which is not described, is only in the beginning of intensive Soviet investigations. There are 4 figures.

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NOVIKOV, E.A.

Absolute age of metamorphosed schists in the Tarkhankut Peninsula (Crimea). Vest.LGU no.24:142-143 '62. (MIRA 16:2)
(Tarkhankut Peninsula—Schists)
(Tarkhankut Peninsula—Geological time)

NOVIKOV, E.A.

Age of roof rocks in the Paleozoic basement of the Crimean Peninsula. Geol.nefti i gaza 7 no.2:49-50 F '63.
(MIRA 16:2)

1. Geologicheskiy muzey AN SSSR im. A.P.Karpinskogo.
(Crimea—Petroleum geology)
(Crimea--Gas, Natural—Geology)

NOVIKOV, E.A.

New data on the age of rocks in deep wells in the Crimean steppes.
Vest. LGU 18 no.18:172-173 '63. (MIRA 16:11)

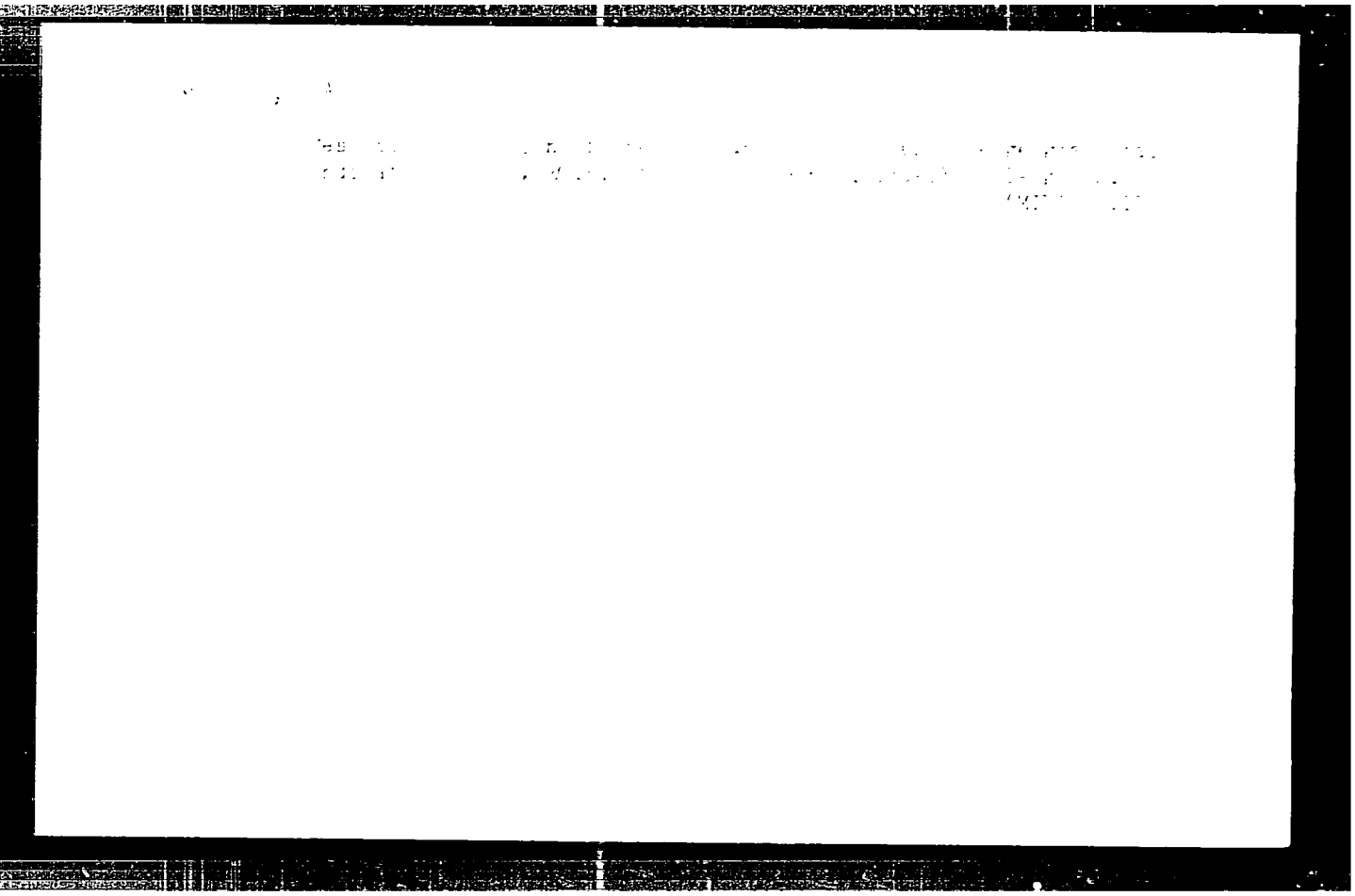
NOVIKOV, E., inzhener-geolog

How to search for water. Znan.-sila 38 no.4:46 Ap '63.
(MIRA 16:8)

NOVIKOV, E.A.

New data on the absolute age of Taurian shales in the Crimea. Dokl. AN SSSR 153 no.5:1152-1153 D '63.
(MIRA 17:1)

1. Laboratoriya geologii dokembriya AN SSSR. Predstavleno akademikom D.V. Nalivkinym.



