Smirnov, V.M.

AID P - 2963

Subject : USSR/Electricity

Card 1/1 Pub. 29 - 13/35

Author : Smirnov, V. M., Foreman

Title : Improvement of operation of gas analyzers and steam flow meters

Periodical : Energetik, 5, 17-18, My 1955

Abstract : The author describes the repair work done with automatic gas analyzers of the GEYK-21 type and steam flow meters of the DP, PES, DPES, DEMP and other types which work on the basis of a drop in pressure. Results obtained were satisfactory. Four drawings.

Institution : None

Submitted : No date

ATAULIN, V.V.; VLASOVA, R.M.; DAVYDOVA, Ye.A.; DANILENKO, I.S.; DZIOV, V.A.; DUBROVIN, A.P.; YEFANOVA, L.V.; KARPENKO, L.V.; KLEPIKOV, L.N.; KOTRELEV, S.V.; LUK'YANOV, N.I.; MEL'NIKOV, N.V., prof., obshchiy red.; MKRTYCHAN, A.A.; NEMTINOV, A.M.; POGOSYANTS, V.K.; SEMIZ, M.D.; SKOBLO, G.I.; SLOBODCHIKOV, P.I.; SMIRNOV, V.M.; SUSHCHENKO, A.A.; SOKOLOVSKIY, M.M.; TRET'YAKOV, K.M.; FISH, Ye.A.; TSOY, A.G.; TSYPKIN, V.S.; CHEKHOVSKOY, P.A.; CHIZHIKOV, V.I.; ZHUKOV, V.V., red.izd-va; KOROVENKOVA, Z.L., tekhn.red.; PROZOROVSKAYA, V.L., tekhn.red.

[Prospects for the open-pit mining of coal in the U.S.S.R.; studies and analysis of mining and geological conditions and technical and economic indices for open-pit mining of coal deposits] Perspektivy otkrytoi dobychi uglia v SSSR; issledovanie i analiz gornogeologicheskikh uslovii i tekhniko-ekonomicheskikh pokazatelei otkrytoi razrabotki ugol'nykh mestorozhdenii. Pod obshchei red. N.V.Mel'nikova. Moskva, Ugletekhizdat, 1958. 553 p. (MIRA 11:12)

1. Vsesoyuznyy tsentral'nyy gosudarstvennyy proyektnyy institut "Tsentrogiproshakht." 2. Chlen-korrespondent AN SSSR (for Mel'nikov).

(Coal mines and mining)

BUNIN, O.A.; MOSKVICHEV, N.T.; PLAKSIN, S.A.; Prinimali uchastiye: GORSHKOV, P.V.; SMIRNOV, V.M.; PAVLOV, V.P.; ISAYEV, A.P.; LAVROV, G.V.

Operation conditions of the dye aging and reducing apparatus. Tekst.prom. 22 no.10:64-67 O '62. (MIRA 15:11)

1. Ivanovskiy nauchno-issledovatel'skiy tekstil'nyy institut.

(Dyes and dyeing--Apparatus)

SPIRIN, A.S.; DVORKIN, G.A.; KISELEV, L.L.; SMIRNOV, V.N.

Problems of protein biosynthesis. Usp.biol.khim. 5:3-60 '63.
(MIRA 17:3)

SPIRIN, A.S.; SMIRNOV, V.N.

Informational RNA and regulating mechanisms of protein synthesis in bacteria; (a review). Izv.AN SSSR.Ser.biol. 27 no.4:477-501 Jl-Ag '62. (MIRA 15:9)

1. Institut biokhimii imeni A.N.Bakha AN SSSR.
(BACTERIA) (PROTEINS METABOLISM) (NUCLEIC ACIDS)

SPIRIN, A.S.; SMIRNOV, V.N.

Informational RNA. Biofizika 7 no.4:501-511 '62. (MIRA 15:11)

1. Institut biokhimii imeni A.N.Bakha AN SSSR, Moskva.
(NUCLEIC ACIDS)

SMIRNOV, V.N.; SPIRIN, A.S.; KULIYYEV, P.; ZBARSKIY, I.B.

RNA synthesis in the silk gland of the mulberry silkworm. Dokl. AN SSSR 155 no. 4:957-960 Ap '64. (MIRA 17:5)

1. Institut biokhimii im. A.N.Bakha AN SSSR i Institut morfologii zhivotnykh im. A.N.Severtsova AN SSSR. Predstavleno akademikom A.N.Belozerskim.

SMIRNOV, V.N.; KULLYYEV, P.; VARSHAVSKIY, Ya.M.; SPIRIN, A.S.

Participation of ribosomes in the biosynthesis of silk fibroin. Dokl. AN SSSR 156 no. 5:1221-1224 Je '64. (MIRA 17:6)

1. Institut radiatsionnoy i fiziko-khimicheskoy biologii AN SSSR i Institut biokhimii im. A.N.Bakha AN SSSR. Predstavleno akademikom A.N.Belozerskim.

05527

S/032/60/026/011/012/035
B015/B066

1.9600 also 2209

AUTHORS: Tokmakov, V. S. and Smirnov, V. N.

TITLE: Increase of Sensitivity of the Immersion Method in Ultrasonic Quality Control

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 11, pp. 1238-1239

TEXT: By applying the immersion method in the ultrasonic quality control a special preparation of the parts is avoided, but the energy is 13 times lower than with the contact method. This disadvantage may be compensated to a certain degree by the fact that the energy of the ultrasonic vibrations of the emitted ray is increased. In the present case an attachment was developed for this purpose which includes a synchronizing pulse amplifier, ultrasonic generator, and a protective circuit for the connection of the B4-7И (V4-7I) receiver. The amplifier of the trigger pulses has a 6Н8 (6N8) tube and pulse transformer. The pulse generator has a shock excitation with a ТГИ1 35/3 (TGI1 35/3) thyratron. The total

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STRADYMOV, P.K.; SMIRNOV, V.N.

Nonsteady movement of marginal and bottom waters in creating and exploiting underground gas reservoirs in water-bearing formations with an elastic drive. Izv. vys. ucheb. zav.; neft' i gaz 4 no.12: 65-71 '61. (MIRA 16:12)

1. Kuybyshevskiy industrial'nyy institut imeni V.V.Kuybysheva.

SMIRNOV, Vladimir Nikolayevich.

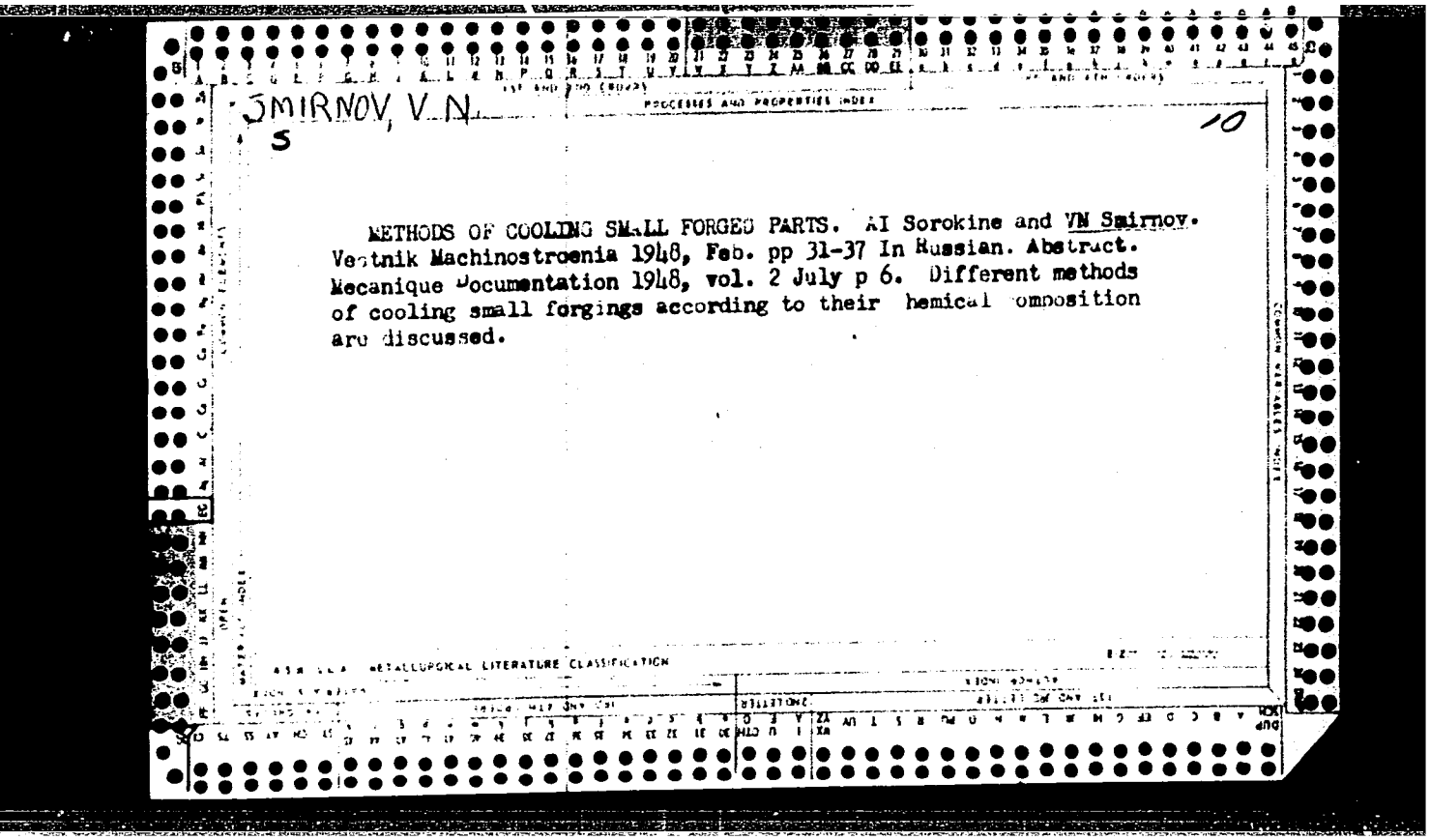
[Rapid construction of log roads for trucks; work practice of the Totemskii Forest Industry Establishment] Skorostnoe stroitel'stvo avto-lezhnevoi dorogi; iz opyta Totemskogo lespromkhoza. Moskva, Goslesbumizdat, 1954. 18 p. (MLRA 8:12)
(Forest roads)

