KOPYLOVSKIY, B.D.; SYTYY, G.F.

Measuring the modulus and phase of the current amplification factor of junction crystal triodes at high frequency. Poluprov. prib. i prim. no.2:331-339 '57. (MIRA 11:6)
(Transistors--Measurements)

AUTHOR: Kopylovskiy, B.D. SOV/120-59-2-21/50

TITLE: A Phase Method of Measuring Life-time and Surface Recombination Velocity of Non-equilibrium Charge Carriers in Semiconductors (Fazovyy metod izmereniya vremeni zhizni i skorosti poverkhnostnoy rekombinatsii neravnovesnykh nositeley zaryada v poluprovodnikakh)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 2, pp 75-78 (USSR)

ABSTRACT: The usual method of measuring life-time is to suddenly expose the sample to a beam of light and to measure the way in which the photo-conductive e.m.f. rises with time. If a linear system is assumed, this procedure may equally well be replaced by one in which the light is sinusoidally modulated and a phase angle in the steady state is measured. The relationship between phase angle, frequency and τ, response time is given in Eq (7); the response time in this equation is the effective lifetime in the semiconductor and is related to the surface and volume lifetimes by the inverse relationship of Eq (9). According to Ref 6 on a sample of great thickness and width, the relationship between surface recombination velocity and surface lifetime is given by the equation

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A Phase Method of Measuring Life-time and Surface Recombination Velocity of Non-equilibrium Charge Carriers in Semiconductors

between (9) and (10). The relationship is not always so simple and a more detailed analysis has been made by A.V. Rzhanov. Two particular cases may be distinguished; 1) for a thick sample formula (15) is given, 2) when the sample is thin the corresponding formulae for phase angle and for surface recombination velocity are given by Eq (18). Block diagram of method used is given in Fig 2, using the narrow band amplifier 28-I, a phase shifter photo-cell and an oscillograph type 10-4. The source of light is a 15-watt luminescent lamp wired in the anode of a 6P6 valve; lifetimes of 5 μ and more may be measured. Some results are given in Table 1 on four samples measured at frequencies of 1, 2 and 3 kc/s. It is suggested the method would be applicable to the measurement of lifetimes down to 10^{-8} sec; this would require modulation frequencies of the order of 3 megacycles and would be achievable using an ammonium-phosphate crystal modulator. The author extends his

SOV/120-59-2-21/50

A Phase Method of Measuring Life-time and Surface Recombination Velocity of Non-equilibrium Charge Carriers in Semiconductors

thanks to S.V. Bogdanov, A.V. Rzhanov, V.S. Vavilov, and L.A. Tumerman.

Card 3/3

There are 2 figures, 1 table and 7 references, of which 2 are Soviet and 5 are English.

ASSOCIATION: Fizicheskiy institut AN SSSR (Physics Institute of the Academy of Sciences, USSR)

SUBMITTED: February 15, 1958

21(7)

AUTHORS: Vavilov, V. S., Gippius, A. A., Gorshkov, M. M., Kopylovskiy, B. D.

SOV/56-37-1-3/64

TITLE: Radiation Combination in Germanium Crystals Subjected to a Bombardment by Fast Electrons (Izluchatel'naya rekombinatsiya v kristallakh germaniya, podvergnutykh bombardirovke bystrymi elektronami)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 1, pp 23-26 (USSR)

ABSTRACT: The authors describe the results obtained by investigations of the infrared spectra accompanying the recombination of electrons and holes in germanium monocrystals. Three samples were investigated, in which radiation was excited by the injection of holes by means of various indium contacts; the third sample was irradiated with 0.7 Mev electrons. The concentration of the effective acceptor levels of the defects, formed in irradiation, was calculated as amounting to $5.10^{13}cm^{-3}$ near the surface, and as decreasing towards zero at $\sim$ 0.3 mm. In first approximation it may be assumed that the concentration of recombination centers formed in irradiation is equal to that of the effective acceptor levels. The spectra of all

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samples showed an emission band (Fig 1) with a maximum at 1.85 μ (0.67 ev) at room temperature and at 1.67 μ (0.74 ev) at 78° K. The displacement of the long-wave edge of this band corresponds well to the variation of the width of the forbidden band of germanium. The temperature coefficient β was determined as amounting to $3.2.10^{-4}$ ev/degrees, which agrees well with the results obtained by other authors (Refs 1,7). Figure 1 shows the shifting of the natural radiation band of Ge in the case of a temperature variation of 300 per 78° K. Figure 2 shows the spectra of the impurity- and natural radiation of the Ge-samples at 78° K, figure 3 the spectrum of impurity radiation of a Ge-sample of the N-type without treatment at 78° K. The curve has a maximum at 2.35 μ (0.53 ev). Figure 4 shows the spectrum of a N-germanium sample, irradiated by 0.7 Mev electrons at 78° K (irradiation occurred at room temperature); also the curve for the sensitivity of the PbS photoresistor within the same λ-range is shown. The intensity B of radiation near the maximum of the natural radiation dpends on the injection current J (100 μa): $B \sim J^m$, $m \approx 1.7$. The experiments, among other things,

showed that an increase in the concentration of the Frenkel defects caused by fast electron bombardment causes an increase in the concentration of the relative intensity of the emission band (maximum at 2.35 μ). The authors finally thank B. M. Vul for his interest in this investigation, and M. V. Fok and M. N. Alentsev for their critique and valuable remarks; they also thank L. N. Silonov for his assistance. There are 4 figures and 9 references, 1 of which is Soviet.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev of the Academy of Sciences, USSR)

SUBMITTED: January 29, 1959

BOGDANOV, S.V.; KOPYLOVSKIY, B.D.

Applying the phase-shift method for measuring the life of nonequilibrium charge carriers in semiconductors. Fiz. tver. tela 3 no. 3:926-934 Mr '61. (MIRA 14:5)

1. Fizicheskiy institut imeni P.N. Lebedeva AN SSSR, Moskva.
(Semiconductors) (Photoelectric measurements)

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S/120/62/000/001/030/061
E140/E463

AUTHORS: Anufriyev, B.F., Dokhnovskiy, S.B., Zhurkin, B.G., Kopylovskiy, B.D., Penin, N.A.

TITLE: Transistor current regulator for electromagnets

PERIODICAL: Pribory i tekhnika eksperimenta, no.1, 1962, 129-131

TEXT: A classical current regulator is described using transistor circuitry for stabilizing currents 0 to 30 A for electromagnets used in physical experiments. The voltage reference is the drop across a manganin tape in an oil bath, cooled by circulating water. This voltage drop is compared with that from a dry battery. The stabilization factor per °C is 3.03×10^4. The bandwidth of the regulator is 20 kc. There are 2 figures.

ASSOCIATION: Fizicheskiy institut AN SSSR (Physics Institute AS USSR)

SUBMITTED: May 8, 1961

Card 1/1

39169
S/120/62/000/003/042/048
24.3300 E032/E114

AUTHORS: Plotnikov, A.F., Vavilov, V.S., and Kopylovskiy, B.D.

TITLE: An apparatus for studying the spectra and kinetics of photoconductivity in semiconducting crystals

PERIODICAL: Pribory i tekhnika eksperimenta, no.3, 1962, 183-187

TEXT: The apparatus was designed for studying photoconductivity in single crystals in the infrared part of the spectrum at low temperatures. A block diagram of the apparatus is shown in Fig.1. The infrared radiation is taken from an ИКС-12 (IKS-12) monochromator and is focused on the specimen O by a system of mirrors. The radiation reaching the specimen is partly reflected on to a bolometer Б whose output is fed into an amplifier tuned to 9 c.p.s. This is used to control the incident intensity. The specimen is placed in a conventional metal cryostat and maintained at ~100 °K. Thick germanium and silicon filters Ф are used to reduce scattered radiation. The specimen is connected by short leads to the input stage of an amplifier, which is in the form of a cathode follower with double screening and negligible grid current. The double screening

Card 1/2

S/181/62/004/007/017/037
B102/B104

9,4340

AUTHORS: Adirovich, E. I., Gubkin, A. N., and Kopylovskiy, B. D.

TITLE: Measurement of short lifetimes according to the phase characteristic of the voltage transmission coefficient in a circuit with a p-n junction

PERIODICAL: Fizika tverdogo tela, v. 4, no. 7, 1962, 1853-1862

TEXT: Adirovich (FTT, 1, 1115, 1959) has proposed what is called a phase method for measuring the relaxation times of electron processes in h-f p-n junctions. This method makes it possible to determine τ from purely electrical measurements at frequencies which are two orders lower than $1/\tau$. It is of importance for $\tau \sim 10^{-8}$-10^{-10}, and is free from the disadvantages of the other methods. Here the theory of the method is considered and its application to determine the lifetime of the non-equilibrium carriers at the base of p-n junctions in diodes with thin or thick bases is described in detail. The possibility and the conditions of applying it to measure other relaxation times in p-n junctions are also

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discussed. τ is determined from $\tau = -2\varphi/\omega = 5.56 \cdot 10^{-3} |\varphi^0|/\nu$; φ is the phase angle in radians, φ^0 the angle of the transmission coefficient for the generator voltage in degrees, ν the frequency and ω the cyclic frequency. This relation holds if the inequalities

$$N_{ap} \gg N_{\partial n}, \quad (8) \qquad r_k \ll r_{i0}, \quad (12)$$

$$|v'| \ll \frac{kT}{q}, \quad (9) \qquad r_{i0} C_{6.} \ll \frac{\tau}{2}, \quad (13)$$

$$\frac{p_0}{N_{\partial n}} \ll 1, \quad (10) \qquad w \gg \sqrt{D\tau}, \quad (14)$$

$$R \gg r_{i0}, \quad (11) \qquad \omega\tau \ll 1. \quad (15)$$

are satisfied. N_{ap} is the acceptor concentration in the emitter region, $N_{\partial n}$ the donor concentration in the base, v' the variable voltage at the p-n junction, q the absolute electron charge, p_o the hole concentration at the interphase of base and volume charge region, R the load resistance in the a-c circuit, r_{io} the low-frequency differential resistance of the

Card 2/3

Measurement of short lifetimes...

p-n junction, r_k the base resistance, $C_б$ barrier capacitance of the p-n junction and w is the base thickness, determined by $w=9.13\cdot10^{-2}\sqrt{|D\varphi^0|/\nu}$, where D is the diffusion coefficient of the minority carriers. The apparatus (Figs. 3-5) was used to measure τ for ten types of h-f Ge and Si diodes, altogether 50 diodes being examined. The relaxation times τ, which range between $\sim 10^{-7}$ and 10^{-9} sec, are given for all diode types. The apparatus can also be used to measure $\tau \sim 10^{-10}$ sec. There are 8 figures and 2 tables.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR Moskva
(Physics Institute imeni P. N. Lebedev AS USSR, Moscow)

SUBMITTED: February 14, 1961

Fig. 3. Transmitter of the generator and diode voltages (v_2 and v).

Fig. 4. Block diagram of apparatus. Legend: УВЧ -h-f amplifier, УПЧ - amplifier of the intermediate frequencies, Г - heterodine, С - shifter, Б - buffer, ϕ - phase turner, ϕ-∂- phase detector.

Fig. 5. Principal diagram of the phase detector.

