

MARTSINOVSKIY, A.M.; PIKUS, G.Ye.; SONIN, B.E.; YUR'YEV, V.G.

Effect of interelectrode barriers on the electroconductivity of a cesium plasma. Zhur. tekhn. fiz. 32 no.6:770-772 Je '62. (MIRA 15:7)

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Plasma (Ionized gases)—Electric properties)
(Electrodes)

24091

24 2120
24.6710

ABSTRACT: ...
 TITLE: ...
 ABSTRACT: ...
 TEXT: ... of electric ... in a plasma. It will be ... in the ...
 this method the electron ... on ...
 electrons ... known. It ...
 a ...
 the plasma is ...
 rised ... of ...
 solenoid, ...
 conditions are ...
 the plasma ...
 theory of ...
 Card 1,4

X

measured in the ...

derived from the theory of the ...

$$\frac{\sigma_H}{\sigma_0} = \frac{1}{1 + \frac{cnd^2}{2\eta\mu\gamma} + \frac{cnd^2}{2\eta\mu\gamma} \frac{1}{1 + \frac{cnd^2}{2\eta\mu\gamma}}}$$

is the viscosity of the ... of electrode distance ... of the relaxation time; $\eta = \frac{1}{2} \rho \omega$, $\mu = \frac{1}{2} \rho \omega$, γ is the ... of the ... the ... is over Maxwell distribution. In the ... field.

$$\sigma_H \sigma_0 = -\gamma (uH \cdot c^2) (1 - cnd^2 / 2\eta\mu\gamma) \quad (2)$$

$$\sigma_H' \sigma_0 = (2 \gamma \omega) (c \cdot uH)^2$$

$$\frac{\sigma_0}{\sigma_H} = \frac{1}{2} \frac{uH \cdot c^2}{c^2} \left(1 + \frac{cnd^2}{2\eta\mu\gamma} \right)$$

It was shown that ... at $T = 1.0 \text{ K}$ and $\omega = 10^4 \text{ rad/s}$, the following experimental results were obtained:

Curves 1, 2, 3, 4

X

Measurement of electron . . . S/256/62/042.052.113/55
B102/B136

	H = 46 oe	90 oe	146 oe
σ_H/σ_0	0.96	0.93	0.96
$10^{-8} \mu_H, \text{cm}^2/\text{oe}/\text{v sec}$	0.161	0.17	0.33
$10^{-5} \mu, \text{cm}^2/\text{v. sec}$	2.4	2.4	2.6

For the mobility, μ a slight decrease was observed with increasing T. At temperatures above 1800°K the μ values obtained from resistivity measurements without ($\mu_R = 4e1/3/qn\mu kT$; $l = \text{mean free path}$) are somewhat lower than those (μ_H) from measurements with magnetic field. The difference is greatest at 2000°K. The fact that with increasing T, μ_R increases a little faster than μ_H is attributed to the more rapid increase in μ_R with T. The cross section ratio is $\mu_H/\mu_0 = (R/R_0)^{1/2}$. $R = R_0 + R$ is the total resistance; $\mu_H/\mu_0 = (\mu_R/\mu_0)^{1/2}$. At T < 1600°K both methods yield $\mu_0 \approx 3 \cdot 4 \cdot 10^{-14} \text{ cm}^2/\text{v. sec}$. B. Ya. Moyzhes, V. L. Gurevich, E. V. Solina et al.
Card 3/4

Measurement of electron ...

S. 056 62104. 00 013 000
B102, B138

Thanked for discussions and D. N. Gurin, A. M. Martynov, B. I. Tsirkel' and I. G. Aron'ev for help. There are 4 figures and 1 reference: 7 Soviet and 1 non-Soviet. The three references to English language publications read as follows: R. B. Brode Rev. Mod. Phys. 5, 257, 1933; Phys. Rev. 34, 673, 1929; J. Esterman et al. Phys. Rev. 71, 1940, 1947.

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors of the Academy of Sciences USSR)

SUBMITTED: June 30 1961

Card 4/4

S/057/62/032/006/020/022
B108/B102

26.1640
AUTHORS: Martsinovskiy, A. M., Pikus, G. Ye., Sonin, B. E., and
Yur'yev, V. G.

TITLE: Effect of electrode barriers on the electrical conductivity
of a cesium plasma

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 6, 1962, 770 - 772

TEXT: In an earlier paper (PTT, II, no. 4, 756, 1960) a method was proposed for determining the scattering cross section from measurements of the electrical conductivity of a cesium plasma. It was not considered, however, that the electron work function depends on temperature and pressure of the Cs vapor. In order to explain the effect of the electrode barriers, the authors of the present paper used a special arrangement with movable electrodes to measure the dependence of the plasma resistivity R on the length d of the gap between the electrodes. It was found that R increases linearly with d . Measurements with $d = 0$ showed that at high temperatures there is an additional resistance owing to a layer of cesium adsorbed on the electrodes. This layer increases the work function. This

Card (1/2)

Effect of electrode barriers...

S/057/62/032/006/020/022
B108/B102

is also the reason why the efficiency of plasma thermocells decreases. It is therefore necessary to increase pressure in these cells in order to reduce the work function. There are 2 figures.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors AS USSR, Leningrad)

SUBMITTED: November 21, 1961

Card 2/2

37929

247700

S/181/62/004/005/017/055
B125/B104

Author: Kir, G. L., Norantas, E., and Pikus, G. Ye.

Subject: Galvanomagnetic effects in semiconductors with degenerate bands

Publication: Fizika tverdogo tela, v. 4, no. 3, 1962, 1180 - 1195

Summary: The more precise theory of galvanomagnetic effects in p-type Ge semiconductors presented here furnishes substantial corrections to the numerical values of the galvanomagnetic constants and explains the dependence of the Hall constant on the magnetic field observed experimentally. Allow for the influx of carriers from other bands involves "crossed relaxation times", changes the distribution function of light holes more than that of heavy ones, and likewise changes the contribution of the various types of carriers to the kinetic coefficients. Owing to the small contribution of light holes to the electrical conductivity, the effects due to light and heavy holes make about the same contributions. The relaxation times of longitudinal vibrations for $\gamma \rightarrow 0$ are given by

Card 1/5

Galvanomagnetic effects in ...