MOTORICHEV, Ivan Aleksandrovich; SMIRNOV, Valentin Nikolayevich; GNUTIKOV, P.I., podpolkovnik, redaktor; SRIBNIS, N.V., tekhnicheskiy redaktor

[Visual aids for radar work] Nagliadnye posobiia po radiolokatsii. Moskva, Voen.izd-vo M-va obor. SSSR, 1957. 151 p. (MLRA 10:10)
(Radar)

[redacted]; KHALTURIN, K.D., arkhitektor, nauchnyy redaktor; KAPLAN, M.Ya., redaktor izdatel'stva; PUL'KINA, Ye.A., tekhnicheskiy redaktor

[Manufacture of molded elements for the trimming of buildings] Izgotovlenie lepnykh detalei dlia otdelki zdanii. Leningrad, Gos. izd-vo lit-ry po stroit. i arkhit. , 1956. 51 p. (MLRA 10:10)
(Building--Details)



SMIRNOV, V. N.

S

10

METHODS OF COOLING SMALL FORGED PARTS. AI Sorokine and VN Smirnov. Vestnik Machinostroenia 1948, Feb. pp 31-37 In Russian. Abstract. Mecanique Documentation 1948, vol. 2 July p 6. Different methods of cooling small forgings according to their chemical composition are discussed.

SHEREMET, Vasiliy Alekseyevich; SMIRNOV, Vyacheslav Nilovich; PAVLOVICH, Pavel Modestovich; KUZMINTSEV, V.N., inzh., retsenzent; YEMEL'YANOV, L.V., inzh., red.; TIKHANOV, A.Ya., tekhn. red.

[Mechanisms, devices and auxiliary equipment for forging and die-stamping processes; an album] Mekhanizmy, prisposobleniia i sredstva mekhanizatsii kuznechno-pressovogo proizvodstva; al'bom. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1960. 93 p. (MIRA 14:6)

(Forging machinery) (Sheet metal working machinery)

[illegible], [illegible]

"Increasing the Accuracy of Mechanical Quadratures for the Integrals" Cand Phys-Math Sci, Leningrad State U, Leningrad, 1953. Dissertation (Referativnyy Zhurnal--Matematika, Moscow, Feb 54)

SO: [illegible] 1[illegible], [illegible]

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S/044/[illegible]/000/006/018/019
C111/C222

16.6500

AUTHOR: Smirnov, V.N.

TITLE: New formula for mechanic quadratures

PERIODICAL: Referativnyy zhurnal. Matematika, no.6, 1961, 35, abstract 6V 239. (Sb. nauchn. tr. Kuybyshevsk. industr. in-ta, 1957, vyp. 7(a), 77-85)

TEXT: The author derives the formula

$$\int_{-\infty}^{\infty} e^{-\frac{x^2}{2}} f(x)dx = \sum_{k=1}^{n} A_k f(x_k) + \sum_{i=o}^{m-1} f^{(2n+2i)}(0) D_{2n+2i} + R_{n,m}, \qquad (1)$$

where $A_k = \frac{\sqrt{2\pi}\, n!}{H_n'^2(x_n)}$, $H_n(x)$ -- polynomials of Chebyshev-Hermite, x_k -- their roots serving as knot points of the quadrature formula

$D_{2n+2i} = \int_{-\infty}^{\infty} \frac{t^{2i}}{(2i)!} K_{2n}(t)dt$, $K_{2n}(f)$ -- the "kernel of the remainder" defined by:

Card 1/2

STRADYMOV, P.K.; SMIRNOV, V.N.

Movement of edge and bottom waters in gas pools in elastic drive. Izv. vys. ucheb. zav.; neft' i gaz 3 no.12:51-57 '60. (MIRA 14:10)

1. Kuybyshevskiy industrial'nyy institut imeni V.V. Kuybysheva.
(Gas, Natural)

SEMENOV, M.A.; SMIRNOV, V.N., inzh.

Use of electrically welded steel pipes. Prom.energ. 18 no.1:40-41 Ja '63. (MIRA 16:4)

(Pipe, Steel)

POLYAKOV, A.K.; SMIRNOV, V.N.

Results of industrial test operations on using the gamma-gamma method of sampling in mines and the ore dressing plant of a Central Asian complex ore enterprise. Uch. zap. SAIGIMSa no.8:73-83 '62. (MIRA 17:1)

1. Sredneaziatskiy nauchno-issledovatel'skiy institut geologii i mineral'nogo syr'ya, Tashkent.

BASTAMOV, V.N.; SMIRNOV, V.N.; SHARKOV, I.N.

Possibility of using the gamma-gamma method to determine the zinc content of complex ores. Uch. zap. SAIGIMSa no.8:85-88 '62. (MIRA 17:1)

1. Sredneaziatskiy nauchno-issledovatel'skiy institut geologii i mineral'nogo syr'ya, Tashkent, i Kansayskoye rudoupravleniye.

POLYAKOV, A.K.; SMIRNOV, V.N.

Gamma-gamma sampling in lead and zinc mines of the Maritime Territory. Uch. zap. SAIGIMSa no.8:89-98 '62. (MIRA 17:1)

1. Sredneazistskiy nauchno-issledovatel'skiy institut geologii i mineral'nogo syr'ya, Tashkent.

SMIRNOV, V.N.

Types of elastic waves in a thin ice layer. Probl. Arkt. i Antarkt. no.19:64-65 '65. (MIRA 18:5)

21.5100 SOV/180-59-5-18/37

AUTHORS: Plaksin, I.N., Smirnov, V.N., and Starchik, L.P. (Moscow)

TITLE: Preparation of Flat Polonium α-Irradiators of Great Activity

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 5, pp 122-123 (USSR)

ABSTRACT: A method was used in which polonium-210 is evaporated in vacuum (Refs 1, 2) from a copper powder serving as the carrier. Polonium in copper powder is transferred to a quartz beaker around which a nichrome spiral is wound (Fig 1). A platinum foil welded to a copper plate, which is attached to a condenser by means of a grip ring, is situated above the quartz beaker. The condenser consists of a cylindrical copper tumbler which is cooled by running water. The quartz beaker with the polonium in the copper powder, the copper rods through which current is supplied and the cooled condenser with the copper tubes through which water is circulated, are placed into a hermetically closed glass cylinder which is connected to a vacuum pipe provided with a diffusion pump. The glass cylinder may get hot due to the radiation from the spiral, and hence its walls are also

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Preparation of Flat Polonium α-Irradiators of Great Activity

cooled by running water. A vacuum of 10^{-4} mm Hg is set up. The pressure is controlled by means of the vacuum meter VIT-1. The system was evacuated for 30 minutes at a heater temperature of 150 to 200 °C in order to ensure de-gassing. Then the polonium was volatilized from the copper powder and deposited on the platinum foil with gradual temperature increase up to 700 to 800 °C. At this temperature polonium volatilizes from the copper powder and deposits in the form of a thin metallic layer on the cold surface of the platinum foil. The quantity of deposited polonium can be controlled by its γ-irradiation (Ref 3). The device for registration of γ-irradiation consists of the usual γ-counter which is placed in a lead box with a narrow collimating target. Before the beginning of volatilization the slit aperture of the lead box was regulated in such a manner that the γ-irradiation of polonium in the copper powder would be registered. Then the slit was moved (the geometry of count being preserved) so that the γ-irradiation of polonium, sublimated on the platinum foil, could be registered. The γ-irradiation count of the platinum

Preparation of Flat Polonium α-Irradiators of Great Activity

foil serves as a measure of the weight of polonium deposited on it. A more accurate determination of the activity of the polonium α-irradiator after its preparation was carried out from a graduated graph of the γ-count of standard quantities of polonium. The authors prepared a polonium α-irradiator with an activity of 250 μCurie by this method. The degree of uniformity in the distribution of polonium on the platinum foil can be estimated from the autoradiograph shown in Fig 2.

Card 3/3

There are 2 figures and 3 references, of which 2 are Soviet and 1 is English.

SUBMITTED: July 3, 1959

SOV/20-127-3-40/71

5(1, 2), 21(7)

AUTHORS: Plaksin, I. N., Corresponding Member, AS USSR, Smirnov, V.N., Starchik, L. P.