Card 3/[illegible]

ANUFRIYEV, B.F.; DOKHNOVSKIY, S.B.; ZHURKIN, B.G.; KOPYLOVSKIY, B.D.; PENIN, N.A.

Transistor current regulator for electromagnets. Prib.i tekh.eksp. 7 no.1:129-131 Ja-F '62. (MIRA 15:3)

1. Fizicheskiy institut AN SSSR.
(Transistor circuits)(Voltage regulators)

PLOTNIKOV, A.F.; VAVILOV, V.S.; KOPYLOVSKIY, [illegible]

Apparatus for studying the spectra and kinetics of photoconductivity in semiconductor crystals. Prib. i tekh. eksp. 7 no.3:183-187 My-Je '62. (MIRA 16:7)

1. Fizicheskiy institut AN SSSR.
(Photoconductivity) (Semiconductors)

ADIROVICH, E.I.; GUBKIN, A.N.; KOPYLOVSKIY, B.D.

Measurement of short lifetimes based on the phase characteristic of the voltage transmission coefficient in a circuit with p-n junction. Fiz.tver.tela 4 no.7:1853-1862 Jl '62. (MIRA 16:6)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR, Moskva.
(Junction transistors) (Electric circuits)

44145
S/181/62/004/010/035/063
B102/B112

24260

AUTHORS: Kopylovskiy, B. D., and Bogdanov, S. V.

TITLE: Effect of surface recombination on the phase shift between photoconductivity and the light exciting it

PERIODICAL: Fizika tverdogo tela, v. 4, no. 10, 1962, 2867 - 2872

TEXT: In continuation of an earlier paper (FTT, 3, 926, 1961) the authors investigate the relationship between the nonequilibrium carrier lifetime τ and the phase angle φ that gives rise to the photoconduction signal and the exciting light. As is known, φ is reduced by the surface recombination, which leads to a nonlinear frequency dependence of tan φ. Without surface recombination tan $\varphi = -\omega\tau$, while with surface recombination tan $\varphi = -\omega\tau F(\alpha L_0, d/L_0, s, \omega)$; α is the light absorption coefficient, L_0 the diffusion length, d is the specimen thickness, s is the surface recombination rate, and ω is the light modulation frequency. $|F(....)| \leq 1$ and decreases with increasing arguments. The mechanism whereby surface recombination influences the frequency dependence of tan φ is still unexplained and is investigated here. Independently of the values assumed by α, d and L_0,

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B102/B112

tan $\varphi/\omega\tau$ depends on the frequency only when $s=0$. This is proved. To explain the physical reason for this nonlinearity the variation of the time-dependent part of the excess carrier concentration (n_1) through the thickness of the sample thickness is studied for the case $\alpha L_0 \to \infty$. This change can be described by $n_1(x,t) = M(x,\omega)e^{j(\omega t-\varphi_0)}$ where $M(x,\omega)$ is a highly complex function. This relation describes the wave-type character of the propagation of the variable component of the excess carrier concentration; amplitude and phase of this "wave" depend on ω,τ,d, and x. The wavelength is proportional to $1/\omega$. As ω increases the excess carriers tend to become localized near the surface. If $s \neq 0$ this increases influence of the surface recombination and entails therefore a decrease of φ; i.e. if $s \neq 0$, tan $\varphi/\omega\tau$ decreases with increasing ω. The entire complex of the surface recombination effects can be explained by the wave-type propagation of the surplus carriers into the specimen.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR, Moskva
(Physics Institute imeni P. N. Lebedev AN USSR, Moscow)

SUBMITTED: May 31, 1962

Card 2/2

L 11280-63 EWA(k)/EWT(l)/FBD/BDS/T-2/3W2/EEC(b)-2/ES(t)-2--AFFTC/ASD/ESD-3/RADC/APGC/AFWL--Pl-4/Po-4--JHB/IJP(C)/WG/K/EH

ACCESSION NR: AP3000510 S/0020/63/150/002/0275/0278

AUTHOR: Bagayev, V. S.; Basov, N. G. (Corresponding Member, AN SSSR); Bul, B. M. (Corresponding Member, AN SSSR); Kopy*lovskiy, B. D.; Krokhin, O. N.; Markin, E. P.; Khvoshchev, A. N.; Shotov, A. P.

TITLE: Semiconductor quantum oscillator based on the p-n transition in GaAs

SOURCE: AN SSSR Doklady, v. 150, no. 2, 1963, 275-278

TOPIC TAGS: laser, gallium arsenide laser, infrared

ABSTRACT: Coherent emission has been obtained from p-n transitions on GaAs at 77K. The current pulse length was less than 3 μsec and had a repetition frequency of 50 pps. Threshold current density was about 10^4 amp/cm². Crystal specimens were prepared by diffusing impurities into strongly doped GaAs to secure a sufficiently flat and optically homogeneous p-n transition with an area of 10^{-3} cm². Two surfaces perpendicular to the transition plane were given optical flats and a high reflection coefficient. The width of the narrowed line beyond the emission threshold was 1 to 5 Å. The sharp narrowing of the line testified to the establishment of cavity feedback and commencement of oscillation. The brightness of the crystal, observed through an infrared

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L 11280-63
ACCESSION NR: AP3000510

8

microscope, sharply increased upon crossing the threshold; the bright region of the crystal was 10 to 15 μ wide. Two photos of the bright regions are given, corresponding to injection currents of 10 and 18 a. Increasing current density reduced the width of the emitting regions, apparently because of the stimulated recombination processes occurring in an area of shorter initial diffusion length. Some specimens manifested simultaneous emission from two transitions in parallel planes spaced 30 μ apart. "The authors express their thanks to L. Ya. Krol' for placing the monocrystals of gallium arsenide at their disposal, Yu. N. Kopolev, N. N. Borzunov, L. N. Novak, and Yu. P. Zakharov for their help with the work, and to V. I. Malyshev and A. M. Lecntovich for a wealth of valuable advice." Orig. art. has: 13 formulas and 3 figures.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute, AN SSSR)

SUBMITTED: 11Feb63 DATE ACQ: 12Jun63 ENCL: 00

SUB CODE: PH NO REF SOV: 007 OTHER: 003

ls/W
Card 2/2

ACCESSION NR: AP4020041 S/0032/64/030/003/0289/0294

AUTHOR: Kopylovskiy, B. D.

TITLE: Methods of measuring excess charge carrier lifetime in semiconductors (a review)

SOURCE: Zavodskaya laboratoriya, v. 30, no. 3, 1964, 289-294

TOPIC TAGS: charge carrier, semidonductor, photoelectric method, diffusion length, surface recombination, electromagnetic pulse, carrier injection, electric field

ABSTRACT: Stationary and nonstationary charge carrier excitation methods have been discussed, distinguished by the type of excess carrier injection used (light or electric) for measuring charge carrier lifetime τ. The stationary methods discussed include the photoelectric methods used to determine the diffusion length L from photoelectric emission measurements U according to the equation:

$$U_{\phi.e.m.f}(x) = U_0 e^{-x/L}.$$

A contactless method for measuring L is mentioned, determined by measuring the absorption of infrared radiation by the carriers, proportional to the carrier.

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ACCESSION NR: AP4020041

concentration. An indirect method is shown, where τ is determined from excess moise generated in the exposed specimen under an applied constant electric field. These methods are applicable to measurements of τ and surface recombination rates on homogeneous specimens without p - n - transitions. The nonstationary methods are based on the change of excess charge carrier concentration with time after stopping injection, according to

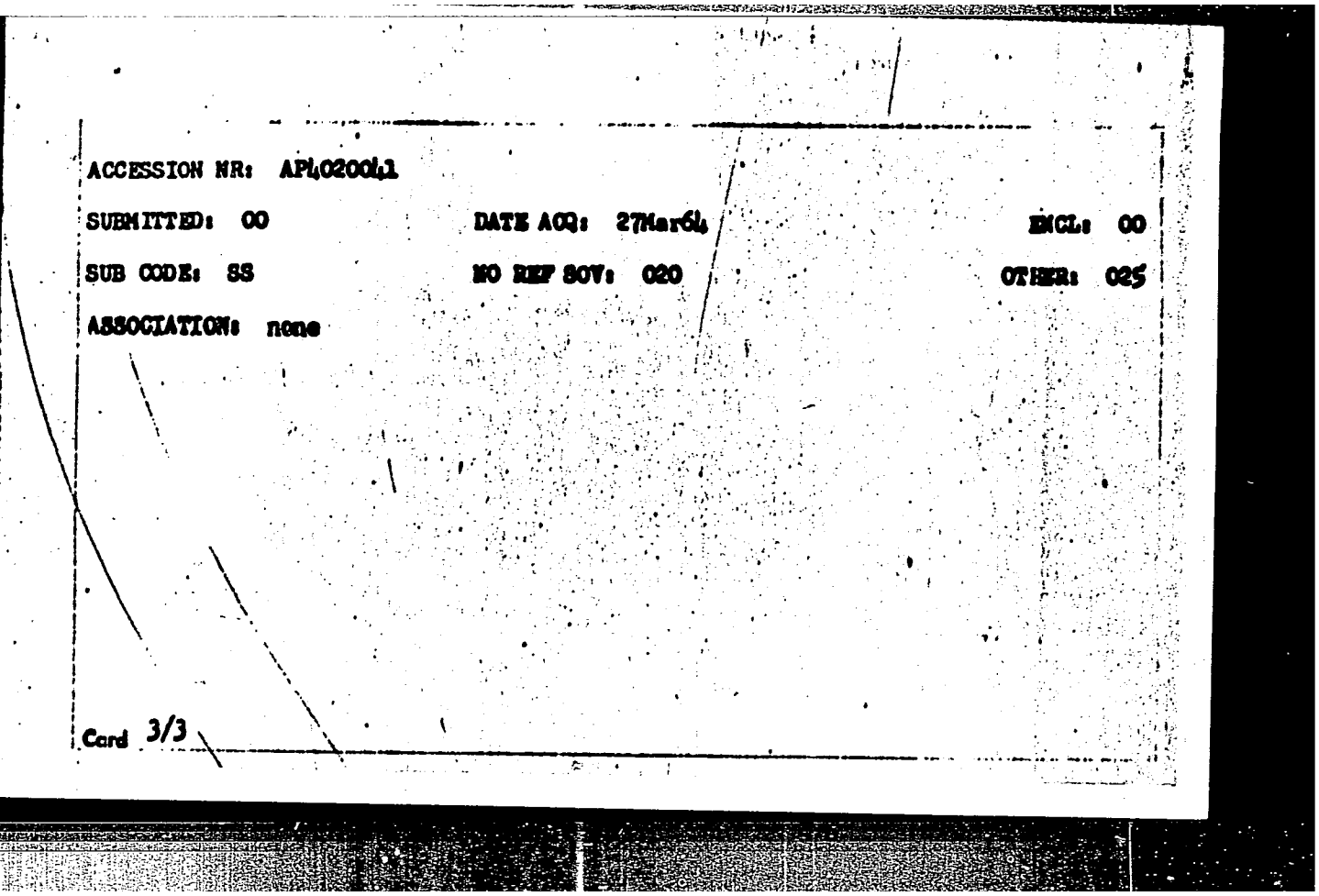
$$n = n_0 \exp(-t/\tau).$$

Knowing n(t), one can then determine τ. One such method is the photoelectric method with electromagnetic pulse radiation injection (light, x-ray, fast electrons, etc.). In all cases the specimen conductivity is measured as a function of time after injection stoppage. Also discussed are methods of measurement by carrier injection in electric fields where carriers are injected in the specimen through point contact pulse currents. A method is described to include τ measurements in p - n transitions under low and high injection levels. For the latter, this is given by

$$\frac{p}{n_0}\left(\frac{p}{2n_0 p_0}+1\right)=\frac{j_{np}}{aen_0\sqrt{\frac{D_p}{\tau_p}}}.$$

Orig. art. has: 18 formulas and 6 figures.