S/181,62/004/005/017/05
B125/104

$$\left. \begin{aligned} \frac{1}{\tau_{11}^{(L)}} &= \frac{1}{\tau_0^{(L)}} (1 - \tau_1)^2, \\ \frac{1}{\tau_{22}^{(L)}} &= \frac{1}{\tau_0^{(L)}} \left[(1 - \tau_1)^2 + \frac{3}{4} \tau_1^2 \right], \\ \frac{1}{\tau_{12}^{(L)}} &= -\frac{1}{\tau_0^{(L)}} \frac{4}{5} \tau_1 (1 - \tau_1). \end{aligned} \right\} (2.14)$$

with $\eta = \sqrt{b/a}$ and $\hat{f}^2 = \hat{f}_{12}^2 = m_1/m_2$. Here, a and b are the constants of the deformation potential, m_1 and m_2 are the effective masses of light and heavy holes, respectively with $\eta \neq 0$ and small values of \hat{f} , the relaxation time τ_{12} of heavy holes will always be a little shorter than the relaxation time τ_{11} of light holes. In the case of scattering by acoustic vibrations of the lattice at $\hat{f} \rightarrow 0$, the inverse relaxation times are given by

Card 2/5

Galvanomagnetic effects in ...

5/181,62/004/005/017/055
B105/B104

$$\left. \begin{aligned} \frac{1}{\tau_{11}} &= \frac{1}{\tau_{11}^{L1}} + \frac{1}{\tau_{11}^{T1}} = \frac{1}{\tau_0^{L1}} \left[(1-\gamma)^2 + \frac{3}{2} \frac{C_L^2}{C_T^2} \gamma^2 \right], \\ \frac{1}{\tau_{22}} &= \frac{1}{\tau_{22}^{L1}} + \frac{1}{\tau_{22}^{T1}} = \frac{1}{\tau_0^{L1}} \left[(1-\gamma)^2 + \frac{3}{4} \gamma^2 \left(1 + \frac{C_L^2}{C_T^2} \right) \right], \\ \frac{1}{\tau_{12}} &= -\frac{1}{\tau_0^{L1}} \frac{\gamma}{5} \left[4(1-\gamma) + 3\gamma \frac{C_L^2}{C_T^2} \right]. \end{aligned} \right\} (2.10)$$

τ_{11} and τ_{22} may differ considerably. τ_{22} reaches a maximum at $\gamma = 0.75$.
Using the transition probabilities for scattering inside and between the bands one obtains the relaxation times

Card 3/5

Galvanomagnetic effects in ...

S/181'62/004/005/017/055
B125/B104

$$\frac{1}{\tau_{ii}(\epsilon)} = \frac{e^4 \pi N}{\sqrt{2} \epsilon_0^2 m_i^3 v_i^3} \{ \Phi(\lambda_i) + \varphi_0(\gamma_i) \} \quad (j \neq i),$$

$$\frac{1}{\tau_{12}(\epsilon)} = \frac{\gamma^{-5}}{\tau_{21}(\epsilon)} = \frac{e^4 \pi N}{\sqrt{2} \epsilon_0^2 m_1^{3/2} m_2^{3/2}} \varphi_7(\gamma), \quad (3.7) \text{ and}$$

$$\Phi(\lambda) = \frac{1}{4} \left((1-3\lambda)^2 \ln \frac{1+\lambda}{1-\lambda} + \frac{2}{1+\lambda} (2-3\lambda-9\lambda^2) \right), \quad (3.8) \text{ with}$$

$$\varphi_0(\gamma) = \frac{12\gamma}{(1-\gamma^2)^2} \varphi_4(\gamma), \quad \varphi_7(\gamma) = \frac{3\gamma}{(1-\gamma^2)^2} \varphi_3(\gamma). \quad (3.9)$$

for scattering from ionized impurities. In (3.7) $i \neq j$ and $\lambda = 1 + (\kappa^2 / 4m_i)$. In the case $\kappa^2 / 4m_i \ll 1$, which is important in practice, $\Phi(\lambda)$ is reduced to $\Phi(\lambda) = \ln(\kappa m \epsilon / \kappa^2 \hbar^2) - 5/2$.

$$\frac{1}{\tau(\epsilon)} = \frac{e^4 \pi N}{\sqrt{2} \epsilon_0^2 m^{3/2} v_i^3} \left\{ \ln \frac{8m\epsilon}{\kappa^2 \hbar^2} - 1 \right\}, \quad (3.12)$$

valid for a simple band if $\kappa^2 \hbar / 4m \epsilon \ll 1$. Heavy holes make the greatest contribution to the electrical conductivity. The contribution of light holes amounts to τ_{11} / τ_{22} of the share of heavy holes, viz. 36% at

$\eta = 0.22$ for $\eta = 0$, and 31% for $\eta = 0.75$. For $\bar{b} = 0$, the hole mobility

Card 4/5

galvanomagnetic effects in ...

S/181,62/004/005/017/055
B125/R104

calculated with the aid of the present theory is twice that obtained by the simple theory. In the case of weak fields and for $\eta = 0$ and $\nu = 0.75$, the contributions of heavy holes are 20 and 64%, respectively, and increase with increasing magnetic field strength. At 80°K and a concentration of centers of about 10^{13} cm^{-3} , scattering from impurities is negligible. The calculations are to be continued. Average values for the constants of the deformation potential are given in an appendix. There are 6 figures and 1 table. The most important English-language reference is: C. Herring, S. Vogt, Phys. Rev., 101, 944, 1956. †

ASRVDI VIB: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors AS USSR, Leningrad).
Institut fiziki i matematiki AN Lit. SSR, Vil'nyus (Institute of Physics and Mathematics AS Litovskaya SSR, Vil'nyus)

SR VIB: December 23, 1961

Card 5/5

BIR, G. L.; PIKUS, G. Ye.

"The relaxation time and the width of the spin resonance line in semiconductors with degenerate bands."

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

PIKUS, G.Ye.

Effect of deformations on the optical spectrum of wurtzite type
crystals. Fiz. tver. tela 6 no.1:324-326 Ja '64. (MIRA 17:2)

1. Institut poluprovodnikov AN SSSR, Leningrad.

ACCESSION NR: AP4013514

3/0161/64/006/002/0506/0511

AUTHORS: Aronov, A. G.; Pikus, G. Ye.