NOVIKOV, E.A.; SHALDNOV, A.I.

Some new data on the occurrence and age of "crystalline schists" in the Crimean Mountains. Izv. vys. ucheb. zav.; geol. i razv. 8 no. 12:15-19 D '65 (MIRA 19:1)

1. Leningradskiy gornyy institut imeni G.V. Plekhanova.

NOVIKOV, F.

The "ground" is catching up. Grazhd. av. 17 no.8:32- Ag '60.
(MIRA 13:9)

1. Glavnyy inzhener Upravleniya kapital'nogo stroitel'stva Glavnogo upravleniya Grazhdanskogo vozdushnogo flota.
(Airports)

NOVIKOV, F., starshiy inzh.

Precast reinforced concrete in rural construction in Tambov Province.
Sel'. stroi. 15 no.7:1-6 Jl '61. (MIRA 14:8)

1. Tambovskoye oblupravleniye po stroitel'stvu i vodnomu khozyaystvu, vneshtatnyy korrespondent zhurnala "Sel'skoye stroitel'stvo."
(Tambov Province--Precast concrete construction)
(Farm buildings)

NOVIKOV, F.

Under constant control. Kast.ugl. 9 no.4:19 Ap '60. (MIRA 13:11)

1. Predsedatel' profsoyuznogo komiteta shakhty No.38 Karagandinskogo sovnarkhoza.
(Karaganda Basin--Coal miners)

NOVIKOV, F.