TITLE: Quantitative Control of the Products Obtained in Dressing Beryllium and Fluorite Ores by α-Bombardment

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 3, pp 618-619 (USSR)

ABSTRACT: Photonuclear reaction (γ,n) had been used already earlier (Ref 1) for the quantitative determination of beryllium in ores. In connection herewith, neutrons were formed due to the effect of rigid γ-rays. The authors used the nuclear reaction (I) for controling the concentrates (as mentioned in the title) of beryllium ores; reaction (II) was used for fluorite ores. In both cases, neutrons were struck out by α-particles. Beryllium showed the largest yield of the nuclear reaction (α,n) as compared with other elements. Other elements occurring in the afore-mentioned ores in addition to beryllium and fluorite showed a considerably lower neutron yield. Thus, the number of neutrons, struck out of the above dressing products by α-particles is proportional to the beryllium and fluorite content. The polonium isotope Po-210 was used as a source of α-radiation. It has a half-life of

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Quantitative Control of the Products Obtained in Dressing Beryllium and Fluorite Ores by α-Bombardment

138.3 days and is very suitable for these purposes because only slight γ-radiation occurs in its decay. This isotope was applied to a platinum foil by vacuum sublimation. The dressing product was filled into a box for the purpose of determining the beryllium- and fluorite content. The neutrons were counted by means of an SCh-3 counter. Graduation diagrams were then plotted according to standard mixtures (Fig 1). The latter showed that the number of neutrons struck out by α-particles was in direct proportion to the beryllium content. Figure 2 shows such a diagram for the mixture fluorite - quartz - barite. Since the fluorite content of the initial ore is sufficiently high its content can also be determined in this case. The grain size of the products to be controled is irrelevant as to the neutrons struck out. The resultant neutrons are fast on the whole so that they are practically not absorbed by the layer of the product. For the same reason the material and the thickness of the box walls are irrelevant in neutron-counting. Analysis of wet products is complicated by a film formed on the particle surface by condensed water.

Quantitative Control of the Products Obtained in Dressing Beryllium and Fluorite Ores by α-Bombardment

This error, however, does not exceed 1 - 2% of the concentration to be determined. The time-consuming and sufficiently precise method mentioned above can also be applied to boron. There are 2 figures and 2 references, 1 of which is Soviet.

SUBMITTED: May 15, 1959

~~5 (2), 21 (6)~~ 5.5500 66426

AUTHORS: Plaksin, I. N., Corresponding Member AS USSR, Smirnov, V. N., Starchik, L. P. SOV/20-128-6-31/63

TITLE: The Use of Artificial Radioactivity Induced by α-Particles for the Quantitative Control of Products Containing Aluminum and Boron

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 6, pp 1208 - 1209 (USSR)

ABSTRACT: The radioactivity mentioned in the title has been previously (Ref 1) used for the analysis of biological tissues. The authors suggest a rapid method of analyzing powder samples for the control of working processes of ores containing aluminum and boron. Po-210 is used as an α-radiator. On irradiating boron B^{10} with α-particles, the radioactive nitrogen-isotope N^{13} is formed by a nuclear reaction (α,n). By decomposition of N^{13} ($T^1/2$ = 10.1 min), positrons are formed with a maximum energy of 1.24 Mev. Al^{27} yields, under the same conditions, radioactive phosphorus P^{30}. By decomposition of P^{30} ($T^1/2$ = 2.5 min), positrons are formed

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The Use of Artificial Radioactivity Induced by α-Particles for the Quantitative Control of Products Containing Aluminum and Boron

with a higher maximum energy of 3.6 Mev. The products containing B and Al were irradiated for 10 minutes. Within this period, the P^{30}-quantity increased up to 0.94 of the maximum value, while the activity of N^{13} simultaneously increased up to 0.5 of this value. The minimum distance of the radiation source from the product controlled (0.5 mm) reduces the losses of α-particles in the air. After this irradiation, the products were checked with the help of an end-window counter. The time interval between the activation irradiation and the beginning of counting must be a minimum and constant. The radioactivity induced is recorded by a unit of type B-2. For determining the boron- and aluminum contents, calibration diagrams are drawn on the basis of standard mixtures with a known Al- and B-content. Figure 1 shows such a diagram for hydroboracite ($CaO \cdot MgO \cdot 3B_2O_3 \cdot 6H_2O$). By irradiation of Mg^{25}, a radioactive isotope Al^{28} is formed by the nuclear reaction (α, p); this isotope radiates electrons with a maximum energy of 3.0 Mev and a half life of 2.3 minutes. In

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The Use of Artificial Radioactivity Induced by α-Particles for the Quantitative Control of Products Containing Aluminum and Boron SOV/20-128-6-31/63

be used for the analysis. The method suggested facilitates a rapid determination and a technologically acceptable accuracy of determination of boron and aluminum in abundant ores, products of dressing, and alloys. Ye. G. Prozhoga cooperated in the paper. There are 2 figures and 1 reference.

SUBMITTED: July 3, 1959

Card 4/4

PHASE I BOOK EXPLOITATION SOV/5410

Tashkentskaya konferentsiya po mirnomu ispol'zovaniyu atomnoy energii, Tashkent, 1959.

Trudy (Transactions of the Tashkent Conference on the Peaceful Uses of Atomic Energy) v. 2. Tashkent, Izd-vo AN UzSSR, 1960. 449 p. Errata slip inserted. 1,500 copies printed.

Sponsoring Agency: Akademiya nauk Uzbekskoy SSR.

Responsible Ed.: S. V. Starodubtsev, Academician, Academy of Sciences Uzbek SSR. Editorial Board: A. A. Abdullayev, Candidate of Physics and Mathematics; D. N. Abdurasulov, Doctor of Medical Sciences; U. A. Arifov, Academician, Academy of Sciences Uzbek SSR; A. A. Borodulina, Candidate of Biological Sciences; V. N. Ivashev; G. S. Ikramova; A. Ye. Kiv; Yu. N. Ibragimov, Candidate of Physics and Mathematics; A. I. Nikolayev, Candidate of Medical Sciences; D. Mishanov, Candidate of Chemical Sciences; A. S. Sadykov, Corresponding Member, Academy of Sciences USSR, Academician, Academy of Sciences Uzbek SSR; Yu. N. Talanin,

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Transactions of the Tashkent (Cont.) SOV/5410

Candidate of Physics and Mathematics; Ya. Kh. Turakulov, Doctor of Biological Sciences. Ed.: R. I. Khamidov; Tech. Ed.: A. G. Babakhanova.

PURPOSE: The publication is intended for scientific workers and specialists employed in enterprises where radioactive isotopes and nuclear radiation are used for research in chemical, geological, and technological fields.

COVERAGE: This collection of 133 articles represents the second volume of the Transactions of the Tashkent Conference on the Peaceful Uses of Atomic Energy. The individual articles deal with a wide range of problems in the field of nuclear radiation, including: production and chemical analysis of radioactive isotopes; investigation of the kinetics of chemical reactions by means of isotopes; application of spectral analysis for the manufacturing of radioactive preparations; radioactive methods for determining the content of elements in the rocks; and an analysis of methods for obtaining pure substances. Certain

instruments used, such as automatic regulators, flowmeters, level gauges, and high-sensitivity gamma-relays, are described. No personalities are mentioned. References follow individual articles.

TABLE OF CONTENTS:

S/137/61/000/010/055/056
A006/A101

AUTHORS: Plaksin, I.N., Smirnov, V.N., Starchik, M.P.

TITLE: The use of Po^{210} alpha radiation for the quantitative control of concentration products containing beryllium, boron, fluorine and aluminum

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 10, 1961, 8, abstract 10K45 ("Tr. Tashkents, konferentsii po mirn. ispol'zovaniyu atomn. energii v. 2", Tashkent, AN AzSSR, 1960, 193 - 299)

TEXT: The authors discuss 2 methods of analysis with the aid of Po^{210} α - radiation, namely, analysis using radiation emitted as a result of the reaction of capturing nuclear particles by reaction (α, n) and activation analysis. To determine Be, B, F in concentration products, the following nuclear reactions are employed: $Be^{9}_{4} + He^{4}_{2} \rightarrow C^{12}_{6} + n'_{0}$; $F^{19}_{9} + He^{4}_{2} \rightarrow Na^{22}_{11} + n'_{0}$ and $B^{11}_{5} + He^{4}_{2} \rightarrow N^{14}_{7} + n'_{0}$. The amount of n is proportional to the Be, F and B content. To carry out an analysis of powdery products a special device was developed. A detailed layout of the device is presented. The Be, B and F content is determined from graduation graphs or by a corresponding calculation formula. The radio-

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S/137/61/000/010/055/056
A006/A101

The use of Po^{210} alpha radiation ...

activation analysis was employed for the quantitative control of products containing Al and B. Po^{210} with 120 mcurie activity was employed as a radiation source. The radioactivity induced was measured with an end-window counter of device B. The content is calculated from graduation graphs, plotted for standard mixtures. The separate determination of B and Al is obtained on account of the difference in their maximum radiation energies and the half life periods. The accuracy of determination is 2 - 3%. There are 9 references.