TITLE: Magnetic susceptibility in crossed electrical and magnetic fields

SOURCE: Fizika tverdogo tela, v. 6, no. 2, 1964, 506-511

TOPIC TAGS: magnetic susceptibility, magnetic field, electric field, magnetic moment

ABSTRACT: The authors have examined the possibility of investigating magnetic susceptibility in crossed electrical and magnetic fields when it is impossible to take scattering into account in the first approximation. The dependence of magnetic susceptibility on the electrical field makes it possible to determine directly the effective mass of carriers, since the only component in the expression for full magnetic moment that depends significantly on the electrical field is the magnetic moment of the free carriers. It is found that by measuring the change in magnetic moment when the electrical field is applied it is possible to discriminate reliably the magnetic moment associated with the free carriers. If an alternating current is sent through a sample, the frequency being many times

Card 1/2

ACCESSION NR: AP4013511

the intrinsic mechanical frequency of the system, this system under the effect of ponderomotive forces will remain quiet, whereas the effect of an electrical field on magnetic susceptibility leads to the appearance of a constant force, proportional to the magnitude of the effect. However, ponderomotive forces proportional to the current may be practically excluded by making the sample of two coaxial cylinders, one within the other, so connected that the current flows in opposite directions in the two parts. This makes the total current through the section equal to zero. "The authors thank Yu. N. Obraztsov and V. L. Gurevich for their useful advice during discussions." Orig. art. has: 12 formulas.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semi-conductors AN SSSR)

SUBMITTED: 22Aug63

DATE ACQ: 03Mar64

ENCL: 00

SUB CODE: EM

NO REF SOV: 002

OTHER: 003

Card 2/2

L 9916-66 FED/EWT(1)/EWT(m)/EEC(k)-2/T/EWP(t)/EWP(k)/EWP(h)/EWA(m)-2/EWA(h)

ACC NR: AF6000851 SCTB/IJP(c)
WG/JD/JG

SOURCE CODE: UR/0181/65/007/012/3536/3547

AUTHOR: Pikus, G. Ye.

ORG: Institute of Semiconductors AN SSSR, Leningrad (Institut poluprovodnikov AN SSSR)

TITLE: Threshold current of a semiconductor laser

SOURCE: Fizika tverdogo tela, v. 7, no. 12, 1965, 3536-3547

TOPIC TAGS: semiconductor laser, pn junction, laser emission, impurity band, conduction band, valence band, gallium arsenide, carrier density

ABSTRACT: A kinetic theory is developed for a semiconductor laser with a steep p-n junction, in which the main recombination takes place in the junction itself and the carrier distribution is determined by the junction field. The impurity concentrations in the n and p regions are assumed sufficiently large so that the impurity band merges with the conduction band or the valence band and that the transitions occur between levels of these bands. The spectrum is assumed to be quadratic. The distribution of the acceptors in the junction is assumed to be sufficiently steep, so that the width of the active region does not exceed the diffusion length. It is shown that the threshold current at low temperatures does not depend under these conditions on the temperature and increases with increasing steepness of the p-n junction. At high temperatures, the threshold current increases like the cube of the temperature and decreases with increasing steepness. The theoretical conclusions are in good agreement with the experimental data. In the case of a GaAs laser, the calculations

Card 1/2

L 9916-66

ACC NR: AP6000851

of the threshold current, the threshold junction voltage, and the electron and hole densities at high and low temperatures agree well with the experimental data. Author thanks V. I. Perel' and A. G. Aronov for an active discussion and useful advice. Orig. art. has: 6 figures, 33 formulas, and 2 tables. [02]

SUB CODE: 20/ SUBM DATE: 10Jun65/ ORIG REF: 014/ OTH REF: 016
AID PRESS: 4166

Card 2/2

L-9919-66 FBD/EWT(1)/EWT(m)/EEC(k)-2/I/EWP(t)/EWP(k)/EWP(h)/EWA(m)-2/EWA(h)
 ACC NR: AP6000852 SCTB/IJP(c) WG/JG/JD SOURCE CODE: UR/0181/65/007/012/3548/3557

AUTHOR: ⁴⁴Pikus, G. Ye.; ⁴⁴Aronov, A. G.
 ORG: Institute of Semiconductors, AN SSSR, Leningrad (Institute poluprovodnikov AN BSSR)

TITLE: Line width of a semiconductor laser ^{25,44}

SOURCE: Fizika tverdogo tela, v. 7, no. 12, 1965, 3548-3557

TOPIC TAGS: semiconductor laser, line width, ²⁷gallium ²⁷arsenide, pn junction, carrier density

ABSTRACT: This is a companion to a paper by one of the authors in the same source (Pikus, FTT v. 7, 3536, 1965; Acc.Nr.AP6000851) dealing with the threshold voltage and threshold current of a semiconductor laser with steep p-n junction. In the present article the authors calculate the line width of such a laser, in which the main recombination occurs in the junction itself and the carrier distribution is determined by the junction field. It is shown first that the laser emission spectrum is not continuous but consists of lines with strictly defined frequencies. The line broadening is brought about by the finite rate of influx of carriers to the levels between which transitions are produced by the radiation. It is also shown that the usual formulas for mobility, in which the screening radius is assumed to be equal to the average distance between impurities, can be used with good approximation for semiconductors used for lasers, such as GaAs. The line broadening is found to be proportional to

Card 1/2

I 9919-66

ACC NR: AF6000852

$(J - J_{thr})^{1/3}$, where J is the current flowing through the laser and J_{thr} is the threshold current. This is found to be in good agreement with the experimental data. [02]
Orig. art. has: 2 figures, 26 formulas, and 3 tables.

SUB CODE: 20/

SUBM DATE: 10Jun65/

ORIG REF: 002/

OTH REF: 003

ATD PRESS: 4/66

PC
Card 2/2

L 63510-65 EWT(1)/EPA(s)-2/EPF(c)/EEG(k)-2/EPF(n)-2/EWG(m)/EPA(w)-2/
T/EWA(h) Pz-6/Pr-4/Pt-7/Pab IJP(c) JHB/TT/WW/AT
ACCESSION NR: AP5015646 UR/0057/65/035/006/1160/1162

AUTHOR: Dyuzhev, G. A.; Martsinovskiy, A. M.; Pikus, G. Ya.; Yur'yev, V. G. 5 0
8

TITLE: On the most effective modes of operation of the thermionic converter 25

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 6, 1965, 1160-1162

TOPIC TAGS: energy conversion, thermionics, space charge, arc mode, thermal emission, thermionic converter 21

ABSTRACT: The generally accepted view that, if only proper cathode materials could be produced, the direct-path plasma mode (vacuum with compensated space charge) would be the most effective method of thermionic energy conversion is thought to be questionable and arguments are advanced to support the arc mode. The arc mode is considered to be superior in that it makes possible the use of low work-function emitters, whereas in the direct-path mode the space-charge neutralization is accomplished by ions generated in the volume. This advantage can become even more pronounced due to the presence of the anomalous Schottky effect. A comparison of published experimental data on the operation of the two modes demonstrates the superiority of the arc mode for the range of temperatures between 1400 and 2200K. Orig. art. has: 1 figure. [ZL]

Card 1/2

I 63510-65

ACCESSION NR: AP5015646

ASSOCIATION: none

SUBMITTED: 22Jan65

ENCL: 00

SUB CODE: EC

NO REF SOV: 005

OTHER: 006

ATD PRESS: 4050

hal
Card 2/2

L 11258-66 EWT(1)/EEG(k)-2/ETC(F)/EPF(n)-2/EVG(m)/T/EWA(h) IJP(c) TI/WT/AT
ACC NR: AP5028321 SOURCE CODE: UR/0057/65/035/011/2054/2064

AUTHOR: Dyuzhev, G. A.; ⁴⁴ Martzinovskiy, A. M.; ⁴⁴ Pikus, G. Ye.; ⁴⁴ Tsirkel', B. I.; ⁶²
Yur'yev, V. G.