Card 2/3



ACCESSION NR: AP4020041

SUBMITTED: 00 DATE ACQ: 27Mar64 ENCL: 00

SUB CODE: SS NO REF SOV: 020 OTHER: 025

ASSOCIATION: none

Card 3/3

L 13746-65 EWT(1)/EWG(k)/T Pz-6 IJP(c)/AFWD(t)/AFETR/AEDC(a)/ASD(a)-5/AFWL/ESD(t) AT

ACCESSION NR: AP4044689 S/0120/64/000/004/0167/0171

AUTHOR: Kopy*lovskiy, B. D.; Bagayev, V. S.; Berozashvili, Yu. N.; Ivanov, V. S.; Shotov, A. P.; Khvoshchev, A. N.

TITLE: Electronic equipment for the investigation of recombination emission in semiconductors

SOURCE: Pribory* i tekhnika eksperimenta, no. 4, 1964, 167-171

TOPIC TAGS: emission, recombination emission, semiconductor recombination emission, p n junction, carrier injection, pulsed carrier injection

ABSTRACT: The equipment described in this article for the generation and investigation of recombination emission in semiconductors is based on the generation of coherent recombination emission by pulsed carrier injections through p-n junctions. This method ensures negative temperature conditions in degenerated semiconductors, while obtaining high current density and avoiding heating of the junction. The injections were accomplished by means of a high-power pulse oscillator which generated pulses of a duration of 1—5 μsec with a smooth current

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L 13746-65
ACCESSION NR: AP4044689

regulation of 0.5 to 400 amp. The recombination radiation light pulses were registered by a photoelectric multiplier, amplified by a videband amplifier, and applied to the output of a synchronous pulse detector which (in those cases when the reference and the emission pulses coincided in time) converted the radiation signal into d-c voltage. An infrared spectrometer was used to investigate the recombination emission spectra which were registered by a system which took into account the pulsed nature of the signals. Orig. art. has: 9 figures and 2 formulas.

ASSOCIATION: Fizicheskiy institut AN SSSR (Physics Institute, AN SSSR)

SUBMITTED: 17Aug63 ATD PRESS: 3131 ENCL: 00

SUB CODE: EC, SS NO REF SOV: 005 OTHER: 003

Card 2/2

L 38539-66 EWT(m)/EWP(t)/ETI IJP(c) WW/JD/JG/GD

ACC NR: AT6014758 SOURCE CODE: UR/0000/65/000/000/0101/0109

AUTHORS: Karasik, V. R.; Kurganov, G. B.; Yershov, V. G.; Shobalin, I. Yu.; Kopylovskiy, B. D.; Ivanov, V. S.

ORG: none

TITLE: Superconducting solenoids of niobium alloys with zirconium

SOURCE: Soveshchaniye po metallovedeniyu i metallofizike sverkhprovodnikov. 1st, 1964. Metallovedeniye i metallofizika sverkhprovodnikov (Metallography and physics of metals in superconductors); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 101-109

TOPIC TAGS: superconductivity, superconducting alloy, niobium alloy, zirconim containing alloy, soleniod / S-60 solenoid, S-50 solenoid, B-3 solenoid, B-solenoid

ABSTRACT: Superconducting solenoids for creating high magnetic fields are discussed. A brief historical review is presented of the development of superconducting solenoids and of the use of niobium-zirconium alloys. Three equivalent circuits for a superconducting solenoid connected with a power supply are presented and discussed. Some of the physical problems of superconducting niobium-zirconium alloy solenoids and the means of overcoming them are given. The construction and properties of four superconducting solenoids (S-60, S-50, B-3, and B-1) are described. The solenoids are wound with 0.25-mm diameter wire of 75% Nb--25% Zr alloy which is

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electrolytically coated with a 20 μ thick layer of copper. The fields attainable with these solenoids range up to 46 koe. Two of the solenoids (S-50 and B-1) were used together to produce a field of 51½ koe. The schematic for a 6-V transistorized power supply, which is current-regulated in the range 0.2—75 a, is given. The authors thank B. M. Vul, corresponding member AN SSSR, for valuable advice; Ye. M. Savitskiy, V. V. Baron, M. B. Golant, I. A. Baranov, and R. S. Shmulevich for supplying the wire for fabricating the solenoids; G. T. Nikitina, V. I. Sarychev, G. I. Agapov, and I. A. Bocharov for help in the work. Orig. art. has: 4 equations, 3 tables, and 3 diagrams.

SUB CODE: 20/ SUBM DATE: 23Dec65/ ORIG REF: 004/ OTH REF: 011

Card 2/2

L 1420-66 EWT(1)/EWA(h)

ACCESSION NR: AP5021350 UR/0120/65/000/004/0145/0148
621.378.325

46
45
B

AUTHOR: Kopylovskiy, B. D.; Ivanov, V. S.

TITLE: Pulse circuits for driving semiconductor lasers

SOURCE: Pribory i tekhnika eksperimenta, no. 4, 1965, 145-148

TOPIC TAGS: pulse generator, transistorized generator, pulsed illumination

25

ABSTRACT: A transistorized pulse generator used for driving semiconductor lasers which require threshold currents for stimulated emission of the order of 10—30 amp is described. The schematic of a pulse generator satisfying these requirements is shown in Fig. 1 of Enclosure. It consists of a blocking oscillator circuit with the output-frequency repetition rate variable from 50 to 400 cps, an emitter follower stage, and a parallel combination of four P602 power transistors operating in the common collector mode. The generator is capable of delivering a 17-amp pulse into a 1.0 ohm load. Pulse rise time is 0.1 μsec; fall time is 0.5 μsec; pulse duration is 3 μsec. An auxiliary circuit for measuring the generated currents is included. It consists of a pulse transformer connected in series with the load. The secondary winding of the transformer is shunted by 91 ohms. A sharply defined dependence of

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L 1420-66
ACCESSION NR: AP5021350

the load current on the load impedance for constant outputs makes it possible to measure the load impedances and, indirectly, the efficiencies of the optical generators. Another pulse generator capable of delivering 150-amp pulses to a 0.3-ohm load with a pulse rise time of 5×10^{-8} sec is reported but not described. Orig. art. has: 7 figures and 2 formulas. [BD]

ASSOCIATION: Fizicheskiy institut AN SSSR, Moscow (Physics Institute, AN SSSR)

SUBMITTED: 26May64 ENCL: 01 SUB CODE: EC

NO REF SOV: 002 OTHER: 000 ATD PRESS: 4097

Card 2/3

L 1420-66
ACCESSION NR: AP5021350 ENCLOSURE: 01

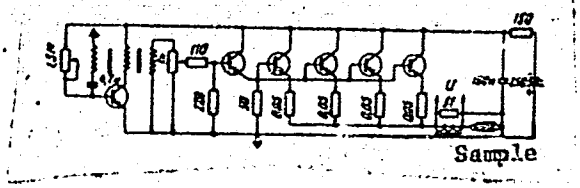

Fig. 1. Pulse generator

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L 27549-66 EWT(1)/EWT(m)/ETC(f)/EPF(n)-2/EWG(m)/EWP(t)/ETI IJP(c) JD/AT

ACC NR: AP6012465 SOURCE CODE: UR/0181/66/008/004/1083/1087

AUTHOR: Shotov, A. P.; Grishechkina, S. P. Kopylovskiy, B. D.; Muminov, R. A.

ORG: Physics Institute im. P. N. Lebedev, AN SSSR, Moscow (Fizicheskiy institute AN SSSR)

TITLE: Spontaneous and coherent emission of electron-hole plasma of indium antimonide

SOURCE: Fizika tverdogo tela, v. 8, no. 4, 1966, 1083-1087

TOPIC TAGS: indium antimonide, semiconductor laser, recombination radiation, forbidden band, electron recombination

ABSTRACT: The authors investigate the spontaneous and stimulated recombination radiation from an electron-hole plasma in InSb in magnetic fields up to 15,000 G. Coherent radiation was achieved in a field of 14,000 G and at injection currents ~2 x 10^4 a/cm^2 at 0.4 μsec pulse duration effected at two levels corresponding to the two different values of the electron spin of the first Landau level when split by the magnetic field. The plasma was produced in relatively pure p-type InSb by injection through rectifying contacts. The volt-ampere characteristics in the forward direction disclose a negative-resistance section due to modulation of the conductivity within the crystal by double injection of electrons and holes from the two contacts. The spontaneous-emission spectrum taken at 10K and at a current of 5a, obtained in response to 0.4 μsec pulses at a repetition rate of 85 pps, exhibited a maximum at 235.5 Mev, which is in good agreement with the width of the forbidden band at this temperature. This relates the

Card 1/2

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ACC NR: AP6012465

4

spectrum to direct radiative interband recombination of the electron-hole pairs. The authors have also observed other spectra with maxima corresponding to lower energy (234 Mev) and to a larger spectral width. These probably pertain to compensated p-type samples in which the edge of the energy band is distorted by impurity states. Such crystals are now under study. The authors thank B. M. Vul for a discussion of the results, and A. V. Babushkin, Yu. N. Korolev, and L. M. Novak for help with the work. Orig. art. has: 7 figures and 2 formulas. [02]

SUB CODE: 20/ SUBM DATE: 16Aug65/ ORIG REF: 003/ OTH REF: 011/ ATD PRESS: 4260

Card 2/2 BLG

L 45793-66 EEC(k)-2/EWT(l)/EWT(m)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/WG
ACC NR: AP6030154 SOURCE CODE: UR/0120/66/000/004/0185/0189

AUTHOR: Bagayev, V. S.; Berozashvili, Yu. N.; Ivanov, V. S.; Koppylovskiy, B. D.; Korolev, Yu. N.

ORG: Institute of Physics AN SSSR, Moscow (Fizicheskiy institut AN SSSR)

TITLE: Some thermal effects in GaAs semiconductor lasers

SOURCE: Pribory i tekhnika eksperimenta, no. 4, 1966, 185-189

TOPIC TAGS: semiconductor laser, solid state laser, laser R and D

ABSTRACT: The results are reported of an investigation of the semiconductor laser heating during pulse injection and of the effect of laser heating on its radiation characteristics. Semiconductor specimens of 0.0008--0.005 cm^2 area had a diffusion p-n junction and a resonator made by a spallation method; threshold-current density was 2000-4000 amp/cm^2 at 77K. Current pulses up to 10 μsec were used for excitation. The temperature rise was measured by the shift of generation modes. From this temperature rise, the quantum yield (30%) and efficiency (11 and 20%) of the laser are estimated. They are comparable with the values (21--18% and 8--12%) estimated from the radiated power. To eliminate the semiconductor specimen heating during the injecting pulse, a special transistorized pulse generator was built which developed a current pulse of 150 amp with a rise time of 5×10^{-8} sec. Cases of

Card 1/2

UDC: 621.378.329

L 45793-66

ACC NR: AP6030154

2

resonator mirror burnout were recorded. "The authors wish to thank B. M. Vul and A. P. Shotov for their valuable advice and discussions." Orig. art. has: 5 figures, 3 formulas, and 1 table. [03]

SUB CODE: 20 / SUBM DATE: 25Jun65 / ORIG REF: 003 / OTH REF: 005/ ATD PRESS: 5085

pb

Card 2/2

KICZAK, Janina; KOPYLOW, Adrian

Effect of prednisone therapy on the fibrinolytic activity of the blood serum in liver cirrhosis. Pol. arch. med. wewnet. 35 no.3:335-340 '65.