Yu. Bykovskaya

[Abstracter's note: Complete translation]

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AUTHORS: Plaksin, I.N. and Smirnov, V.N. (Moscow)

TITLE: On the quantitative control of enrichment products using α-radiation

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1961, No.4, pp.118-122

TEXT: In a previous paper the present authors showed (Ref.1: DAN SSSR, 1959, Vol.127, No.3; Ref.2: DAN SSSR, 1959, Vol.128, No.6) that the Po^{210} α-particles can be used for analytical purposes. An important characteristic of a nuclear reaction is the number of nuclear transformations per bombarding particle. The probability of a nuclear reaction is characterized by an effective cross-section σ. If the energy of all the bombarding particles is the same (E), then the yield B of the reaction is given by

$$B = \sigma n x \qquad (1)$$

where n is the number of nuclei per cm^3 of the target and x is the thickness of the target in cm. This expression holds only

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for thin targets. If the target is not thin, then the yield at a depth x in a layer dx is given by

$$dB = \sigma(x)ndx \qquad (2)$$

Hence, if the total thickness of the target is equal to the range R, then the total yield is given by

$$B = n \int_{o}^{R} \sigma(x)dx \qquad (3)$$

For practical purposes it is more convenient to re-write this expression in the form

$$B = n \int_{E_o}^{E_{min}} \frac{\sigma(E)}{dE/dx}\, dE = -n \int_{E_{min}}^{E_o} \frac{\sigma(E)}{dE/dx}\, dE \qquad (4)$$

Substituting the expression for dE/dx for non-relativistic

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$$B = \frac{nq}{2\pi e^4 z^2 \ln \frac{E_{cp} q}{J_{cp}} \sum_i N_i Z_i} \int_{E_{min}}^{E_0} E\sigma(E)\,dE \qquad (8)$$

where N_i is the number of atoms with nuclear charge Z_i per cm^3 and J_{cp} is the average ionization potential. The sum in the denominator can be evaluated from the formula

$$\sum_i N_i Z_i = \frac{\sum_i \frac{\beta_i m}{A_i} N_0 Z_i}{V} \qquad (9)$$

where m is the mass of the specimen, V is its volume, β_i is the concentration of the i-th component, A_i is the atomic weight of the i-th component and N_0 is the Avogadro number. If it is assumed that the controlled product can be strictly classified, i.e. all the particles in the specimen have the same dimensions and that all

S/137/62/000/001/018/237
A060/A101

AUTHORS: Plaksin, I. N., Smirnov, V. N., Starchik, L. P.

TITLE: Application of α-radiation to the automation of the material composition control of the concentration products of certain ores

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 7-8, abstract 1G57 (V sb. "Radioakt. izotopy i yadern. izlucheniya v nar. kh-ve SSSR. V. 4". Moscow, Gostoptekhizdat, 1961, 270 - 276)

TEXT: The authors consider two methods of analyzing ores by means of α-radiation from Po^{210}: neutron radiation analysis and activation analysis. A plane emitter with activity of 250 μ curies, whose fabrication is described, was used in this study as the radiation source. The method of controlling beryllium, fluorite, and hydroboracite ores is described. Calibration graphs are presented. The second method used artificial radioactivity induced by α-particles where an α-emitter from Po^{210} with activity 120 μ curie was used. It is possible to automate the control of Be, F, B, on the basis of the principle of continuous feed of the material tested. The layer of the latter should be evened out upon the belt by a knife. After being amplified the electrical

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SOV/51-6-6-4/34

24(7)
AUTHORS: Baz'mlin, P.A. and Smirnov, V.N.

TITLE: Studies of the Temperature Dependence of the Infrared Absorption Band Intensities in Liquids (Issledovaniye temperaturnoy zavisimosti intensivnosti infrakrasnykh polos pogloshcheniya v zhidkostyakh)

PERIODICAL: Optika i spektroskopiya, 1959, Vol 6, Nr 6, pp 745-753 (USSR)

ABSTRACT: Plachek's theory (Ref 1) predicts an increase of the vibrational line intensities with rise of temperature. Available experimental data on Raman spectra (Refs 2-9) show that, in fact, thei. intensities fall with rise of temperature. The present paper reports a study of the temperature dependence of the intensities of vibrational lines (infrared absorption in the region 3-15 μ) in polar and non-polar liquids. A two-beam spectrometer IKS-2 was used. Liquid was placed in a cell (Fig 1c) made of two rocksalt plates (6) stuck together with caprone (8). The cell was inside an evacuated (10^{-3} mm Hg) glass vessel (1 in Fig 1a), fitted with rocksalt windows (2). The cell temperature was varied by filling an adjacent metal container 4 with either hot air, cold nitrogen gas or liquid nitrogen. The cell temperature was controlled to within 2-3°C and measured with a thermocouple (5). The apparatus used made it

Studies of the Temperature Dependence of the Infrared Absorption Band Intensities in Liquids

possible to carry out measurements between -100 and +180°C. The cell thickness was measured interferometrically. Measured values were corrected for changes in the spectrograph slit widths, liquid density and elastic properties of the cell, as well as for band widths (wings). By way of example spectrograms of the 785 cm^{-1} band of cyclohexanone, the 1093 cm^{-1} of acetone and 3050 cm^{-1} band of chloroform are shown at various temperatures in Figs 2, 3 and 4 respectively. The results are given in Tables 1 and 2 in the form of integral absorption coefficients K_{ω} ($cm^2 mol^{-1} sec^{-1}$) which is defined by

$$K_{\omega} = K'_{\omega} \cdot \frac{c \cdot M}{\rho_T} \quad , \qquad (3)$$

where K'_{ω} is the measured integral absorption coefficient (in cm^{-2}), c is the velocity of light, M is the molecular weight and ρ_T is the liquid density at a temperature T. Table 1 lists the results for six polar liquids: acetonitrile, nitromethane, cyclohexanone, acetone, methyl iodide and chloroform. Table 2 gives the results for seven non-polar liquids: cyclopentane, cyclohexane, n-pentane, n-hexane, benzene,

24.3410
~~24(4),24(7),16(2)~~

67233
SOV/55-59-1-8/28

AUTHOR: Smirnov, V.N.

TITLE: Voigt Functions As a Means for Determining the Distorted Instrument Readings in Infrared Spectroscopy

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1959, Nr 1, pp 61-74 (USSR)

ABSTRACT: The influence of the device on the form of the spectral line is described by

$$(1) \qquad R_b(\nu) = \int_{-\infty}^{\infty} f(\nu - \nu')R(\nu')d\nu',$$

where $R_b(\nu)$ is the distribution of the considered absorption bands and $R(\nu)$ is the distribution of the original contour, while $f(\nu - \nu')$ is the so-called device function. For a Gaussian form of the device function (1) changes to

$$(7) \qquad R_b(\nu) = \frac{1.67\,R(0)}{\sqrt{\pi}\,\delta\nu} \int_{-\infty}^{\infty} \frac{e^{-[(\nu-\nu')/q]^2 d\nu'}}{1+(\nu'/p)^2},$$

where $p = \Delta\nu_k/2$ and $q = \delta\nu/1.67$. The integral (Voigt-function)

Card 1/2

SOV/51-7-4-6/32

AUTHOR: Smirnov, V.N.

TITLE: Study of Temperature Dependence of the Intensity of Infrared Band Absorption in Solutions

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 4, pp 472-477 (USSR)

ABSTRACT: The author studied the temperature dependence of the infrared absorption band intensities of several substances in the form of solutions. The experimental technique and the treatment of results were the same as in earlier studies on liquids (Ref 2). Measurements were carried out using a two-beam infrared spectrometer IKS-2. The integral absorption coefficient was corrected for the width of the "apparatus function", the band "wings", the elasticity of the cell and the density of the solution. Measurements were carried out both when temperature was raised and when it was lowered. The integral absorption coefficient was calculated from $k_{\infty} = k'_{\infty} cM/C_v \rho_T$ $cm^2 \cdot mol^{-1} \cdot sec^{-1}$, where k'_{∞} is the measured integral absorption coefficient (in cm^{-2}), c is the velocity of light, M is the molecular weight, C_v is the volume concentration and ρ_T is the density at a given temperature T. The total error in the integral absorption coefficient amounted to 15-20%, but the relative change of the intensity with temperature was determined to within 5%. The author used as solutes those liquids for which temperature dependences of

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SOV/51-7-4-6/32

Study of Temperature Dependence of the Intensity of Infrared Band Absorption in Solutions

It is suggested that two types of intermolecular interactions in solutions (collisions between molecules and the interaction characteristic of condensed state) produce opposite temperature dependences of the infrared band intensities. The collisions, which are a kinetic type of interaction, produce a positive effect (rise of intensities with temperature) which can be observed in gases at low pressures. The second type of interaction produces a negative effect (fall of intensities with temperature) and it predominates in liquids. Acknowledgment is made to P.A. Bazhulin for his advice. There are 1 figure, 1 table and 21 references, 9 of which are Soviet and 12 English.

SUBMITTED: January 12, 1959

Card 3/3

SMIRNOV, V.N.

Determining the true parameters of truncated absorption bands. Vest. Mosk. un. Ser. 3: Fiz., astron. 15 no. 6:10-26 N-D '60. (MIRA 14:5)

1. Kafedra optiki Moskovskogo gosudarstvennogo universiteta.
(Infrared rays) (Absorption spectra)

30399
S/053/61/075/003/004/005
B125/B104

24,3410 (also 1163,1227)

AUTHORS: Gribov, L. A., Smirnov, V. N.

TITLE: Intensities in infrared absorption spectra of polyatomic molecules

PERIODICAL: Uspekhi fizicheskikh nauk, v. 75, no. 3, 1961, 527 - 567

TEXT: This is a review of theoretical problems of intensities of infrared absorption spectra of the fundamental oscillations of polyatomic molecules and of experimental methods for measuring intensities, covering the years 1926 to 1961. The theory can be applied to gases and is a good approximation for liquids. For crystals, however, it must be completely revised. The paper is divided into the following chapters: 1) Theory of intensities and polarizations of infrared absorption spectra of polyatomic molecules, subdivided into sections on the valence-optical theory, the direct and inverse electro-optical problems, the characteristic intensities in infrared spectra, and on the dependence of intensities upon the number of equivalent groups in polyatomic molecules;

Card 1/3

L 15243-65 EWT(m)/EWP(t)/EWP(b) DIAAP/IJP(c) JD/JG
ACCESSION NR: AR3010280 S/0081/63/000/012/0148/0148

SOURCE: RZh. Khimiya, Abs. 12G52

B

AUTHOR: Smirnov, V.N.