ORG: none

TITLE: Investigation of the volt-ampere characteristics of thermionic converters ^{25,44}

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 11, 1965, 2054-2064

TOPIC TAGS: direct energy conversion, thermionic energy conversion, thermionics

ABSTRACT: The volt-ampere characteristics of cesium-filled thermionic energy converters were examined both in the diffusion and arc modes of operation. Plane-parallel diodes with interelectrode spacings of 0.02-2 mm and electrode surfaces of 0.3-0.8 cm² were used in all the experiments. At the diffusion mode, the characteristics conformed with theoretical data (B. Ya. Moyzhes and G. Ye. Pikus, PTT, 2, 4, 756, 1960). At high temperatures, the transition to the arc mode took place smoothly, which is explained by the presence during the experiments of an accelerating field at the emitter. The fact that even the smallest arc current was close to the emission current was also attributed to this accelerating field. The absence of saturation in the volt-ampere characteristics was thought to be connected with the anomalous Schottky effect arising as the result of the cathode barrier. Orig. art. has: 6 formulas and 9 figures.

Card 1/2

UDC: 537.523.5

[ZL]

L 11258-66

ACC NR: AP5028321

SUB CODE: 10 / SUBM DATE: 08Feb65/ ORIG REF: 006/ OTH REF: 003/ ATD PRESS:

4176

OC

Card 2/2

L 45100-66 EWT(1) IJP(c) AT

ACC NR: AP6024889

SOURCE CODE:UR/0056/66/051/001/0281/0295

AUTHOR: Aronov, A. G.; Pikus, G. Ye.

ORG: Institute of Semiconductors, Academy of Sciences, SSSR (Institut poluprovodnikov Akademii nauk SSSR)

TITLE: Tunneling current in a transverse magnetic field

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v.51, no.1, 1966, 281-295

TOPIC TAGS: block function, two band model, Dirac equation, semiconductor crystal, Brillouin zone, valence band, conduction band, lead sulfide, lead selenide, ELECTRIC FIELD, ELECTRON MOTION, TUNNEL CURRENT, TRANSVERSE MAGNETIC FIELD

ABSTRACT: It is shown that in the case of a strong electric field a two-band equation should be used in analyzing the motion of electrons in crossed electric/magnetic fields E_x and H_z . In the simplest case, this equation is equal to the Dirac equation except that the limiting velocity is not c but $s = (\epsilon_g/2m)^{1/2}$. For $sH_z/cE_x < 1$ the electron motion is infinite, just as in the case $H_z = 0$, and the decrease of the tunnelling current is due to a decrease of the effective field $E = (E_x^2 - s^2H_z^2/c^2)^{1/2}$. For $sH_z/cE_x \geq 1$ the electron motion is finite

Card 1/2

L 45100-66

ACC NR: AP6024889

and direct transitions in a homogeneous electric field are forbidden by the energy and momentum conservation laws. The effect of a magnetic field and deformation on the current in PbTe-, PbSe-, and Pbs-type crystals is considered, where the constant energy surfaces are ellipsoids. The results of the calculations are compared with the experimental data of Rediker and Calawa for PbTe (Journal of Applied Physics, v.32, 1961, p.2189). Orig. art. has: 52 formulas and 3 figures.

[CS]

SUB CODE: 20/ SUBM DATE: 04Feb66/ ORIG REF: 008/ OTH REF: 019

Cord 2/2 blg

L 04609-67 EWT(1)/T IJP(c) AF

ACC NR: AP6033429

SOURCE CODE: UR/0057/66/036/010/1901/1904

AUTHOR: Kaplan, V. B.; Moyzhes, B. Ya.; Pikus, G. Ye.; Shakhnazarova, G. A.; Yur'yev, V. G.

ORG: Institute of Semiconductors, AN SSSR, Leningrad (Institut poluprovodnikov AN SSSR)

TITLE: Spectroscopic measurements of the plasma parameters of a thermionic converter

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 10, 1966, 1901-1904

TOPIC TAGS: thermionic energy conversion, arc discharge, plasma arc, plasma dynamics, plasma diffusion, spectroscopy

ABSTRACT: The plasma parameters (concentration, electron temperature, proportion of excited atoms, etc.) in an arc-mode thermionic converter were optically determined by means of a mirror monochromator with photoelectric registration and potentiometric recording. Care was taken to exclude from the treatment the long-wave lines of the P-D and F-D transitions, which showed significant adsorption, and to eliminate the cathode illumination while the measurements of the continuum intensity were being taken. The investigations were made at cathode temperatures from 1100 to 1600K and at cesium vapor pressures from 0.4 to 2.0 mm hg. The interelectrode distances varied from 1 to 2.0 mm. The investigation demonstrated that the electron temperature decreases monotonically between the cathode and anode. The maximum of the electron

Card 1/2

UDC: 533.9.082.5

L 04609-67

ACC NR: AP6033429

concentration was found at a distance of 0.3 mm from the cathode. It was also found that the distribution of the excited atom concentration does not follow the changes of the electron temperature. The transition from generation to recombination takes place close to the point at which the temperature and line intensity curves intersect. If it is assumed that at this point neither generation nor recombination occurs, then the concentration of electrons and excited atoms at this point should be close to the thermodynamic equilibrium. At $T_e = 2500K$, the thermodynamic concentration should be $1.25 \times 10^{14} \text{ cm}^{-3}$ (the measured concentration was $7 \times 10^{13} \text{ cm}^{-3}$). From their own calculations and a discussion of the less pronounced changes of the electron temperature registered by other researchers using the probe method, the authors conclude that the plasma of a thermionic converter operating under the investigated conditions is essentially of the nonequilibrium type. Orig. art. has: 2 formulas and 3 figures.