1. Z II Kliniki Chorob Wewnetrznych Pomorskiej Akademii Medycznej w Szczecinie (Kierownik: prof. dr. med. E. Gorzkowski).

KOPYLOW, Adrian

Clinical picture and diagnosis of brucellosis. Polski tygod. lek. 11 no.10:445-451 5 Mar 56.

1. Z Kliniki Chorob Wewnetrznych Pomorskiej A.M. im. Gen. Swierczewskiego; kierownik: doc. dr. med. E. Gorzkowski. Szczecin, ul. Waryaskiego 8.
(BRUCELLOSIS,
diag. & clin. aspects (Rus))

KICZAK, Janina; KOPYLOW, Adrian; NOZYNSKI, Zbigniew

The hemostatic system in chronic pulmonary-cardiac syndrome. Pol. arch. med. wewnet. 32 no.8:919-929 '62.

1. Z II Kliniki Chorob Wewnetrznych PAM w Szczecinie. Kierownik: prof. dr med. E. Gorzkowski i z III Kliniki Chorob Wewnetrznych PAM w Szczecinie. Kierownik: doc. dr med. M. Eisner.
(BLOOD COAGULATION) (PULMONARY HEART DISEASE)

KOPYLOW, Adrian; BIELECKI, Mieczyslaw; DOMINICZAK, Konstanty

Peutz' syndrome. Pol. przegl. radiol. 27 no.6:479-486 '63.

1. Z II Klin. Ch. Wewn. PAM w Szczecinie Kierownik: prof. dr med. E. Gorzkowski z Zakladu Radiologii PAM Kierownik: prof. dr. med. C. Murczynski z Zakladu Anatomii Patologicznej PAM Kierownik: prof. dr med. K. Stojalowski.
(POLYPI) (PATHOLOGY)

KICZAK, Janina; KOPYLOW, Adrian

On the fibrinolytic activity of the blood serum in liver cirrhosis. Pol. arch. med. wewn; 32 no.9:1089-1100 '62.

1. Z II Kliniki Chorob Wewnetrznych PAM w Szczecinie Kierownik: prof. dr med. E. Gorzkowski.
(LIVER CIRRHOSIS) (FIBRINOLYSIS)

POLAND

KICZAK, Janina and KOPYLOW, Adrian, Clinic of Internal Diseases (Klinika Chorob Wewnetrznych) PAM [Pomorska Akademia Medyczna, Pomeranian Medical Academy] in Szczecin (Director: Prof. Dr. med. E. GORZKOWSKI)

"The Coagulohepatogram in Cirrhosis of the Liver."

Warsaw-Krakow, Przeglad Lekarski, Vol 19, Ser II, No 2, 28 Feb 63, pp 143-147.

Abstract: [Authors' English summary modified] In an investigation of the value of the coagulohepatogram in the evaluation of liver function tests in hepatic cirrhosis, determinations were made of activity of the prothrombin complex, fibrogen level, prothrombin, Factors V and X, complex of Factors VII and X, and thromboplastinogenesis test. It was found to be a sensitive index of liver function insufficiency, though only the determination of the prothrombin level by the two-stage method is of practical importance. The 37 references include about 3 Polish, 5, Russian, 10 German, and the rest Western sources.

1/1

[illegible], A.

The possibility of using colored line symbols in printing the surface elements of maps. Tr. from the Russian. p. 377.

PRZEGLAD GEODEZYJNY. (Stowarzyszenie Naukowe-Techniczne Geodetow Polskich) Warszawa. Vol. 15, no. 10, October 1959

Monthly List of East European Accession (EEAI) LC, Vol. 9, no. 2, Feb. 1960

Uncl.

KOPYRIN, A. V.

"Worm diseases of agricultural animals and the measures of the fight against them"
Omsk. Omgiz, 1951. 34 pages with illustrations.
SO: Vet., Jan. 1952, Unclassified.

KOPYRIN, A.V. and SOLDATOVA, R.E.

"The Measures on Prophylaxis of Paratyphoid of Silver-black foxes." Omsk. 1952. 10 pages. Free 2,00 copies. (Siberian Zonal Scientific Research Veterinary Institute and Veterinary Department of the Oblast Administration of Agriculture). A methodical letter to assist veterinary specialists who service animal (Wild) farms.
SO:Veterinariya; Nov. 1952 uncl de g
Trans. # 155 by L.Lulich

[illegible]

K epizootologii mellerioza ovets, "Works on Helminthology" on the 75th Birthday of K. I. Skryabin, Izdat, Akad. Nauk, SSSR, Moskva, 1953, page 323. Omsk Veternary Institute.

KOPYRIN, N. V.

Category: USSR / Farm Animal Diseases Caused by Helminths. V-3

Abs Jour: Refer. Zhur-Biologiya, No 16, 1957, 72311

Author : Proshkina E. G., Tikhonin I. Ya., Kopyrin A. V.
Inst : Not given
Title : A Case of Eye Setariosis in a Horse.

Orig Pub: Sb. Nauch. Rabot Sibirsk. N. I. In-ta, 1956 Vyp. 6, 231-235

Abstract: No abstract.

Card : 1/1

-2-

KOPYRIN L.A. V.I

Category: USSR / Farm Animal Diseases Caused by Helminths. V-3

Abs Jour: Refer. Zurn.-Biologiya, No 16, 1957, 72320

Author : Dol-nikov, Kopyrin
Inst : Not given
Title : News in the Fight with Ascaris in Pigs

Orig Pub: Svinovodstvo, 1957, No 1, 29-33

Abstract: In Tests with 716 pigs, infested with ascaris, different doses of Sodium Fluosilicate (1) were given with the feed. The medicinal doses of I were established: 0.5 g per pigs weighing 20-40 kg, and 0.7-1.0 gm for pigs of 40 kg and above. These doeses of I were administered 3 times daily for 3 days. A satisfactory healing effect was obtained. No side-effect of I and no loss in weight of the animals were noted. For the simplification of a mass dehelminthiazation of pigs a group administration of I (10-15 and 100-150 pigs of equal age) was done. In two days of dehelmenthization the extent of effectiveness was 90-100 percent and the intensity of the effectiveness was 97-100 percent. In one day the extent of the

Card: 1/2

KOPYRIN, A.

USSR/General Division. History. Classics. Personalities. A-2

Abs Jour : Ref Zhur-Biologiya, No 2, 1958, 4655

Author : A. Kadenatsin and A. Kopyrin
Inst :
Title : Laureate of the Lenin Prize

Orig Pub : S. kh. Sibiri, 1957, No 6, 70-71.
Helmitologist. See RZh Biol, 1955, 33885

Card 1/1

KOPYRIN, A.V., kand.veterinarnykh nauk

Siberian Veterinary Research Institute. Trudy VIEV 23:337-340 '59.
(MIRA 13:10)
(Omsk--Veterinary research)

S/137/62/000/003/053/191
A006/A101

AUTHORS: Kholzakov, V. I., Ostroukhov, M. Ya., Kopyrin, I. A., Vyatkin, G. P., Tarashchuk, N. T., Filipov, Yu. P., Nikol'skiy, M. A., Lapotyshkin, V. P., Chistyakov, A. Ye., Pimenov, L. I.

TITLE: Experimental blast-furnace melting of oxidized nickel ores on matte

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 28, abstract 30189 ("Sb. nauchno-tekhn. tr. N.-i. in-t metallurgii Chelyab. sovnarkhoza", 1961, no. 3, 164 - 170)

TEXT: During 5 months experimental melting of Ni-ore sinter and lumps (coarse fraction) on matte was carried out in a 6.4-m^2 blast furnace. The following statements were made: coke consumption is by about 20 - 25% less than in melting in a shaft furnace operating on compressed air on account of preheated blast and fuller utilization of the heat in the furnace; the SiO_2 content can be raised up to 49%. The temperature of exhaust gases is 40 - 60°C. The deficiencies of a blast furnace are: the necessity of using only well lumped charges; 0 - 55 fraction must be screened off before charging into the furnace; the hearth and

Card 1/2

Experimental blast-furnace melting...

the bosh of the furnace should be operated on compressed air. See also RZhMet, 1961, 10203, 30193.

A. Tseydler

[Abstracter's note: Complete translation]

KOPYRIN, I.A.; OSTROUKHOV, M.Ya.

Effect of the characteristics of gas flow on the reduction rate of iron oxides. Izv. vys. ucheb. zav.; chern. met. 4 no.8:24-30 '61. (MIRA 14:9)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii. (Iron--Metallurgy) (Gas flow)

VYATKIN, G.P.; OSTROUKHOV, M.Ya.; Prinimali uchastiye: KHOLZAKOV, V.I.; KOPYRIN, I.A.; TARASHCHUK, N.T.; FILIPPOV, Yu.P.; NIKOL'SKIY, M.A.; CHISTYAKOV, A.Ye.; PIMENOV, L.I.

Investigating the process of blast furnace smelting for the production of nickel matte. [Sbor. trud.] Nauch.-issl.inst.met. no.4:71-81 '61. (MIRA 15:11)

(Nickel—Metallurgy)
(Blast furnaces)

KOPYRIN, I.A.; OSTROUKHOV, M.Ya.

Effect of the character of gas flow on the rate of iron oxide reduction. Report No.2. Izv.vys.ucheb.zav.; chern.met. 5 no.4:29-36 '62. (MIRA 15:5)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.
(Iron--Metallurgy) (Gas flow)

KOPYRIN, I. A.; BYALYY, L. A.; OSTROUKHOV, M. Ya.; VOZNESENSKIY, V. A.; KUDRYAVTSEV, A. V.; PLASTININ, B. G.

Investigating the gas dynamics of the blast furnace process with use of helium. Izv. vys. ucheb. zav.; chern. met. 5 no.12: 29-40 '62. (MIRA 16:1)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii i Orsko-Khalilovskiy metallurgicheskiy kombinat.

(Blast furnaces—Models) (Gas dynamics)

KOPYRIN, I.A.; OSTROUKHOV, M.Ya.; BYALYY, L.A.; VOZNESENSKY, V.A.; PLASTININ, B.G.; Prinimali uchastiye: KUDRYAVTSEV, A.V.; CHIRKOV, G.G.; BRADCHENKO, V.P.