14

TITLE: Application of the photoneutron method to determination of the beryllium content in concentration products without preliminary conditioning

CITED SOURCE: Byul. nauchno-tekhn. inform. M-vo geol. i okhrany* nedr SSSR, no. 3(27), 1962, 46-49

TOPIC TAGS: beryllium determination, photoneutron method, concentration product analysis

21

TRANSLATION: Formulas are derived which show the dependence of the activity of the sample during the photoneutron determination of Be on the total amount of Be, total volume of the suspension, weight, height of the layer, and the specific gravity of the solid and liquid phases of the suspension. It was determined that small amounts of water in the sample do not alter the neutron count per unit of time; it is necessary to introduce a correction for the content of B, Li, Hg, etc. On the basis of the data obtained, the author shows the possibility of determining the Be content in concentration products

Card 1/2

L 15243-65
ACCESSION NR: AR3010280

without preliminary conditioning of the samples and directly in the pulps by using the photoneutron method. The average divergence between the amount of Be obtained by measuring the dry powders and measurements in the pulp was 6%. The error of reproducibility was 3%. E. Chudinov

SUB CODE: IC, NP ENCL: 00

Card 2/2

OKSMAN, Ya.A.; SMIRNOV, V.N.; SHMARTSEV, Yu.V.

Photodielectric effect in alloyed germanium. Fiz. tver. tela 5 no.10:2885-2889 O '63. (MIRA 16:11)

1. Gosudarstvennyy opticheskiy institut im. S.I. Vavilova, Leningrad.

SMIRNOV, V.N.; TOKAREVA, D.V.

Some problems affecting the determination of beryllium by the photoneutron method in a laboratory. Atom. energ. 15 no.4:334-335 O '63. (MIRA 16:10)

SMIRNOV, V. N.

Dissertation defended for the degree of Candidate of Physicomathematical Sciences at the Physics Institute imeni P. N. Lebedev in 1962:

"Determination of Absolute Intensities in Infrared Molecular Spectra and Investigation of These Intensities as a Function of Temperature and Other Factors."

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

S/0032/64/030/002/0190/0193

ACCESSION NR: AP4013304

AUTHORS: Zaytsev, Ye. I.; Smirnov, V. N.

TITLE: Photoneutron determination of beryllium in large samples

SOURCE: Zavodskaya laboratoriya, v. 30, no. 2, 1964, 190-193

TOPIC TAGS: beryllium, beryllium determination, large beryllium containing sample, photoneutron method

ABSTRACT: A method is proposed for determining beryllium content in large samples by means of scintillator recording of neutrons in the course of γ - and n-reaction. Sb^{124} serves as a source of γ-radiation. In a 10-min determination with a source activity of 10 mcurie, the method is sensitive to 0.002% of BeO. The procedure is based on recording neutrons in reaction $Be^{9}+\gamma \longrightarrow Be^{8}+n$. The apparatus (called "Berill") used in this work consists basically of a panel connected to amplifying-recording circuits and to a power source, of a scintillator neutron counter, and of an Sb^{124} γ-radiation source (5-10 mcurie). The γ-source is fixed to a 3-cm lead screen. A luminofor T-1, designed by T. V. Timofeyeva, contains ZnS(Ag) and boric acid. Hard γ-rays acting upon Be produce neutrons

Card 1/2

ACCESSION NR: AP4013304

with energy of 0.024 Mev. These neutrons are retarded by paraffin and glass and are absorbed by boron. Alpha particles produced in reaction $B^{10}(n, \alpha)Li^{7}$ cause scintillations in ZnS(Ag) and generate sparks of light which are photographically recorded. The apparatus has a maximum depth of 70 mm and is sensitive to 130 mm (at the specific gravity of tested substance equal to 1.6 g/cm^3. Readings recorded by this apparatus change with the variations in specific gravity and in moisture content. Orig. art. has: 3 figures, 1 table, and 3 formulas.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 26Feb64 ENCL: 00

SUB CODE: CH, PH NO REF SOV: 004 OTHER: 003

Card 2/2

ACCESSION NR: AP4028450 S/0181/64/006/004/1186/1191

AUTHORS: Kalyuzhnaya, G. A.; Oksman, Ya. A.; Smirnov, V. N.; Shmartsev, Yu. V.

TITLE: Investigation of photoconductivity in gallium phosphide by the noncontact method

SOURCE: Fizika tverdogo tela, v. 6, no. 4, 1964, 1186-1191

TOPIC TAGS: photoconductivity, gallium phosphide, high frequency method, temperature dependence, noncontact method

ABSTRACT: The authors measured the temperature dependence of photoconductivity in poorly conductive GaP. They also determined the spectral distribution of the photoconductivity at different temperatures. These relations are shown graphically in Fig. 1 on the Enclosure. A short-wave maximum is observed, associated with direct transitions. The photoconductivity is found to drop sharply at temperatures below 64K. It is concluded that the use of high-frequency methods for investigating photoconductivity is justified by the reproducibility of the results and by the agreements of these results with data from the literature. The method has led to refinement of several properties of GaP and, in particular has confirmed the

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ACCESSION NR: AP[illegible]028450

ENCLOSURE: 01

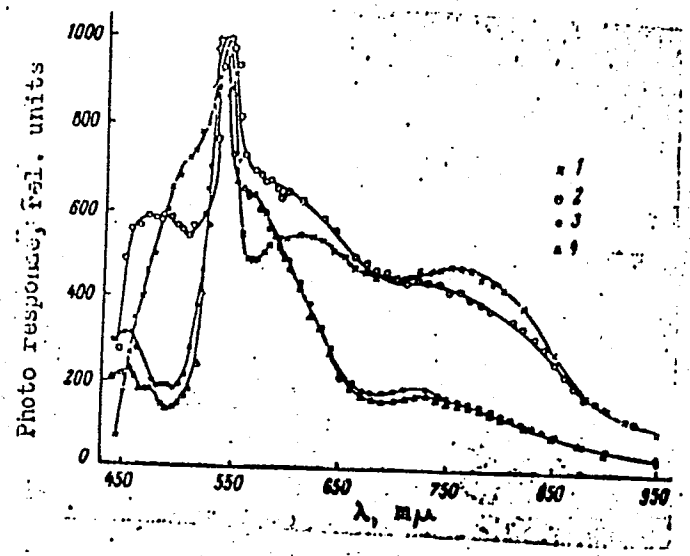

Fig. 1. Spectral distribution of photoconductivity in GaP at various temperatures

1,2- 211K; 3- 174K; 4- 96K; 1- modulated light; 2-4- nonmodulated light.

Card 3/3

DOBREGO, V.P.; OKSMAN, Ya.A.; RYVKIN, S.M.; [illegible], V.N.

Discontinuity in conductivity and the photodielectric effect in germanium. Fiz. tver. tela 6 no.9:2860-2862 S '64. (MIRA 17:11)

1. Fiziko-tekhnicheskiy institut imeni Ioffe AN SSSR i Gosudarstvennyy opticheskiy institut imeni Vavilova, Leningrad.

L 6705-65 EWT(l)/EPA(s)-2/EWG(k)/EWT(m)/EEC(t)/EEC(b)-2/EWP(q)/EWP(b) Pl-4/
Pt-10/Pz-6 IJP(c)/SSD/ASD(a)-5/AFWL/AFETR/ESD(gs)/ESD(t)/RAEM(t) GG/AT/JD
ACCESSION NR: AP4044969 S/0181/64/006/009/2860/2862

AUTHORS: Dobrego, V. P.; Oksman, Ya. A.; Ry*vkin, S. M.; Smirnov, V. N.

TITLE: Jump conductivity and photodielectric effect in germanium

SOURCE: Fizika tverdogo tela, v. 6, no. 9, 1964, 2860-2862

TOPIC TAGS: germanium, photodielectric effect, jump conductivity, polarizability, single crystal, electric conductivity, photodipole effect

ABSTRACT: In view of the fact that direct experiments with single crystals have so far not demonstrated the existence of processes that change the polarizability of semiconductors upon illumination, the authors investigated the photodielectric effect (PDE) in single-crystal germanium doped with antimony and compensated with copper at 4.2K. The purpose of the investigation was to study the peculiar-

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ities of PDE under conditions when the electric conductivity is determined by the jump mechanism described by N. F. Mott and D. W. Twose (Advances in Physics, v. 10, No. 38, 107, 1961). The measurement procedure was described by the authors elsewhere (FTT v. 5, 2885, 1963). The various features of PDE that are deduced from these results are similar to those observed by others and give grounds for assuming that a carrier transport takes place at 4.2K by jumps over the antimony levels. Several arguments are advanced in favor of the assumption that in compensated germanium crystals the PDE of the first kind (i.e., with change in the true polarizability), does exist at helium temperatures and is due to jumps of the non-equilibrium carriers over the impurity levels. The question of the applicability of this mechanism to the photodipole effect in other semiconductors remains still open. Orig. art. has: 1 figure and 1 table.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR

L 6705-65
ACCESSION NR: AP4044969 2

(Physicotechnical Institute, AN SSSR); Gosudarstvenny*y opticheskiy institut im. S. I. Valilova, Leningrad (State Optical Institute)

SUBMITTED: 18Apr64 ENCL: 00

SUB CODE: SS, OP NR REF SOV: 005 OTHER: 001

Card 3/3

L 12105-66 EWT(1)/EWP(e)/EWT(m)/EWP(t)/EWP(b) IJP(c) JD

ACC NR: AP6001663 SOURCE CODE: UR/0051/65/019/006/0987/0989

AUTHOR: Baranov, B. V.; Oksman, Ya. A.; Prochukhan, V. D.; Smirnov, V. N.