SUB CODE: 20/ SUBM DATE: 04Dec65/ ORIG REF: 010/ OTH REF: 004/ ATD PRESS: 5100

Card 2/2 *Eqh*

L 47035-66 EEC(k)-2/EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) RTW/TT/AT/WW/JD /

ACC NR: AP6031273

SOURCE CODE: UR/0057/66/036/009/1685/1697

AUTHOR: Dyuzhev, G. A.; Baksht, F. G.; Martsinovskiy, A. M.; Moyzhes, B. Ya.; 81
Pikus, G. Ye.; Yur'yev, V. G. B

ORG: none

TITLE: Probe-method investigation of the plasma in thermionic converters with high cesium pressure. III. Distribution of the concentration, the electron temperature, and the space potential in the interelectrode gap of thermionic converters

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 9, 1966, 1685-1697

TOPIC TAGS: thermionic energy conversion, direct energy conversion, arc discharge, cesium electron tube

ABSTRACT: Specially constructed instruments with movable probes were used in extensive investigations of the operation of a cesium-filled thermionic converter. The investigations were carried out at pressures characteristic of both the diffusion and arc modes. The measurements confirm the theory of the diffusion mode advanced in 1960 by Moyzhes and Pikus (Moyzhes, B. Ye., and Pikus, G. Ye., FTT, 2, 756, 1960). They also show that, at low cathode temperatures, the ionization starts in this mode next to the anode in the region of the anode drop. The transition to the arc mode is accompanied by a redistribution of the potential and a shifting of the ionization region toward the cathode. In the arc mode, a substantial part of the applied volt-

Card 1/2

L 47035-66

ACC NR: AP6031273

age drops on the near-cathode barrier and in the region close to the cathode. Next to the anode and in the anode region there is only a small potential barrier, which vanishes with increasing current. The electron temperature in the gap appears to be almost constant, although it increases slowly with increasing current. At the same time, the carrier concentration increases rapidly when current increases. The values of electron concentration and temperature obtained by the authors agree with those obtained by other researchers in spectral measurements. While they consider their method highly useful and accurate, the authors concede that, unlike optical methods, it does not yield information on the degree of equilibrium in the plasma. Orig. art. has: 9 formulas, 10 figures, and 2 tables. [ZL]

SUB CODE: 20/ SUBM DATE: 04Sep65/ ORIG REF: 009/ OTH REF: 007/ ATD PRESS: 5089

ml
Card 2/2

L 08052-67 EWT(1) IJP(c) GG

ACC NR: AP6031442

SOURCE CODE: UR/0056/66/051/002/0505/0516

60
55
8

AUTHOR: Aronov, A. G.; Pikus, G. Ye.

ORG: Institute of Semiconductors, Academy of Sciences SSSR (Institut poluprovodnikov Akademii nauk SSSR)

TITLE: Light absorption in semiconductors in crossed electric and magnetic fields

SOURCE: Zh eksper i teor fiz, v. 51, no. 2, 1966, 505-516

TOPIC TAGS: light absorption, absorption coefficient, electric field, crossed electric field, magnetic field, absorption edge, Franz Keldysh effect

ABSTRACT: The effect of an electric and magnetic field on the light-absorption coefficient in semiconductors is analyzed. It is shown that the Franz-Keldysh effect occurs in the magnetic field for $cE_0 / \hbar \omega > 1$, where $\omega = (e_0 / 2m)^{1/2}$, when the electron motion is infinite and the spectrum is constant; with increased magnetic-field strength, the absorption coefficient decreases more rapidly with decreasing frequency than for $H = 0$. The spectrum is discrete for $cE_0 / \hbar \omega < 1$, and with an increased electric field, the absorption edge shifts

Card 1/2

L 08052-67

ACC NR: AP6031442

towards the low frequencies, but the transition probability drops. The authors
thank A. I. Ansel'm, G. L. Bir, V. L. Gurevich, L. V. Keldysh, and B. D.
Laykhtman for their valuable advice during discussions. Orig. art. has: 68
formulas. [Based on authors' abstract]

SUB CODE: 20/ SUBM DATE: 04Feb66/ ORIG REF: 009/ OTH REF: 029/

Card 2/2 MC

ACC NR: AP6013124

SOURCE CODE: UR 0057/66.036 003 77 0691

AUTHOR: Dyuzhev, G. A.; Martsinovskiy, A. M.; Moyzhes, B. Ya.; Pikus, G. I.; Tsirkeľ', B. I.; Yur'yev, V. G.

ORG: none

TITLE: Plasma sounding in thermoemission converters with high pressure cesium vapors. I. Experimental methods and theory

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 4, 1966, 679-691

TOPIC TAGS: plasma arc, plasma probe, thermoelectric converter, cesium plasma

ABSTRACT: The equipment for the probing of an isothermal plasma and the experimental data processing are described for the case of a thermoemission converter with high-pressure cesium vapors and small interelectrode gaps. Movable molybdenum probes 0.2 mm in diameter and 7--8 mm long were used. A detailed description of the construction of the probes is given. The measurements were carried out at 1200 and 1900°K cathode temperatures and 10^{-1} --4.0 mm Hg cesium vapor pressures with the cathode and vapor temperature stability of $\pm 2^\circ$ and $\pm 0.5^\circ$, respectively. The theory of probes in a high-density plasma and the method of processing the probe characteristics are given. UDC: 533.9.07

Card 1/2

ACC NR: AP6013124

tics are analyzed. Formulas are derived on the concentration, carrier temperature, and the potential distribution in a thermoemission converter in which the plasma is generated by the arc. Orig. art. has: 2 figures and 46 formulas.

SUB CODE: 20 / SUBM DATE: 21Jun65 / OTH REF: 002 / ORIG REF: 015

Card 2/2

ACC NR: AP6013125

SOURCE CODE: UR/0057/66/036/004/002/0703

AUTHOR: Dyuzhev, G. A.; Martsinovskiy, A. M.; Moyzhes, B. Ya.; Pikus, G. Ye.; Yur'yev, V. G.

ORG: none

TITLE: Plasma sounding in thermoemission converters with high-pressure cesium vapors. II. Verification of the probe method. Certain experimental results obtained in the diffusion and arc modes

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 4, 1966, 692-703

TOPIC TAGS: plasma probe, plasma arc, plasma diffusion, thermoelectric converter, cesium plasma

ABSTRACT: This paper is a continuation of the theoretical work on the plasma probing which appeared in the same issue of ZhTF (pp. 679-691). The equipment and the data processing methods were checked experimentally using an isothermal plasma which was diffusion- or arc- generated in an interelectrode gap of a thermoemission converter with high-pressure cesium vapor. The experimental results show that in an isothermal plasma with known parameters, the probing method yields data on the electron concentration and the space potential when the length of the free path is smaller

Corr 1/2 UDC: 533.9.07

ACC NR: AP6013125

than the probe dimensions. In this connection, elevated values of electron temperature were obtained. The divergence is due to a large thermoelectron emission of the probe and a slow energy transfer between the fast and slow electrons. Measurements carried out in the diffusion mode are in agreement with theory presented elsewhere (Moyzhes, B. Ya., and G. Ye. Pikus, FTT, 2, 756, 1960). Measurements carried out in the arc mode indicate that the cesium plasma generated between the electrodes of a thermoemission converter differs greatly from a plasma in conventional gas-discharge equipment. The electron temperature is low, approximately 2500°K at all the test points of a v-a curve, and the ionization does not exceed 1%. The fact that a plasma in a thermoemission converter remains sufficiently cold can be used to achieve high-efficiency conversion of thermal to electrical energy. The experimental values of the electron temperature and concentration for the arc mode are essentially in agreement with those calculated and presented by Moyzhes et al. (ZhTF, 35, 1621, 1965). In general, the measurements in an isothermal plasma show that the experimental equipment and methods used have yielded satisfactory results and can be used in a study of nonisothermal plasma. The authors thank Yu. M. Kagan, V. I. Perel', and F. G. Bakshta for useful evaluation of results and for valuable advice. The authors thank Yu. M. Kagan, V. I. Perel', and F. G. Baksht for useful discussions and valuable advice. Orig. art. has: 12 figures and 1 table.