Investigation of gas dynaimcs in the blast furnace process using helium. Izv. AN SSSR.Otd.tekh.nauk. Met. i topl. no.5:22-28 S-O '62. (MIRA 15:10)

(Blast furnaces) (Gas dynamics)

BYALYY, L.A.; KOPYRIN, I.A.; OSTROUKHOV, M.Ya.

Effect of various factors on a blast furnace oxidation zone.
Izv. vys. ucheb. zav.; chern. met. 6 no.4:27-33 '63.
(MIRA 16:5)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.
(Blast furnaces)

KOPYRIN, I.A.; V'YUNOV, P.P.; PLASTININ, B.G.

Investigating the reduction process of native-alloy cast iron.
Stal' 23 no.10:884-887 O '63. (MIRA 16:11)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii i Orsko-Khalilovskiy metallurgicheskiy kombinat.

BABARYKIN, N.N.; GALATONOV, A.L.; SAGAYDAK, I.I.; SHPARBER, L.Ya.; TSVERLING, A.L.; YAKOBSON, A.P.; BORTS, Yu.M.; ZHILO, N.L.; KOPYRIN, I.A.; OSTROUKHOV, M.Ya.

Experimental smelting with a reduced slag output. Stal' 24 no.12:1069-1075 D '64. (MIRA 18:2)

1. Magnitorskiy metallurgicheskiy kombinat i Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.

KOPYRIN, I.A. (Chelyabinsk); VYATKIN, G.P. (Chelyabinsk); RUSAKOVA, A.G. (Chelyabinsk); KARSHIN, V.P. (Chelyabinsk); KURUNOV, I.F. (Chelyabinsk)

Processes in the tuyere zone of a blast furnace. Izv. AN SSSR. Met. no.1:18-20 Ja-F '65. (MIRA 18:5)

KOPYRIN, I.A.; OSTROUKHOV, M.Ya.; STEFANOVICH, M.A.; BORTS, Yu.M.; SAGAYDAK, I.I.; SHPARBER, L.Ya.; VOLKOV, Yu.P.

Heat balance of smelting with a low slag yield for the Magnitogorsk blast furnace. Izv.vys.ucheb.zav.; chern. met. 8 no.4:45-52 '65. (MIRA 18:4)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii, Magnitogorskiy metallurgicheskiy kombinat i Magnitogorskiy gornometallurgicheskiy institut.

AL'SHEVSKIY, A.Ye. [deceased]; BRATCHENKO, V.P.; BOL'SHAKOVA, L.I.; KOPYRIN, I.A.; NEKRASOV, V.G.; PLASTININ, B.G.; RYSYUKOV, N.Ye.; ZHURAVLEV, S.M.

Analysis of the performance of a large-size blast furnace.
Metallurg 9 no.12:4-8 D '64. (MIRA 18:2)

1. Orsko-Khalilovskiy metallurgicheskiy kombinat i Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.

SAGAYDAK, I.I.; NEKRASOV, V.G.; KOPYRIN, I.A.; BORTS, Yu.M.; BRATCHENKO, V.P.; RYSYUKOV, N.Ye.; KAKUSHA, N.P.; SHAPIRO, V.Z.

Operation of a large capacity blast furnace with natural gas. Metallurg 10 no.7:16-19 Jl '65. (MIRA 18:7)

1. Orsko-Khalilovskiy metallurgicheskiy kombinat i Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.

KOPYRIN, I.A.; RANNEV, G.G.; SMIRNOV, Yu.D.; CHERNOV, G.I.; BOGATENKOV, V.F.; BOKOV, I.I.; TSIPUNOV, A.G.; RISPEL', K.N.; AGARKOVA, N.A.; DAYKER, A.L.

Research by the Chelyabinsk Metallurgical Research Institute. Stal' 22 no.7:604,620-621,667,670 Jl '62. (MIRA 15:7)
(Metallurgical research)

KOPYRIN, M.A.

Solution of the reverse problem in aerodynamics in the presence of sources and sinks on contours. Trudy KAI 24:128-138 '50.
(MIRA 10:7)

(Airfoils)

10(1),10(4) SOV/44-59-9-9143

Translation from: Referativnyy zhurnal.Matematika,1959,Nr 9,p 100 (USSR)

AUTHOR: Kopyrin,K.A.

TITLE: Distribution of Velocity and Pressure of a Fluid in a Turn Channel

PERIODICAL: Tr.Kazansk.aviats.in-ta,1958,33-34,31-42

ABSTRACT: The author considers the plane stationary laminar motion of a tenacious fluid in a round turn channel. As mass forces the forces of gravity are considered and it is assumed that the flow lines are concentric circles. Under these assumptions the problem of the velocity determination is one-dimensional and leads to the solution of an Euler equation of third order, whereby also the pressure distribution is found easily.
At the end of the paper the author considers the case if the fluid beside of the tangential velocity component has also an axial component which is assumed to be constant. The last assumption leads to the impossibility to satisfy the natural boundary conditions: $v_z=0$ at the walls of the channel. That leads to the physical miss of the author that for $v_z \neq 0$ the gradient of pressure vanishes along the axis of the channel.

E.L.Blokh

Card 1/1

KOFYRIN, Merkuriy Alekseyevich; YELISEYEV, M.S., red.; SHAROVA, Ye.A., red.izd-va; VORONINA, R.K., tekhn. red.

[Hydraulics and hydraulic machinery] Gidravlika i gidravlicheskie mashiny. Moskva, Gos.izd-vo "Vysshaia shkola," 1961. 30. p. (MIRA 15:2)

(Hydraulics) (Hydraulic machinery)

S/147/63/000/001/002/020
E031/E181

AUTHOR: Kopyrin, M.A.

TITLE: The flow of a viscous incompressible fluid in an elliptical duct bend

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Aviatsionnaya tekhnika, no.1, 1963, 10-19

TEXT: The flow is two-dimensional and steady. The mass flow rate through the section is known ahd the problem is to determine the velocity distribution in the duct which is assumed to have a width very much smaller than its length. The equations of motion, when the body forces permit of a potential, and the equation of continuity are transformed into an elliptic coordinate system and a stream function introduced to satisfy the equation of continuity. The equation of motion is simplified by neglecting inertia forces and using estimates for the magnitudes of the various partial derivatives of the stream function, in which terms of greater than the first order in terms of the channel width are ignored. The equation of motion is still further simplified. This equation is integrated and expressions are found for the velocity components,

Card 1/2

The flow of a viscous incompressible.. S/147/63/000/001/002/020
E031/E181

from which can be plotted a graph of the velocity distribution at any section of the duct or along the length of the duct.
There are 2 figures.

SUBMITTED: July 30, 1962

Card 2/2

GENDIN, V.Ya.; KOPYRIN, O.D.; MATVEYEV, A.I.

Electric curing of concrete during the construction of tanks for the "Druzhba" petroleum pipeline. Stroi. truboprov. 9 no.4:20-24 Ap '64. (MIRA 17:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po stroitel'stvu magistral'nykh truboprovodov (for Gendin). 2. Trest No.1, Lyubertsy (for Kopyrin, Matveyev).

KOPYRIN, V., arkhitektor

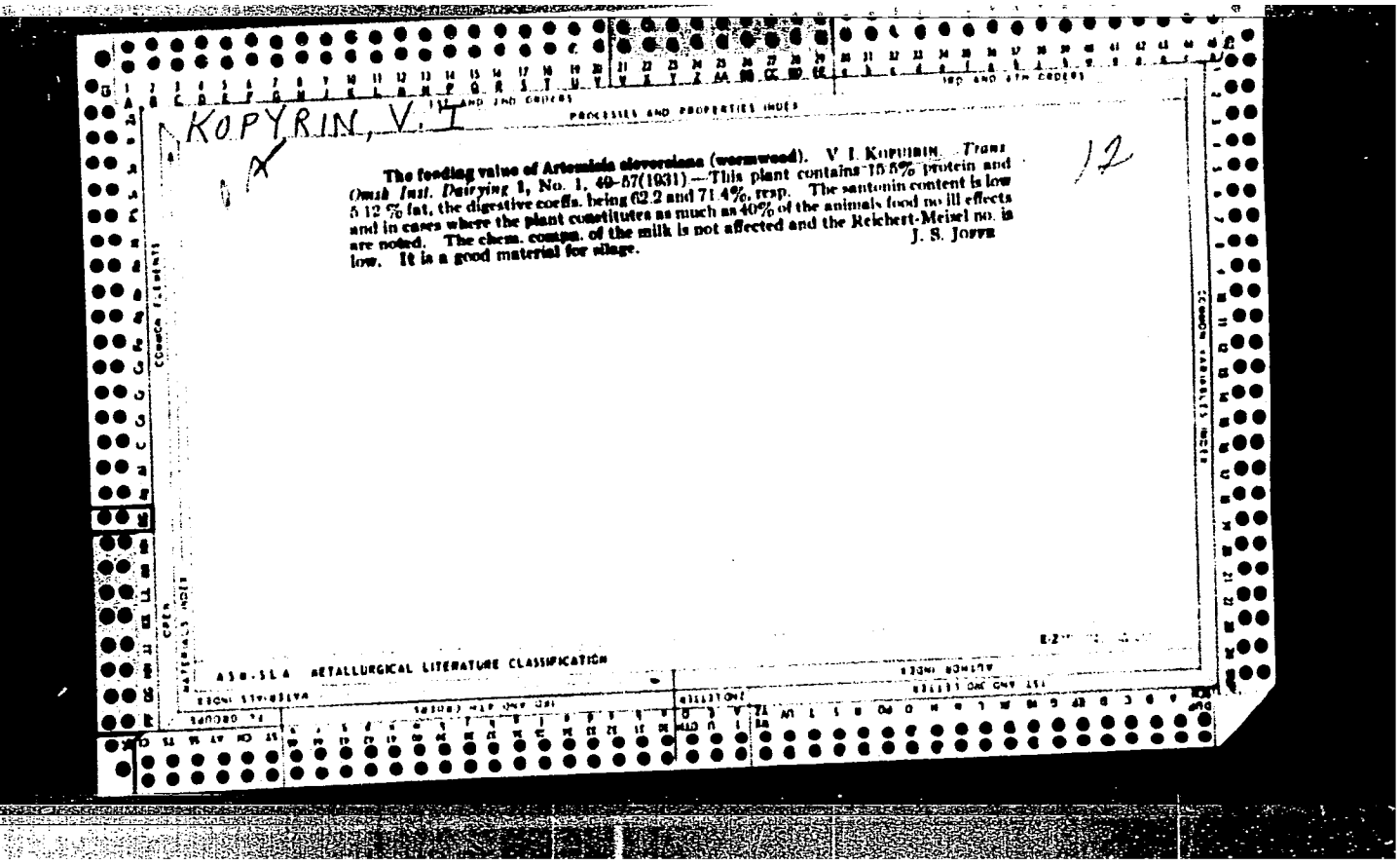
Planning in action. Sel'. stroi. 15 no. 3:6 Mr '61. (MIRA 14:5)

(Yel'nya District—City planning)

KOPYRIN, V., arkhitektor

New procedures for the planning and development of villages on state farms in the virgin lands. Sel'. stroi. no.5:3-6 My '62. (MIRA 15:7)

(Virgin Territory--Rural planning)