ORG: none

TITLE: High-frequency electroluminescence of polycrystalline boron phosphide

SOURCE: Optika i spektroskopiya, v. 19, no. 6, 1965, 987-989

TOPIC TAGS: electroluminescence, boron compound, phosphide, crystal property

ABSTRACT: The authors note that the use of high-frequency excitation of electroluminescence is of particular interest in the study of high-temperature crystals of the type A_3B_5, since the quality of the crystals and technological difficulties often make it difficult to obtain p-n junctions on these crystals, with the result that observation of injected electroluminescence is complicated. Such material includes, in particular, boron phosphide, information on the properties of which is as yet extremely limited. A study was made of the high-frequency electroluminescence of BP in order to determine and assess methodological possibilities and to obtain information regarding emission-related processes taking place in this material. It was determined that BP dissolves in a Cu_3P melt. The basic admixtures in the BP crystals were Cu and Si, with traces of Cr and Mg. Figures are given illustrating the dependence of the integral intensity of electroluminescence on the amplitude of the HF field intensity, averaged

UDC: 535.376

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L 12105-66
ACC NR: AP6001663

for volume, and also the spectral distribution of HF electroluminescent emission. Observations of photoconductivity by a no-contact method revealed that the set-up time of photocurrent in the samples considered was in the order of several seconds, indicating a high concentration of traps. Orig. art. has: 2 figures.

SUB CODE: 07, 20 / SUBM DATE: 19May65 / ORIG REF: 002 / OTH REF: 003

Card 2/2

L 5448-66 EWT(l)/EWT(m)/ETC/EWG(m)/T/EWP(t)/EWP(b)/EWA(h) IJP(c) RDW/
ACCESSION NR: AP5017912 JD/JG/GG/AT UR/0051/65/019/001/0149/0151

AUTHORS: Oksman, Ya. A.; Smirnov, V. N.

TITLE: High frequency electroluminescence of semiconducting crystals

SOURCE: Optika i spektroskopiya, v. 19, no. 1, 1965, 149-151

TOPIC TAGS: semiconductor crystal, zinc compound, optic material, gallium compound, cadmium compound, electroluminescence, polarized luminescence, luminescence crystal

ABSTRACT: Inasmuch as the impact electroluminescence of semiconductor crystals is frequently masked by secondary effects, the applied radio pulses (18 Mc) with duration 10 -- 50 μsec to unactivated single crystals of Zs, ZnSe, GaP, GaAs, and polycrystalline plates of CdTe in an electric field at liquid nitrogen temperature. The pulse repetition frequency was 20 -- 200 cps. All the samples exhibited electroluminescence, with near-exponential dependence of the brightness amplitude on the amplitude of the applied pulses. The GaP and GaS brightness waves duplicated the envelope of the radio pulse. In the

Card 1/2 UDC: 535.376

L 21559-66 EWT(1)/EWT(m)/EWP(w)/EWA(h)/ETC(m)-6 IJP(c) WW/EM/GW
ACC NR: AT6009620 SOURCE CODE: UR/2561/65/000/019/0064/0065

AUTHOR: Smirnov, V. N.

ORG: none

TITLE: Types of elastic waves in thin ice

SOURCE: Leningrad. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut. Problemy Arktiki i Antarktiki, no. 19, 1965, 64-65

TOPIC TAGS: seismic modeling, seismic wave, acoustic wave, ice

ABSTRACT: Field measurements of the elastic-wave propagation velocity (λ = +10m) along a 80 m profile run across thin ice, using wide-band seismographs spaced 5 to 40 m apart with oscillograms recorded on film every 2 sec, showed that the rate of propagation of interference waves equaled that of the transverse waves regardless of their nature. Laboratory modeling experiments, using Rochelle salt piezoelectric transducers to transmit ultrasonic impulses (~100 kc) in a glass plate, were compared with the field results and were found to be in good agreement. This suggests that it may be possible to determine the elastic characteristics of an unbroken thin layer of ice from the velocities of longitudinal and transverse waves recorded on a single seismogram without the necessity of aligning the oscillation source. Orig. art. has: 2 figures. [ER]

SUB CODE: 08/ SUBM DATE: 05Aug64/ ATD PRESS: 4219

Card 1/1 ULR

L 04671-67 EWT(1) IJP(c)
ACC NR: AP6024456 SOURCE CODE: UR/0181/66/008/007/2001/2010

67
B

AUTHOR: Oksman, Ya. A.; Smirnov, V. N.

ORG: none

TITLE: High-frequency electroluminescence of semiconducting crystals

SOURCE: Fizika tverdogo tela, v. 8, no. 7, 1966, 2001-2010

TOPIC TAGS: semiconductor crystal, electroluminescence, electric polarization, impact ionization, conduction band, electron density, luminor

ABSTRACT: This is a continuation of earlier work by the authors (FTT v. 8, 1452, 1966 and earlier) dealing with excitation of electroluminescence in insulated semiconducting crystals by means of a high-frequency field. The present article reports observation of high-frequency electroluminescence in semiconductors of type $A^{II}B^{VI}$, $A^{III}B^{V}$, and $A^{III}B^{VI}$, with conductivities from 10 to 10^{-12} ohm^{-1} cm^{-1} and an investigation of the character of the laws governing the high-frequency electroluminescence. By solving the two-dimensional problem of distribution of the field in the semiconductor crystal, the authors determine the influence of the charge polarization on the distribution of the field in the isolated crystal, and the nature of the electroluminescence under the assumption that the ionization is by impact and that the decisive role is played by the charge polarization in the formation of the internal field in the crystal. A model is assumed in which the conductivity of the crystal is determined only by the electron density in the conduction band, the radiation is produced by recombi-

Card 1/2

termined only by the thermal generation and drift. The character of the frequency and amplitude dependence of the brightness of the high-frequency internal electroluminescence, and the influence exerted on this brightness by the dimensions of the crystal and the [illegible], as predicted by this model, agree with the experimentally obtained values. A comparison is made of the high-frequency [illegible] luminescence and the Destriau effect, observed in zinc-sulfide luminors, and evidence showing that the two effects are different is presented. Orig. art. has: 5 figures and 17 formulas.

SUB CODE: 20/ SUBM DATE: 04Oct65/ ORIG REF: 005/ OTH REF: 002

kh

Card 2/2

L 43681-66 EWT(1)/EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6015459 (A) SOURCE CODE: UR/0181/66/008/005/1428/1433

AUTHOR: Borshchevskiy, A. S.; Oksman, Ya. A.; Smirnov, V. N.

ORG: none

TITLE: High frequency electroluminescence of gallium arsenide and gallium selenide

SOURCE: Fizika tverdogo tela, v. 8, no. 5, 1966, 1428-1433

TOPIC TAGS: electroluminescence, gallium arsenide, selenide, photoconductivity

ABSTRACT: Measurements were made of the internal HF electroluminescence of powdered polycrystalline GaAs and GaSe *n*-type specimens compensated by random impurities, e.g., oxygen, and in some cases, Ni and Co. Resistance of most compensated samples did not exceed 10 ohm·cm and the frequency and amplitude functions of the brightness luminescence of GaAs and GaSe were similar. The energy luminescence of GaAs reached 100 μw·cm^{-2} at 77°K; this is in agreement with the assumption regarding the shock nature of the excitation. Study of photoconductivity of GaSe with dc indicates that it is of a jump nature. The possibility of multistage ionization in semiconductors with a high density of point defects is discussed. The authors thank I. S. Aver'yanov, M. M. Mikhaylov and B. V. Korobitsyn for making the compensated polycrystalline GaAs samples available. Orig. art. has: 4 figures.

SUB CODE: 20/ SUBM DATE: 20Sep65/ ORIG REF: 012/ OTH REF: 001

Card 1/1 mjs

L 27207-66 EWT(l)/EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6011568 SOURCE CODE: UR/0051/66/020/003/0499/0501

AUTHORS: Oksman, Ya. A.; Smirnov, V. N.; Smirnova, A. D.; Tret'yakov, D. N.

ORG: none

TITLE: High frequency electroluminescence of polycrystalline gallium phosphide

SOURCE: Optika i spektroskopiya, v. 20, no. 3, 1966, 499-501

TOPIC TAGS: gallium optic material, phosphide, electroluminescence, light excitation, luminescence center, crystal

ABSTRACT: The authors present new experimental data which make it possible to make some assumptions concerning the mechanism of high frequency electroluminescence of powdered GaP. The powder was prepared from platelike GaP obtained by a method described by A. S. Borshchevskiy et al. (Izv. AN SSSR ser. fiz. v. 28, 985, 1964). The powdered crystals (grain dimension not larger than 50 μ) were mixed with malamine formaldehyde resin and deposited (0.3 mm layer) on a metallic electrode. The second electrode of the capacitor was a fine-mesh grid insulated from the layer with a mica linear 10 μ thick. The capacitor was immersed either in liquid nitrogen or in carbon tetrachloride at room temperature.

UDC: 535.376

Card 1/2

SMIRNOV, V. N. PA 56/49T3

USSR/Agriculture Jan 49
Soil Science
Erosion

"Distribution of Soil Erosion in Marii ASSR," V. N. Smirnov, 3 pp

"Pochvoved" No 1

Conducted studies on extent, nature and severity of soil erosion in various sections of Marii ASSR. Worst erosion has occurred in regions west of the Vetluga River (Gorno-Mari and Yelasy administrative regions). This area is actually one of the worst eroded in the USSR. Map of Marii ASSR shows various types of erosions throughout the republic.