SUB CODE: 20 / SUBM DATE: 21Jun65 / ORIG REF: 009 / OTH REF: 007

Card 2/2

PIKUS, L.N.

Investigating the P12 steel. Metalloved. 1 term. obr.
met. no.11:29-30 N '65. (MIRA 18:12)

1. Khar'kovskiy traktornyy zavod.

LYUBOSHITS, I. L.; SLOBODKIN, L. S.; PIKUS, I. F.

"Application of oscillating conditions in drying and heating of thermally sensitive materials in a fluidized bed."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 1977, May 1978.

Inst of Heat & Mass Transfer, AS USSR.

UL'YANOV, V.A.; PIKUS, L.S.

Improving the quality of cast rapid steel. Metalloved. i term.
obr. met. no.11:41-42 N '63. (MIRA 16:11)

1. Ukrainskiy zaochnyy politekhnicheskii institut i Khar'kovskiy
traktornyy zavod.

PIKUS, Lyubov' Zinov'yevna; SLITSKAYA, I.M., inzh., red.; SHILLING,
V.A., red. izd-va; BELOGUROVA, I.A., tekhn. red.

[Easy to knockout, chemically hardening cores for the produc-
tion of large steel castings] Legkovybivaemye khimicheski
tverdeiushchie sterzhni dlia proizvodstva krupnogo stal'nogo
lit'ia. Leningrad, 1961. 16 p. (Leningradskii Dom nauchno-
tekhnicheskoi propagandy. Obmen peredovym opytom. Seria:
Liteinoe proizvodstvo, no.6) (MIRA 15:3)
(Coremaking)

PIKUS, Lyubov' Zinov'yevna; AVERBUKH, N.M., inzh., red.; FREGER, D.P.,
izd.red.; BELOGUROVA, I.A., tekhn.red.

[Chemically hardening mixtures for the production of large steel and iron castings; experience of the Neva Machinery Manufacturing Plant in Leningrad] Khimicheski tverdeiushchie smesi v proizvodstve krupnogo stal'nogo i chugunnogo lit'ia; opyt Nevskogo mashinostroitel'nogo zavoda im. Lenina. Leningrad, 1960. 17 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen poredovym opytom. Seriya: Liteinoe proizvodstvo, vyp. 6).

(MIRA 14:3)

(Leningrad--Sand, Foundry--Additives)

GORANSKIY, G.K.; PIKUS, M., redaktor; TRUKHANOVA, A., tekhnicheskiy redaktor.

[High production tools; cutters] Vysokoproizvoditel'nyi instrument;
restsy. Minsk, Gos. izd-vo BSSR, Red. nauchno-tekhn. lit-ry, 1954.
221 p. [Microfilm] (MIRA 8:2)
(Cutting tools)

GORANSKIY, G.K., kandidat tekhnicheskikh nauk; PIKUS, M., redaktor;
TRUKHANOVA, A., tekhnicheskiy redaktor.

[Profiling] Fasonnoe tochenie. Minsk, Gos.izd-vo BSSR, 1955.
283 p. (Metal cutting) (MIRA 9:1)

BLYUMBERG, I.B.; IVANOVA, V.G.; NEYMAN, A. Ye.; PIKUS, M. Ya.

Kinetics of fixing of photographic materials. Zhur. nauch. i prikl.
fot. i kin. 6 no.1:39-49 Ja-F '61. (MIRA 14:3)

1. Institut kinoinzhenerov, Leningrad (LIKI).
(Photography--Fixing)

S/081/61/000/022/054/076
B101/B147

AUTHORS: Blyumberg, I. B., Ivanova, V. G., Neyman, A. Ye., Pikus, M. Ya.

TITLE: Kinetics of the fixing process of photographic materials

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 22, 1961, 380-381, abstract 22L335 (Zh. nauchn. i prikl. fotogr. i kinematogr., v. 6, no. 1, 1961, 39 - 49)

TEXT: A survey is given of the factors influencing the rate of the chemical reactions and the diffusion. The swelling of the photographic layer in the fixing bath was measured. The dependence of the fixing rate on the increase of the diffusion rate (destruction of the boundary layer) and the chemical reaction rate (admixture of NH_4CNS or NH_4Cl to the fixing bath) was studied. It was found that the kinetics of the fixing of the photographic layer is of combined nature. With lower concentration of the solvent and greater thickness of the emulsion layer, the diffusive nature predominates. If thin layers with a low silver halide content are fixed in the fixing bath and with high concentrations of the