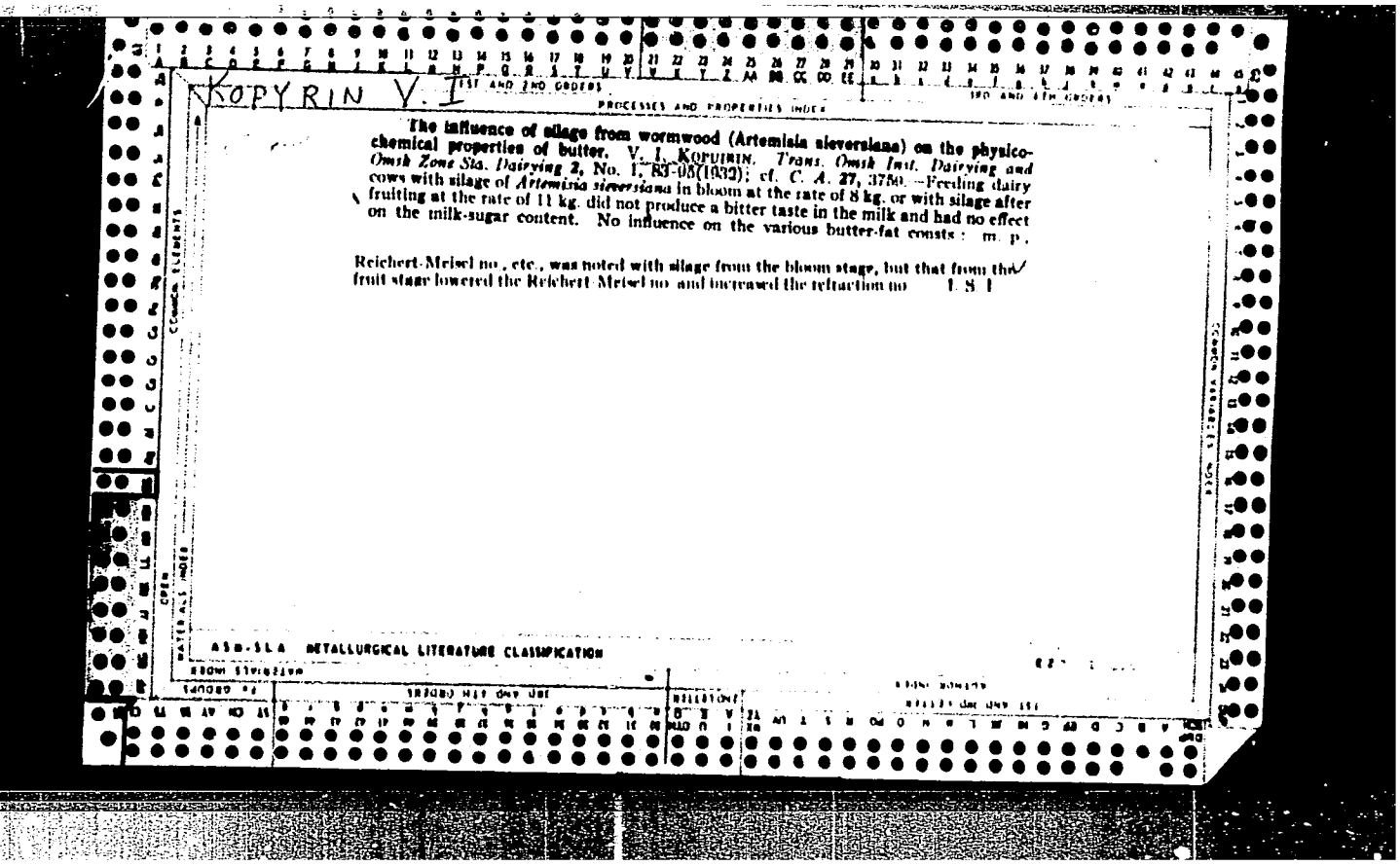
KOPYRIN, V. I

12

The feeding value of Artemisia sieversiana (wormwood). V. I. KOPYRIN. *Trans. Omsk Inst. Dairying* **1**, No. 1, 49–57(1931).—This plant contains 15.5% protein and 5.12% fat, the digestive coeffs. being 62.2 and 71.4%, resp. The santonin content is low and in cases where the plant constitutes as much as 40% of the animals food no ill effects are noted. The chem. comps. of the milk is not affected and the Reichert-Meisel no. is low. It is a good material for silage.

J. S. Joffe

A50-51A METALLURGICAL LITERATURE CLASSIFICATION



KOPYRIN V. I

The influence of silage from wormwood (Artemisia sieversiana) on the physico-chemical properties of butter. V. I. KOPYRIN. *Trans. Omsk Inst. Dairying and Omsk Zone Sta. Dairying* **2**, No. 1, 83-95(1932); cf. *C. A.* **27**, 3750.—Feeding dairy cows with silage of *Artemisia sieversiana* in bloom at the rate of 8 kg. or with silage after fruiting at the rate of 11 kg. did not produce a bitter taste in the milk and had no effect on the milk-sugar content. No influence on the various butter-fat consts.: m. p., Reichert-Meiwl no., etc., was noted with silage from the bloom stage, but that from the fruit stage lowered the Reichert-Meiwl no. and increased the refraction no. I. S. I

KOPYRIN V.I.

1ST AND 2ND ORDERS

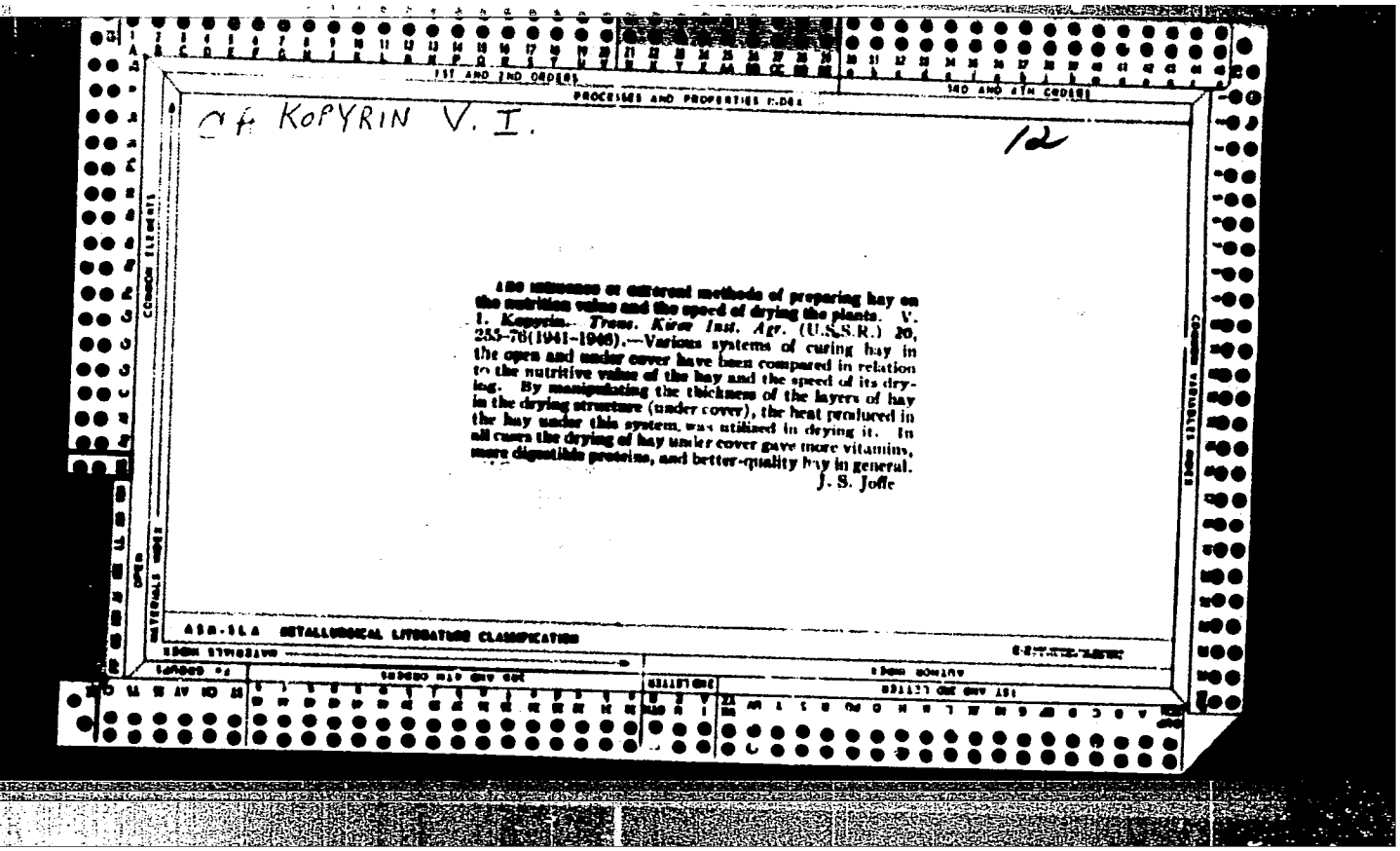
PROCESSES AND PROPERTIES INDEX

BC

B-III-4

Artemisia Sieversiana silage and its feeding value. F. I. [illegible], V. I. Kopyrin, P. A. [illegible], and I. V. [illegible] (Trudy Omsk Inst. Dairying & Omsk Zone Stat. Dairying, [illegible], 2, 97—108, 117).—The quality of this silage and its effect on the yield and quality of cow's milk depend on the method of ensiling and the stage of maturity of the crop. The nutritive val. of 3 kg. of sunflower silage is equal to that of 1 kg. of average-quality pasture hay. Nutr. Abs. (b)

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



cf. KOPYRIN V. I.

12

The influence of different methods of preparing hay on the nutrition value and the speed of drying the plants. V. I. Kopyrin. *Trans. Kirov Inst. Agr.* (U.S.S.R.) 20, 255–76(1941–1968).—Various systems of curing hay in the open and under cover have been compared in relation to the nutritive value of the hay and the speed of its drying. By manipulating the thickness of the layers of hay in the drying structure (under cover), the heat produced in the hay under this system was utilized in drying it. In all cases the drying of hay under cover gave more vitamins, more digestible proteins, and better-quality hay in general.
J. S. Joffe

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KOPYRIN, V.I.