56/49T3

SMIRNOV, V. N.

Soils

"Soil, its properties and life." Reviewed by V. N. Smirnov. Pochvovedenie no. 3, 1952

Monthly List of Russian Accessions, Library of Congress, July 1952 Unclassified

SMIRNOV, V.N.

Soils - Classification.

Outlin of Generic classification of soils of the forest zone plain and of the northern forest-steppe zone of the U.S.S.R. on the basis of V. R. Vil'yam's theory, sole soil building process. Dokl. AN SSSR 83 no. 3 (1952)
Povolzhskiy Lesotekhnicheskiy Institut im. A.M. Gor'kogo. rcd. 2 Dec. 1951.

SO: Monthly List of Russian Accessions, Library of Congress, August 1 1953, Uncl.

[illegible], V. N.

[illegible] of Ministers USSR in the fields of [illegible] inventions announces that the following scientific works, popular scien- [illegible] books, and textbooks have been submitted for competition for Stalin prizes for [illegible] Sovetskaya Kul'tura, Moscow, [illegible] 3 Apr 1954;

Name	Title of Work	Nominated by
Smirnov, V. N.	"Soils of the Mariyskaya ASSR, Their Properties and Measures for Their Improvement"	Povolzh'ye Forestry Engineering Institute imeni M. Gor'kiy

SHIRNOV, V. N.

SHIRNOV, V. N. -- "The Soils of the Mari ASSR and Conditions of Their Formation." Acad Sci USSR. Soil Inst imeni V. V. Dokuchayev. Moscow, 1955. (Dissertation for the Degree of Doctor of Agricultural Sciences.)

SO: Knizhnaya Letopis', No 5, Moscow, Feb 1956

SMIRNOV, V. N.

The relation between carbon dioxide production in the soil and productivity of forest soils. V. N. Smirnov (M. Gor'kii. Inst. Wood Chem., Ioshkar-Ola). *Pochvovedenie* 1955, No. 6, 21–31.—Data are given on CO_2 release in relation to the productivity of forest species. Thus, pine-sphagnum assocn. is of low productivity. Soils with better stands show a higher CO_2 release. Data are also given on CO_2 released from different age stands and during the respective seasons. The method of Shtatnov (*C.A.* 47, 4534g) for sampling CO_2 from soils, with some modifications, was used. J. S. Joffe

AG

USSR/Soil Science - Genesis and Geography of Soils. J.

Abs Jour : Ref Zhur - Biol., No 15, 1958, 67876

Author : Smirnov, V.N.

Inst : Povolzhskiy Forest Engineering Institute.

Title : A Comparative Characterization of the Turf-Podzol Argillaceous Soils of the Virgin and Fallow Lands of the Mari ASSR

Orig Pub : Sb. tr. Povolzhsk. lesotekhn. in-t, 1956, No 51, 129-135.

Abstract : The new lands being put under cultivation in the Mari ASSR consist of turf-podzol virgin and fallow land. In their physico-chemical properties the fallow soils resemble the virgin soils. Analytic data are given for the most common argillaceous soil varieties. Several characteristics of the turf-podzol light grey argillaceous soils are given; they are taken from under coniferous-broad leaf forests

Card 1/2

SMIRNOV, V.N., prof., doktor sel'skokhoz.nauk; ZUDIN, N.A., otv.red.

[Methods of the field investigation of forest soils for the purpose of forest management; manual on soil investigations in forests for forestry students and specialists of forest management and planning] Metodika provedeniia polevykh pochvennykh issledovanii v lesu dlia lesokhoziaistvennykh tselei; rukovodstvo po pochvennym issledovaniiam v lesu dlia studentov lesokhoziaistvennykh fakul'tetov lesotekhnicheskikh i lesokhoziaistvennykh vuzov, spetsialistov lesnogo khoziaistva i lesoproektov. Ioshkar-Ola, Povolzhskii lesotekhn.in-t im. M.Gor'kogo, 1958. 55 p. (MIRA 14:2)

(Forest soils)

: USSR
: Forestry. Biology. Typology. K

: ... No. ... 1959, No. 104499

: Smirnov, V. N.; Ponomarev, Yu. I.; Smirnova, A. I.

: The Influence of Cytisus on the Forest Growth Properties of Sandy Podzolic Soils

: Lesn. Kh-vo, 1958, No. 3, 61

: It has been shown by investigations in Mari ASSR that the broom (Cytisus rabus bonensis) by its litter enriches the soil with organic substances, nitrogen and ash elements, affecting positively not only the upper horizon but also deeper layers. Self-sown and plantation pines growing up with broom look healthy and grow and develop better. --L. V. Nesmelov

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ZONN, S.V.; SMIRNOV, V.N.; MOLCHANOV, A.A.

"Soil science" by A.A. Rode. Reviewed by S.V. Zonn, V.N. Smirnov, and A.A. Molchanov. Pochvovedenie no.2:110-112 F '60. (MIRA 15:7)
(Soil science--Study and teaching)
(Rode, A.A.)

SMIRNOV, V.N.; GRISHKUN, Ye.V.; USYNINA, V.A.

Fermentation and respiration intensity of soils under forests and in plowlands. Pochvovedenie no.1:59-73 Ja '62. (MIRA 17:1)

1. Povolzhskiy lesotekhnicheskiy institut imeni M. Gor'kogo.

SMIRNOV, V.N.

Comparative characteristics of turf-Podzolic loamy soils in mixed coniferous-hardwood and pure hardwood forests in the middle Volga Valley; characteristics of the subtype of turf-Podzolic soils in hardwood forests. Pochvovedenie no.5:64-74 My '63. (MIRA 16:5)

1. Volzhskiy lesotekhnicheskiy institut imeni M.Gor'kogo.
(Volga Valley--Forest soils)

SMIRNOV, V.N.; IVANOVA, Ye.I.; GOLOV, V.M.

Diurnal and seasonal dynamics of the liberation of soil carbon dioxide into the atmosphere in conifer-hardwood and hardwood stands of the southern belt of the forest zone. Nauch. dokl. vys. shkoly; biol. nauki no.1:194-198 '64. (MIRA 17:4)

1. Rekomendovana kafedroy lesnogo pochvovedeniya Povolzhskogo lesotekhnicheskogo instituta.

SMIRNOV, V.N.

Labor contracts with industrial enterprises for research work in the institutions of higher learning. Vest. LGU 12 no.23:159-162 '57. (MIRA 11:1)

(Research) (Labor contract)

SMIRNOV, Vladimir Nikolayevich; BESSMERTNYY, A.S., red.; TIKHONOVA, I.M., tekhn.red.

[Young Leningraders work for the fatherland] Molodye leningradtsy - Rodine. Leningrad, Lenizdat, 1959. 128 p. (MIRA 13:4)

1. Sekretar' Leningradskogo gorkoma Vsesoyuznogo Leninskogo Kommunisticheskogo soyuza molodezhi (for Smirnov).
(Leningrad--Labor and laboring classes)

30(8)
AUTHOR: Smirnov, V. N.

SOV/30-59-6-39/40

TITLE: The Book on the Legal Bases of the Activity of Scientific Institutions and Scientists (Kniga o pravovykh osnovakh deyatel'nosti nauchnykh uchrezhdeniy i uchenykh)

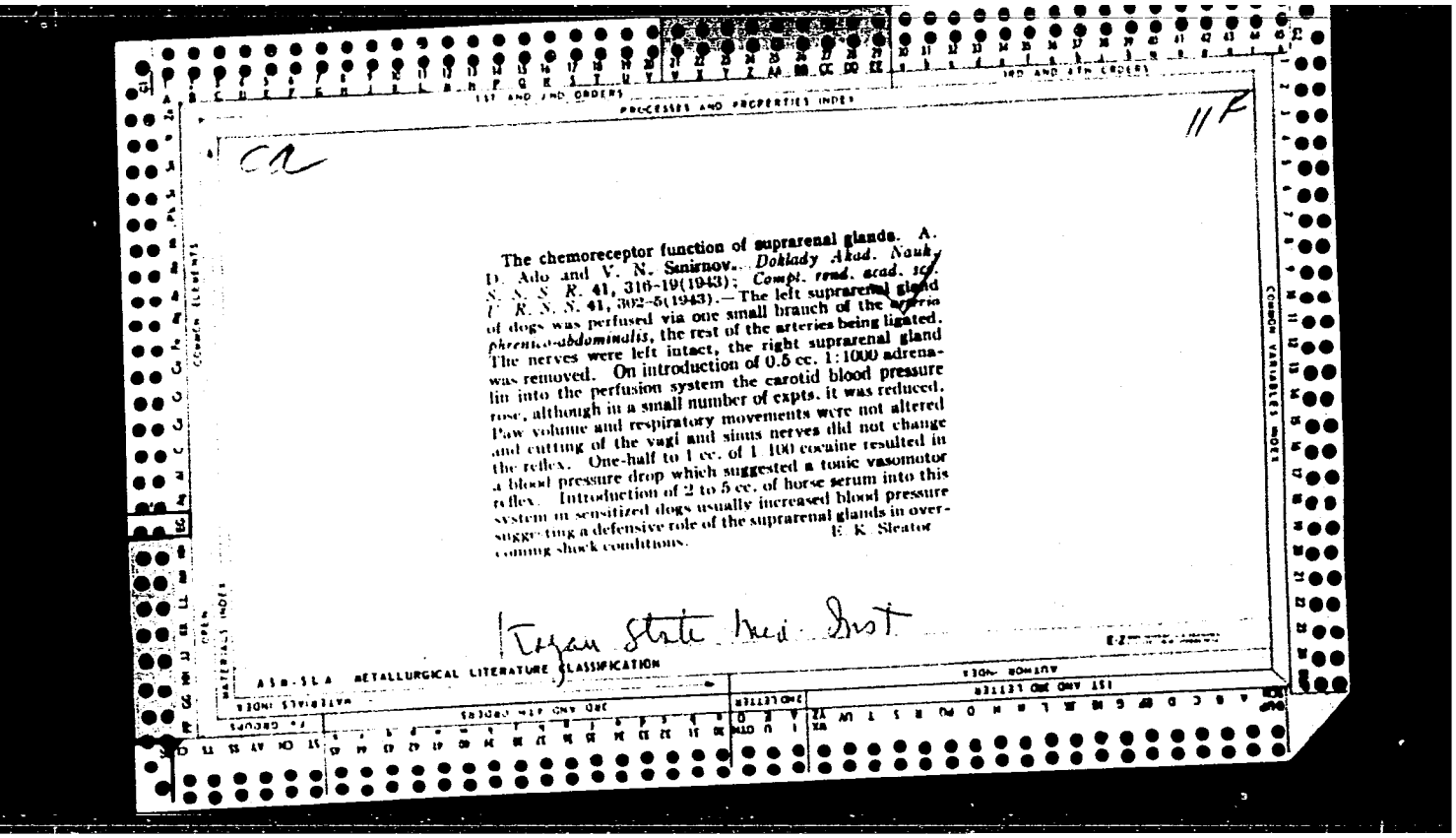
PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 6, pp 139 - 142 (USSR)