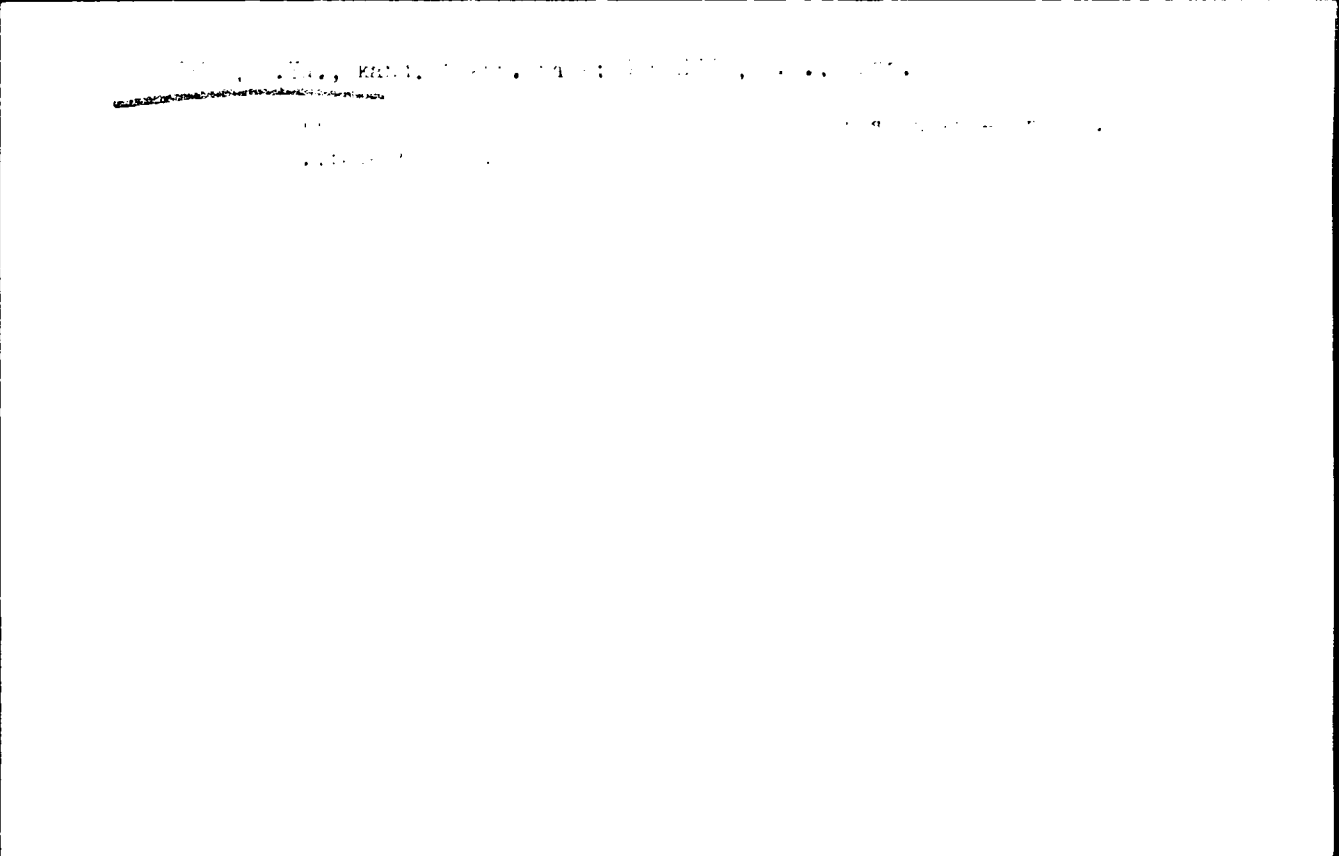
Card 1/2

PIKUS, M. Yu.; KHINKO, S.V.; GOROSHKO, V.F.

Investigating the nature of feed-value variations, pressure
and power consumption of the 8641 cutting machines. Sbor.trud.Inst.
mash.i avtom. AN BSSR no.1:95-108 '61 (MIRA 16:5)
(Cutting machines—Testing)

FUTRIKEVICH, L.F.; MIKUS, B.Yu., dots., red.; KURACHENKO, G.A.,
red.

[Manual for the preparation of course projects on machine tools; textbook for students of the departments of mechanical engineering specializing in "Technology of machine manufacture, machine tools and metal cutting tools"]; rukovodstvo po kursovomu proektirovaniu metallorazhushchikh stankov; metodicheskoe posobie dlia studentov mashinostroitel'nogo fakul'teta vuzov po spetsial'nosti "Tekhnologiya mashinostroeniia, stanki i instrumenty." Minsk, Izd-vo "Vysshiaia shkola," 1963. 56 p. (MIRA 17:7)



PIKUS, M. YU

5N/5
662.331
.P6

NAREZANIYE REZ'BY (THREADING) MINSK, GOS. IZD-VO BSSR, 1955.

145 P. DIAGRS., TABLES (BIBLIOTECHKA RABOCHEGO MASHINOSTROITEL'YA)

AT HEAD OF TITLE: VSESOYUZNOYE NAUCHNOYE INZHENERNO-TEKHNICHESKOYE
OBSHCHESTVO MASHINOSTROITELEY. BELORUSSKOYE OTDELENIYE.

BIBLIOGRAPHY: P. 143-144.

PIKUS, M. Yu.; GORANSKIY, G., redaktor; TRUKHANOVA, A., tekhnicheskiy re-
daktor

[Cutting screw threads] Narezanie rez'by. Minsk, Gos. izd-vo
BSSR, 1955. 145 p. (MLRA 9:2)
(Screw cutting)

PHASE I BOOK EXPLOITATION SOV/3662

Pikus, Meyer Yudelevich, Grigoriy Sofronovich Talako, and Mikhail Antonovich Shpakovskiy

Protyazhnyye avtomaty i poluavtomaty (Automatic and Semiautomatic Broaching Machines) Minsk, Gos. izd-vo BSSR, 1959. 213 p. Errata slip inserted. 3,000 copies printed.

Ed.: A. Molochkov; Tech. Ed.: N. Stepanova.

PURPOSE: This book is intended for technical personnel.

COVERAGE: The book deals with basic constructions of automatic and semiautomatic broaching machines manufactured in the Soviet Union. Detailed descriptions of the characteristics and technical specifications of types of general- and special-purpose machines are given. Hydraulic, electric, and manually operated auxiliary equipment is also described. The principal manufacturers of these machines are the Minskiy stankostroitel'nyy zavod imeni Kirova (Minsk Machine-Tool Plant imeni Kirov) the "Stankokonstruktsiya" Plant, and the Kolomenskiy zavod tyazhelogo stankostroyeniya (Kolomna Heavy Machine-Tool Plant). No personalities are men-

~~Card 1/8~~

Automatic and Semiautomatic (Cont.)

SOV/3662

tioned. There are 14 references, all Soviet.

TABLE OF CONTENTS:

Introduction	3
I. Basic Types of Broaching Machines	5
II. General-Purpose Broaching Machines	6
Model 7A510 horizontal broaching machine	6
Basic constructional and operational data	6
Description of the construction	7
Electrical equipment	12
Description of the electrical circuit	12
Instructions for operation and maintenance of the electrical equipment	15
Hydraulic actuation	15
Description of the hydraulic circuit	15
Lubrication of the machine	18
Setting up the machine	20

~~Card e/B~~

PIKUS, Meyer Yudelevich; TALAKO, Grigoriy Sofronovich; SHPAKOVSKIY,
Mikhail Antonovich; MOLOCHKOV, A., red.; STEPANOVA, N.,
tekh.red.

[Broaching machines] Protiazhnye avtomaty i poluavtomaty.
Minsk, Gos.izd-vo BSSR. Red.nauchno-tekhn.lit-ry, 1959.
213 p. (MIRA 13:1)

(Broaching machines)

FIG. 5. Meyer, I. N.; PETERINA, I. N., red.