AFANAS'YEVA, A.L., kand.biol.nauk; BAYERTUYEV, A.A., kand.sel'skokhozyaystvennykh nauk; BAL'CHUGOV, A.V., kand.sel'skokhozyaystvennykh nauk; BELOZEROVA, N.A., agronom; BELOZOROV, A.T., kand.sel'skokhozyaystvennykh nauk; MAKSIMENKO, V.P., agronom; BERNIKOV, V.V., doktor sel'skokhozyaystvennykh nauk; BOGOMYAGKOV, S.T., kand.sel'skokhozyaystvennykh nauk; VOLYNETS, O.S., agronom; BODROV, M.S., kand.sel'skokhozyaystvennykh nauk; BOGOSLAVSKIY, V.P., kand.tekhn.nauk; KHRUPPA, I.F., kand.tekhn.nauk; VERNER, A.R., doktor biol.nauk; VOZBUTSKAYA, A.Ye., kand.sel'skokhozyaystvennykh nauk; VOINOV, P.A., kand.sel'skokhozyaystvennykh nauk; VYSOKOS, G.P., kand.biol.nauk; GAIDIN, M.V., inzhener-mekhanik; GERASIMOV, S.A., kand.tekhn.nauk; GORSHENIN, K.P., doktor sel'skokhozyaystvennykh nauk; YELENEV, A.V., inzhener-mekhanik; GERASKEVICH, S.V., mekhanik [deceased]; ZHARIKOVA, L.D., kand.sel'skokhozyaystvennykh nauk; ZHEGALOV, I.S., kand.tekhn.nauk; ZIMINA, Ye.A., agronom; BARANOV, V.V., kand.tekhn.nauk; PAVLOV, V.D.; IVANOV, V.K., kand.sel'skokhozyaystvennykh nauk; KAPLAN, S.M., kand.sel'skokhozyaystvennykh nauk; KATIN-YARTSEV, L.V., kand.sel'skokhozyaystvennykh nauk; KOPYRIN, V.I., doktor sel'skokhozyaystvennykh nauk; KOCHERGIN, A.Ye., kand.sel'skokhozyaystvennykh nauk; KOZHEVNIKOV, A.R., kand. sel'skokhozyaystvennykh nauk; KUZNETSOV, I.N., kand.sel'skokhozyaystvennykh nauk; LAMBIN, A.Z., doktor biol.nauk; LEONT'YEV, S.I., kand.sel'skokhozyaystvennykh nauk; MAYBORODA, N.M., kand.sel'skokhozyaystvennykh nauk; MAKAROVA, G.I., kand.sel'skokhozyaystvennykh nauk; MEL'NIKOV, G.A., inzhener; ZHDANOV, B.A., kand.sel'skokhozyaystvennykh nauk; MIKHAYLENKO, M.A., kand.sel'skokhozyaystvennykh nauk; MAGILEVTSEVA, N.A., kand.sel'skokhozyaystvennykh nauk;

(Continued on next card)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824520018-1"

AFANAS'YEVA, A.L.... (continued) Card 2.
NIKIFOROV, P.Ye., kand.sel'skokhozyaystvennykh nauk; NENASHEV, M.I., lesovod; PERVUSHINA, A.N., agronom; PLOTNIKOV, N.A., kand.biol.nauk; L.G.; kand.sel'skokhozyaystvennykh nauk; PAVLOV, V.D., kand.tekhn. nauk; PRUTSKOVA, M.G., kand.sel'skokhozyaystvennykh nauk; GURCHENKO, V.S., agronom; POPOVA, G.I., kand. sel'skokhozyaystvennykn nauk; PORTYANKO, A.F., agronom; RUCHKIN, V.N., prof.; RUSHKOVSKIY, T.V., agronom; SAVITSKIY, M.S., kand.sel'skokhozyaystvennykh nauk; BOLDIN, D.T., agronom; NESTEROVA, A.V., agronom; SERAFIMOVICH, L.B., kand. tekhn.nauk; SMIRNOV, I.N., kand.sel'skokhozyaystvennykh nauk; SEREBRYANSKAYA, P.I., kand.tekhn.nauk; TOKHTUYEV, A.V., kand. sel'skokhozyaystvennykh nauk; FAL'KO, O.S., iznh.; FEDYUSHIN, A.V., doktor biol.nauk; SHEVLYAGIN, A.I., kand.sel'skokhozyaystvennykh nauk; YUFEROV, V.A., kand.sel'skokhozyaystvennykh nauk; YAKHTENFEL'D, P.A., kand.sel'skokhozyaystvennykh nauk; SEMENOVSKIY, A.A., red.; GOR'KOVA, Z.D., tekhn.red.

[Handbook for Siberian agriculturists] Spravochnaia kniga agronoma Sibiri. Moskva, Gos. izd-vo sel'khoz. lit-ry. Vol.1. 1957. 964 p.
(Siberia--Agriculture) (MIRA 11:2)

KOPYRIN, V.I., prof.; DAVYDOV, A.D.

Use of floodplain meadows. Zemledelie 27 no.2:42-44 F '65.
(MIRA 18:4)

1. Omskiy sel'skokhozyaystvennyy institut.

L 38196-65 EPF(n)-2/EWT(m)/EWP(b)/EWP(e)/EWP(t) Pu-4 IJP(c) WH/JD/JG/GS

ACCESSION NR: AT5007736 S/0000/63/000/000/0208/0214

AUTHOR: Anikin, I.N.; Kopyrin, Yu. V.; Kochetkova, Ye. Ye.

TITLE: [illegible]tion of synthetic mica and its properties

SOURCE: AN SSSR. Institut khimii silikatov. Silikaty i okisly v khimii vysokikh temperatur (Silicates and oxides in high-temperature chemistry). Moscow, 1963, 208-214

TOPIC TAGS: mica, synthetic mica, fluorophlogopite, electric furnace design

ABSTRACT: The authors describe their improved technique for growing synthetic mica, [illegible]gopite ($KMg_3AlSi_3O_{10}F_2$), involving the slow spontaneous crystallization [illegible]ing, and based on previously known [illegible]. An effort was [illegible]ystallization parameters as much as possible. Molybdenum [illegible] tested by the authors) with a protective medium of hydrogen and [illegible]s lined with molybdenum were used. The maximum yield of [illegible] their thickness 1 to 2 mm, and their area [illegible] x 30 mm. A [illegible]erties of fluor phlogopite [illegible]. The [illegible] appreciation to all the organizations [illegible] tested the synthetic [illegible]nberg for his suggestions and assistance rendered in the course [illegible]. Orig. art. has: 2 figures and 1 table.

Card 1/2

KOPYSC, Zbyslaw

Cerebrospinal meningitis in chickenpox in children. Pediat. polska 31 no.11:1239-1241 Nov 56.

1. Z Oddzialu Dzieciecego Szpitala Wojewodzkiego w Zielonej Gorze. Dyrektor: dr. med. Z. Pieniezny, Ordynator Oddz. Dzieciecego: lek Z. Kopysc. Zielona Gora, ul. Moniuszki 39 m. 1.

(MENINGITIS, in infant and child, in chickenpox (Pol))
(CHICKENPOX, complications, meningitis (Pol))

KOPYSC, Zbyslaw; BOROWICZ, Stanislaw

Complete situs inversus viscerum with congenital heart failure & the Klippel-Feil syndrome. Pediat. polska 32 no.3:291-296 Mar 57.

1. Z Oddzialu Dzieciecego Szpitala Wojewodzkiego w Zielonej Gorze Dyrektor: dr med. Z. Pieniezny Ordynator oddzialu: lek. med. Z. Kopysc. Adres: Z Kopysc. Zielona Gora, ul. Moniuszki 39/1.

(CARDIOVASCULAR DEFECTS, CONGENITAL, case reports
heart failure with complete situs inversus viscerum & Klippel-Feil synd. (Pol))

(SITUS INVERSUS, case reports
viscerum, with congen. heart failure & Klippel-Feil synd. (Pol))

(SPINE, abnorm.
Klippel-Feil synd., with congen. heart failure & complete situs inversus viscerum (Pol))

KOPYSC, Z.

KOPYSC, Zbyslaw

General remarks on meningitis in the prodromal period of chickenpox. Pediat. polska 32 no.12:1385-1387 Dec 57.

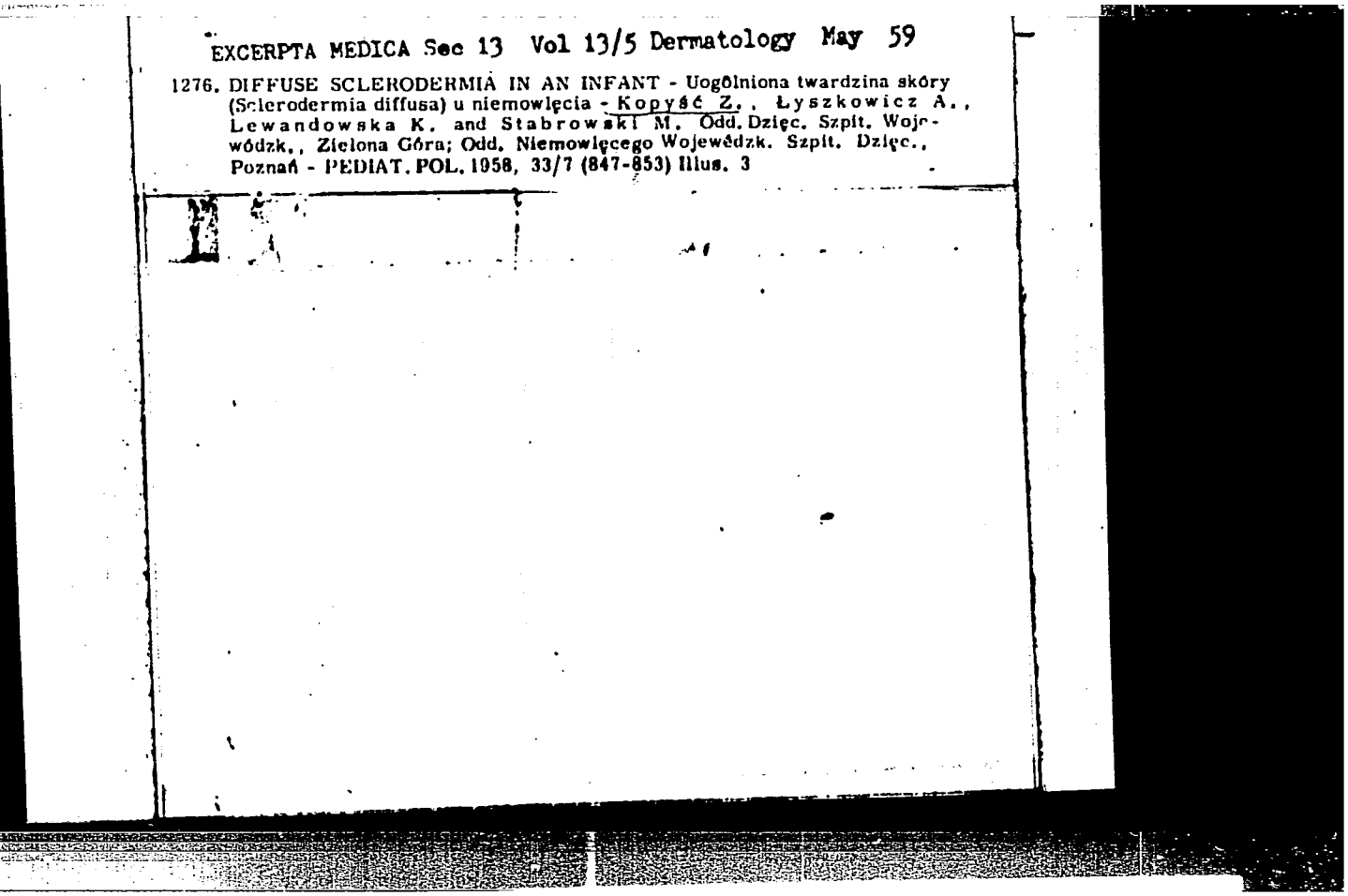
1. Z Oddzialu Dzieciecego Szpitala Wojewodskiego w Zielonej Gorze. Dyrektor Szpitala: Z. Pieniecny. Ordynator Oddz. Dzieciecego: lek. Z. Kopysc.