ABSTRACT: This is an abstracter's review of the book by G. I. Fed'kin. This book was published by the Publishing House of the Gosyurizdat (Foot Note) in 1958 under the title "Pravovyye voprosy organizatsii nauchnoy raboty v SSSR". There are 2 Soviet references.

Card 1/1

SMIRNOV, V.N.

Labor contracts in the labor codes of the Union Republics. (MIRA 13:5)
Uch.zap.LGU no.274:73-82 '59.
(Labor laws and legislation) (Labor contract)



The chemoreceptor function of suprarenal glands. A. D. Ado and V. N. Smirnov. *Doklady Akad. Nauk S. S. S. R.* 41, 316–19(1943); *Compt. rend. acad. sci. U. R. S. S.* 41, 302–5(1943).—The left suprarenal gland of dogs was perfused via one small branch of the *arteria phrenico-abdominalis*, the rest of the arteries being ligated. The nerves were left intact, the right suprarenal gland was removed. On introduction of 0.5 cc. 1:1000 adrenalin into the perfusion system the carotid blood pressure rose, although in a small number of expts. it was reduced. Flow volume and respiratory movements were not altered and cutting of the vagi and sinus nerves did not change the reflex. One-half to 1 cc. of 1:100 cocaine resulted in a blood pressure drop which suggested a tonic vasomotor reflex. Introduction of 2 to 5 cc. of horse serum into this system in sensitized dogs usually increased blood pressure suggesting a defensive role of the suprarenal glands in oncoming shock conditions.

E. K. Sleator

SMIRNOV, V. N.

"On the Anaphylactic Reaction of the Reflexogenic Zones of the Suprarenals," Mater. k Patol. Fiziol. Allerg. Reaktsiy, Kazan's p 65, 1947.

SMIRNOV, V.N., dotsent; MAKSUDOV, B.S., dotsent

Vital diagnosis of rare forms of aortic diseases. Terap. arkh. 26 no.1:81-85 Ja-F '54. (MLRA 7:5)

1. Iz gospital'noy terapevticheskoy kliniki (zav. - prof. A.G. Teregulov) Kazanskogo meditsinskogo instituta.

(AORTA, aneurysm, *diag. during life)

(ANEURYSM, *aorta, diag. during life)

SMIRNOV, V.N., dotsent

Clinical aspects of spontaneous heart ruptures. Kaz.med.zhur. 40 no.5:10-15 S-O '59. (MIRA 13:7)

1. Iz kafedry terapii (zav. - prof. L.M. Rakhlin) Kazanskogo Gosudarstvennogo instituta dlya usovershenstvovaniya vrachey imeni V.I. Lenina.
(HEART--RUPTURE)

SMIRNOV, V.N., dotsent; ZHIVOTOVSKAYA, I.L., ordinator; MARCHENKO, L.A., ordinator; SLAVINA, I.P., ordinator

Eosinopenia as a symptom in the differential diagnosis of myocardial infarct in its early stages. Kaz. med. zhur. no. 4:11-13 Jl-Ag '60. (MIRA 13:8)

1. Iz 1-y kafedry terapii (zav. - prof. L.M. Rakhlin) Kazanskogo gosudarstvennogo institut dlya usovershenstvovaniya vrachey im. V.I. Lenina.
(EOSINOPHILES) (HEART--INFRACTION)

SMIRNOV, V.N., dotsent; LUSHNIKOVA, L.A., assistent

Priapism as a complication of chronic leukemia. Kaz.med.zhur. no.4:20-21 Jl-Ag '62. (MIRA 15:8)

1. Pervaya kafedra terapii (zav. - prof. L.M.Rakhlin) Kazanskogo gosudarstvennogo instituta dlya usovershentstvovaniya vrachey imeni Lenina.

(LEUKEMIA) (PENIS--DISEASES)

SMIRNOV, V.N., dotsent

Clinical variants of embolic myocardial infarcts. Kaz.med. zhur. no.5:9-12 S-O '62. (MIRA 16:4)

1. Kafedra terapii (zav. - prof. L.M.Rakhlin) Kazanksogo gosudarstvennogo instituta dlya usovershenstvowaniya vrachey imeni V.I.Lenina.
(HEART--INFARCTION) (EMBOLISM)

SMIRNOV, V.N., inzhener.

Design of chambers for distribution apparatus for voltages up to 10 kv and line distributors of industrial substations. Prom.energ. 11 no.2:18-22 F '56. (MLRA 9:6)
(Electric substations)

SMIRNOV, V.N., inzh., red.; PEVZNER, A.S., red.izd-va; BOROVNEV, N.K., tekhn.red.

[Instructions for installing interior electric wiring in glass pipes; SN 73-59] Ukazaniia po montazhu skrytykh elektroprovodok v stekliannykh trubakh; SN 73-59. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1960. 15 p. (MIRA 13:8)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva.
(Electric wiring, Interior) (Pipe, Glass)

PHASE I BOOK EXPLOITATION SOV/5214

Grinberg, Georgiy Samoylovich, and Vadim Nikolayevich Smirnov

Komplektnyye ustroystva elektrotekhnicheskikh ustanovok (Preassembled Units of Electrotechnical Installations) Moscow, Gosenergoizdat, 1960. 135 p. 15,000 copies printed.

Ed.: M.P. Leplinskiy; Tech. Ed.: N.I. Borunov.

PURPOSE: This book is intended for engineers, technicians, and designers concerned with the planning, mounting, and operation of electrical engineering installations and for technical personnel of plants manufacturing preassembled units. It may also be useful to students specializing in power supply and electrical equipment.

COVERAGE: The book describes the structures of preassembled units used in electrotechnical installations of industrial and public buildings and dwellings of the USSR. It contains concise information on the manufacturing processes and materials used for preassembled units, as well as recommendations regarding their design. The data are based on manufacturing practices of the Ministerstva stroitel'stva RSFSR i USSR (Ministries of Construction RSFSR and UkrSSR),

Card 1/4

Card 2/4

BELOV, Georgiy Vasil'yevich; SMIRNOV, V.N., red.; SHIROKOVA, M.M., tekhn.red.

[Installation of electric current conductors in bus conductor boxes] Montazh tokoprovodov iz shin korobchatogo secheniia. Moskva, Gos.energ.izd-vo, 1961. 46 p. (Biblioteka elektromontera, no.50) (MIRA 14:12)

(Bus conductors (Electricity))
(Electric power distribution)

SMIRNOV, V.N., inzh., red.; KLIMOVA, G.D., red. izd-va; BOROVNEV, N.K., tekhn. red.

[Regulations (SN 203-62) on the designing of electric lighting systems for industrial buildings]Ukazaniia po proektirovaniiu elektricheskogo osveshcheniia proizvodstvennykh zdanii (SN 203-62). Moskva, Gosstroiizdat, 1962. 64 p. (MIRA 15:7)

1. Russia (1923- U.S.S.R.)Gosudarstvennyy komitet po delam stroitel'stva.
(Electric lighting)

SOBKO, V.A., gornyy inzh.; SMIRNOV, V.N., gornyy inzh.; CHESNOKOV, N.I., gornyy inzh.

Using systems with large-scale caving for ores and enclosing rocks subject to spontaneous combustion. Gor.zhur. no.7: 31-36 Jl '60. (MIRA 13:7)
(Mining engineering--Safety measures)
(Combustion, Spontaneous)

SMIRNOV, V.N., starshiy prepodavatel'

Certain factors having an effect on methods of developing mining areas. Izv. vys. ucheb. zav.; gor. zhur. no. 11:15-20 '60. (MIRA 13:12)

1. Kemerovskiy gornyy institut. Rekomendavana kafedroy razrabotki mestorozhdeniy poleznykh iskopayemykh Kemerovskogo gornogo instituta.

(Coal mines and mining)