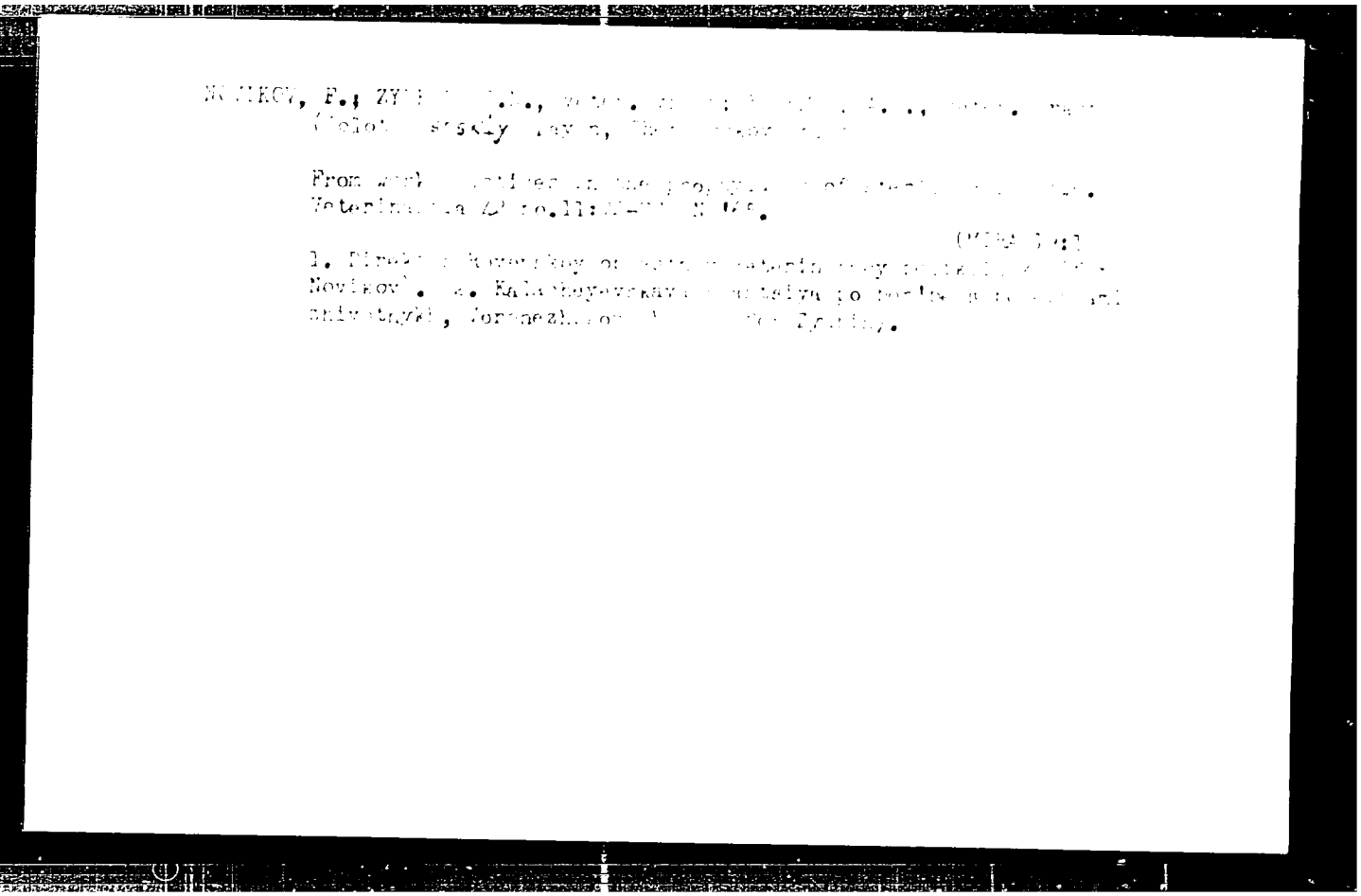
Mordant from larch bark. Prom.koop. 13 no.6:23 Je '59.
(MIRA 12:9)

1. Tekhnoruk arteli "Ural", s.Biyanka, Chelyabinskoy oblasti.
(Mordants)

ORLOVA, N.; NOVIKOV, F.

Output of the sausage casing section was increased. Mias. ind. SSSR 29 no.2:33 '58. (MIRA 11:5)

1.Kazanskiy myasokombinat.
(Kazan--Sausage casings)



GATOV,Boris Iosifovich; DUBINSKIY,Naum Grigor'yevich; ZINOV'YEV, Nikolay Afanas'yevich; MALAKHOVSKIY, Grigoriy Viktorovich; NOVIKOV,Fedor Andreyevich; ZUDENKOV,Leonid Mikhaylovich; REZNICHENKO, Fred Savoy - lovich; SOKOLOV, Nikolay Nikolayevich; POTING, L.Yu., [deceased] re - daktor; FRUMKIN,P.S., tekhnicheskiy redaktor

[Production of cast, welded and forged chains] Proizvodstvo litykh, svarnykh i shtempovannykh tsepei. Leningrad, Gos.soiuznoe izd-vo sudostroitel'noi promyshlennosti, 1955. 267 p. (MLRA 9:1)
(Chains)

MASLOV, V.I.; NOVIKOV, F.G.

Some complications following [illegible] Vest. khir. 92 no.1 98-102 Ja '64. (MIRA 17:11)

1. Iz 1-y khirurgicheskoy kliniki usovershenstvovaniya vrachey (nachal'nik - prof. P.A. Kupriyanov [deceased]) Voyenno-meditsinskoy ordena Lenina akademii imeni Kirova, Leningrad. Adres avtorov: Leningrad, K-9 prospekt Karla Marksa, 47/50, Khirurgicheskaya klinika.