(MENINGITIS, in inf. & child
in early stage of chickenpox (Pol))
(CHICKENPOX, compl.
meningitis in early stage (Pol))

KOPYSC, Zbyslaw; LYSZKOWICZ, Adela; LEWANDOWSKA, Krystyna; STABROWSKI, Mieczyslaw

Diffuse scleroderma in an infant (Sclerodermia diffusa). Pediat. polska 32 no.7:847-853 July 58.

1. Z Oddzialu Dzieciecego Szpitala Wojewodzkiego w Zielonej Gorze Dyrektor szpitala: dr med. Z. Pieniezny i z Oddzialu Niemowlecego Wojewodzkiego Szpitala Dzieciecego w Poznaniu. Dyrektor szpitala; dr med. M. Szenic. Adres: dr Z. Kopysc, Zielona Gora, ul. Moniuszki 39 m 1.
(SCLEREMA NEONATORUM, case reports
(Pol))



EXCERPTA MEDICA Sec 13 Vol 13/5 Dermatology May 59

1276. DIFFUSE SCLERODERMIA IN AN INFANT - Uogólniona twardzina skóry (Sclerodermia diffusa) u niemowlęcia - Kopyść Z., Łyszkowicz A., Lewandowska K. and Stabrowski M. Odd. Dziec. Szpit. Wojewódzk., Zielona Góra; Odd. Niemowlęcego Wojewódzk. Szpit. Dzięc., Poznań - PEDIAT. POL. 1958, 33/7 (847-853) Illus. 3

KOPYSC, Zbyslaw; BILSKA, Joanna

Salmonella dublin as an etiologic factor in cerebrospinal meningitis. Pediat. polska 34 no.3:323-328 Mar 59.

1. Z Oddzialu Dzieciecego Szpitala Wojewodzkiego w Zielonej Gorze Dyrektor: dr med. Z. Pieniezny. Adres: Lek. Zbyslaw Kopysc, Zielona Gora, ul. Moniuszki 39 m. 1.

(MENINGITIS, in inf. & child, Salmonella dublin (Pol))
(SALMONELLA INFECTIONS, in inf. & child, dublin meningitis (Pol))

KOPYSC, Zbyslaw; KAZIMIERCZYK, Halina

Precocious puberty in a 5-year-old girl. Pediat.polska 35 no.12: 1457-1461 D '60.

1. Z Oddzialu Dzieciecego Szpitala Wojewodzkiego w Zielonej Gorze Dyrektor Szpitala: dr med. Z. Pieniezny.
(PUBERTY PRECOCIOUS case reports)

KOPYSC, Zbyslaw

SURNAME, Given Names

Country: Poland

Academic Degrees:

Affiliation: Presumed to apply to all authors: Children's Ward of the Wojewodztwo Hospital (Oddzial Dzieciecy Szpitala Wojewodzkiego), Zielona Gora; Director (Dyrektor): Dr Med Z Pieniezny; and Analytical Laboratory of the Wojewodztwo Specialist Dispensary (Laboratorium Analityczne, Wojewodzka Przychodnia Specjalistyczna), Zielona Gora; Director (Kierownik): Physician (Lek [Lekarz]) J Daszynski

Source: Krakow, Przeglad Lekarski, Vol XVII, Ser II, No 9, 1961, pp 334-337

Data: "The Effect of Hormonal Treatment on the Behavior of Some Biological Indices in Rheumatism in Children."

Authors:
KOPYSC, Zbyslaw [Academic Degrees not given]
WITKOWSKA, Hanna " " " "
KAZIMIERCZYK, Halina " " " "
DASZYNSKI, Janusz, Physician (Lek /Lekarz/)

6P0 98144

KOPYSC, Zbyslaw
SURNAME, Given Names

Country: Poland

Academic Degrees: [not given]

Affiliation: Children's Ward of the Wojewodztwo Hospital (Oddzial Dzieciecy, Szpital Wojewodzki), Zielona Gora; Director (Dyrektor): Dr Med Z Pieniezny

Source: Krakow, Przeglad Lekarski, Vol XVII, Ser II, No 9, 1961 pp 342-345

Data: "Von Gierke's Disease in a Three-Year Old Child."

Authors:

KOPYSC, Zbyslaw
KAZIMIERCZYK, Halina

GPO 981643

KOPYSC, Zbyslaw; PIESZCZOCHOWA, Zywislawa

Sturge-Weber syndrome in an 8-year-old child. Pediat. pol. 36 no.11: 1177-1181 N '61.

1. Z Oddzialu Dziecicego Szpitala Wojewodzkiego w Zielonoj Gorze Dyrektor: dr med. Z. Pieniezny i z Oddzialu Dziecicego Szpitala Pow. w Zaginiu Dyrektor: lek. med. J. Wyrwas.
(ANGIOMATOSIS in inf & child)

KOPYSC, Zbyslaw; LEHNERT, Andrzej

Pancytopenia with various developmental defects of Fanconi. Pediat. Pol. 37 no.3:295-300 '62.

1. Z Oddzialu Dzieciecego Szpitala Wojewodzkiego w Zielonej Gorze Dyrektor: dr med. Z. Pieniezny.

(METABOLIC DISEASES case reports)

KOPYSC, Zbyslaw; STANKOWSKA, Halina

Simmonds' disease caused by a malignant tumor of the hypothalamus. Pediat. pol. 38 no.4:429-432 '63.

1. Z Oddzialu Dziecicego Szpitala Wojewodzkiego w Zielonej Gorze Dyrektor: lek. med. Z. Kopysc.
(SIMMONDS' DISEASE) (HYPOTHALAMUS)
(BRAIN NEOPLASMS)

BARTASHEVICH, E.I., inzh.; KOPYSEV, V.A., inzh.

Rapid method of determining the fatty acid content of toilet soap by means of the trilon B. Masl.-zhir.prom. 28 no.9: 34-35 S '62. (MIRA 15:9)

1. Gomel'skiy zhirovoy kombinat.
(Soap—Analysis)

KOPYSHEV, N. S., Veterinarian
"From the practice of employing laparotomy in horses."
SO: Vet. 24 (4) 1947, p. 34

KOPYSHEV, V.P.

Rate of the $p+p \rightarrow d+e^{+}+\nu$ reaction in the crystallic medium of white dwarfs. Astron.zhur. 41 no.5:862-866 S-O '64.
(MIRA 17:10)

L 11066-65 EWT(m) DIAAP/AFWL/SSD/ASD(a)-5/AS(mp)-2/AFETR/ESD(t)

ACCESSION NR: AP4046413 S/0056/64/047/003/0958/0959

AUTHORS: Yermachenko, V. M.; Kopy*shev, V. P.

TITLE: Neutrino pair production in electron dipole transitions (E)

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47, no. 3, 1964, 958-959

TOPIC TAGS: neutrino, pair production, electron transition, dipole transition

ABSTRACT: On the basis of the universal Fermi interaction, the authors derive a general formula for the energy lost by a nonrelativistic electron to neutrino-pair emission. The energy loss is proportional to the square of the dipole moment, as in electrodynamics. The transition to the nonrelativistic approximation can likewise be made in the manner used in electrodynamics. It is also shown that if the cross section is known for any dipole transition

Card 1/2

L 11066-65
ACCESSION NR: AP4046413

with emission of a photon, the cross section for the analogous transition with emission of a neutrino pair can be obtained by simply multiplying the former by a certain quantity. Application of this procedure to earlier results by G. M. Gandel'man and V. S. Pinayev (ZhETF v. 37, 1072, 1959 and v. 45, 548, 1963) indicates that their results must be corrected. "This work was performed at the initiative of Ya. B. Zel'dovich, who suggested that we consider this question." Orig. art. has: 3 formulas.

ASSOCIATION: None

SUBMITTED: 10Mar64 ENCL: 00

SUB CODE: NP NR REF SOV: 003 OTHER: 001

Card 2/2

L 44808-65 EWT(d)/EWT(l)/EWT(m)/EWP(w)/EWG(m)/EWA(d)/T Pm-4/Peb
IJP(c) EM

ACCESSION NR: AP5011528 UR/0020/65/161/005/1067/1068

AUTHOR: Kopyshev, V. P.

TITLE: The Gruneisen constant in the Thomas-Fermi approximation

SOURCE: AN SSSR. Doklady, v. 161, no. 5, 1965, 1067-1068

TOPIC TAGS: Gruneisen constant, equation of state, solid state, Thomas-Fermi method, Poisson coefficient, modulus of elasticity

ABSTRACT: This is the first attempt to calculate the value of the Gruneisen constant which enters into the equation of state of a solid at temperatures between the Debye temperature and the melting point. An equation is first derived for the change in the lattice potential induced by a unit shift of the nuclei within a unit cell. The approximation consists of spherization of the unit cell and the equation is solved in the Thomas-Fermi approximation. It is shown that in this case there are only two moduli of elasticity, as in the case of an isotropic solid, and these moduli are used to calculate the Poisson coefficient and the modulus of hydrostatic compression. The Gruneisen coefficient is then calculated

Card 1/2

L 44808-65

ACCESSION NR: AP5011528

and found to equal 0.528 for a spherized cell, 0.543 for a body-centered cubic lattice, and 0.547 for a face-centered cubic lattice. Although this is not in very [illegible] agreement with the experimental values, better accuracy cannot be expected in the Thomas-Fermi method. This report was presented by Ya. B. Zel'dovich. Orig. art. has: 7 formulas and 1 table. [02]

ASSOCIATION: none

SUBMITTED:	23Sep64	ENCL:	00	SUB CODE:	TD, MA
NO REF SOV:	003	OTHER:	003	ATD PRESS:	3257

Card 2/2

KIROV, S.A., kand.tekhn.nauk; LISTOV, A.M., kand.tekhn.nauk; KOPYSHTA, I.L., inzh.; DROZDOV, V.A., kand.tekhn.nauk; TITORENKO, N.Ye., kand.tekhn.nauk; BUTOR, A.I., inz.; Prinimali uchastiye: ALEKSEYEV, A.P., kand.tekhn.nauk; MALYSHEV, Ye.G., kand.tekhn. nauk; GAGARIN, Yu.A., inzh.; TITOV, S.A., inzh.; TUMARINSON, N.S. inzh.; KRUTIKOV, V.I., inzh., red.; MEDVEDEVA, M.A., tekhn.red.

[Completely precast buildings with few stories] Polnosbornye maloetazhnye zdaniia. Moskva, Vses. izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia, 1962. 87 p. (Vsesoiuznyi nauchno-issledov. institut transportnogo stroitel'stva. Trudy no.44). (MIRA 15:8)
(Railroads—Buildings and structures)
(Precast concrete construction)

KOPYSITSKIY, P.I., redaktor; YERSHOV, P.R., redaktor; TROFIMOV, A.V., tekhnicheskiy redaktor

[Machine-building innovators of the petroleum industry] Novatory neftianogo mashinostroeniia. Moskva, Gos. nauchno-tekhn. izd-vo neftianoi i gorno-toplivnoi lit-ry, 1954. 1947 p. (MLRA 8:6)

1. Russia (1923- U.S.S.R.) Ministerstvo neftyanoy promyshlennosti.
(Petroleum industry--Equipment and supplies)
(Machinery industry)