Control of the forward motion speed of the working member in machine tools with a hydraulic drive; a lecture] Regulirovanie skorosti postupatel'nogo dvizheniia rabocheho organa v metallorezmushchikh stankakh s gidravlicheskim privodom; lektsiia. Minsk, Vysshaiia shkola, 1964. 38 p. (MIRA 18:8)

PHASE I BOOK EXPLOITATION

765

Pikus, Mikhail Yur'yevich, Candidate of Technical Sciences

Narezaniye zubchatykh kolez (Gear Cutting) Minsk, Gos. izd-vo BSSR, 1957.
179 p. (Series: Bibliotekha rabocheho mashinostroitelya) 5,000 copies printed.

Ed.: Goranskiy, R.; Tech. Eds.: Trukhanova, A. and Kalechits, G.

PURPOSE: The book is intended for operators of gear cutting machines.

COVERAGE: After a concise description of gear types and gear cutting processes, the author describes generating-type gear cutting machines: hobbing and shaping machines. He discusses setting, operation and maintenance of these machines. Gear inspection methods are covered briefly. There are 14 Soviet references.

TABLE OF CONTENTS:

I. Basic Information on Gears	3
Basic types of gears	3
Elements of gearing	3

Card 1/6

Gear Cutting	765
Spur gears	9
Parallel helical gears	13
Worm-gear transmission	15
Straight bevel gears	18
II. Gear Correction	20
III. Gear-cutting Processes	24
Milling process	24
Generating process	25
IV. Gear-hobbing Machines and Setting Them Up	29
Types of hobbing machines	29
Work principle of hobbing machines	30
Basic schemes of hobbing machines	31
Derivation of formulas for change gear ratios of hobbing machines	32
The sequence of operations in setting up hobbing machines	36
Technical characteristics of hobbing machines	46
Formulas for determining change gear ratios of hobbing machines	56

Card 2/6

Gear Cutting

765

Cutting regimes and lubricating coolants	60
Basic information on gear hobs	63
Model 5D32 semiautomatic hobbing machine	66
Spur gear cutting	74
Setting speed change gears	74
Setting feed change gears	77
Setting indexing change gears	80
Setting for the depth and height of milling and setting the stop-dog to switch off the automatic feed	87
Parallel helical gear cutting	89
Worm-gear cutting	90
Method with radical feed of hob	91
Method with axial feed of hob	99
Worm-gear cutting with a single-point flying cutting tool	100
Spur-gear cutting with a prime number of teeth	101
Tuning-up and lubricating gear hobbing machines	101
Some kinds of rejects in gear cutting and how to eliminate them	106

Card 3/6

Gear Cutting	765
V. Cutter-gear Generating Machines and Setting Them Up	109
The sequence of operations in setting gear shapers	113
Technical characteristics of gear shapers	122
Formulas for tuning-up gear shapers	126
Cutting regimes	127
Basic information on cutter-gears	128
VI. Model 526 Straight-level-gear Generating Machine	131
Operating principle of the machine	131
Technology of tooth cutting on the model 526 machine	133
Basic information on cutting tools	134
Description of the model 526 semiautomatic machine	135
Technical characteristic of the machine	135
The cutting speed mechanism	136
The control mechanism and setting feed-change gears and generating-change gears for contact arcs required to cut one tooth	138
Indexing mechanism and setting indexing change gears	144
Setting generating change gears	145
Card 4/6	

Gear Cutting	765
Mechanism for radial feed of the gear blank carriage	149
Sequence of operations in setting up model 526 straight-level gear generating machines	150
Adjustment of cutters	157
Setting the index plate of the indexing head for cone angle φ_i of the tooth space	159
Adjustment of the gear blank and the indexing head	160
Setting the travel of the cutting tool carrier	162
Splitting the machining allowance for tooth thickness between tooth sides in finishing	162
Some troubles of machine operation and their causes	163
Cutting regimes	164
VII. Inspection of Spur Gears	168
Master gear and dial-indicator method	168
Card 5/6	

Gear Cutting	765
Block-gaging method (measurement across profiles)	169
Pin and dial-indicator method	170
Appendixes	172
Literature Cited	178

AVAILABLE: Library of Congress

Card 6/6

GO/jmr
11-10-58

PIKUS
PIKUS, Mikhail Yur'yevich, kand.tekhn.nauk; GORANSKIY, G., red.; TRUKHANOVA, A.
tekhn.red.; MALECHITS, G., tekhn.red.

[Gear cutting] Narezanie subchatykh koles. Minsk, Gos. izd-vo BSSR,
1957. 179 p. (MIRA 11:2)
(Gear-cutting machines)

PIKUS, N. N.

Egypt - History

Form and content of the Papyrus Tebtunis 703, Uch. zap, Mosk, un, no. 143, 1951.

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

2

IL'YASHENKO, A.V., kand. med. nauk; PIKUS, T.P. [deceased]

Case of an extensive lesion of the small intestine in lympho-
granulomatosis simulating ovarian cyst. Khirurgiia 41 no.4:
132-133 Ap '65. (MIRA 18:5)

1. Ginekologicheskoye i khirurgicheskoye otdeleniya (Odesskoy
oblastnoy bol'nitsy (glavnyy vrach V.S. Ternovoy).

MATVEYEV, G.A., doktor tekhn.nauk, prof.; PIKUS, V.Yu., inzh.

Problem concerning the choice of the optimum temperature of feed
water. Teploenergetika 9 no.8:73-75 Ag '62. (MIRA 15:7)
(Feed-water) (Steam turbines)

MIROGOL'SKIY, V.I.; BERDMAN, M.Ye.; PIKUS, V.Yu.

Effect of the frequency and amplitude of flow pulsations on
critical heat fluxes. Inzh. fiz. zhur. 7 no.6:13-15, 1964.
MIRA 17 12

1. Energeticheskiy institut imeni G.M. Krzhizhanovskogo, Moskva.

PIKUS, Ya. G., izhonor.

Design and testing of electric propulsion devices on whalers. Sude-
stroenie 23 no. 5:31-35 My '57. (MIRA 10.6)
(Whalers) (Ship propulsion, Electric)

PIKUS, Ya.G., inzh.

Designing and testing electric propulsion plants on
whalers. Trudy NTO sud.prom. 8 no.5:95-112 '59.
(MIRA 13:7)

(Whalers) (Ship propulsion, Electric)

HIKIN, Va. 2., Doc. No. 101 -- (1) ~~pro-nylanta~~ *penals*
 of invalidity and extent ~~of~~ *work* ~~of~~ ~~XXXXX-OR-NO-10~~
~~for work~~ *fitness* after an ~~of~~ *return* ~~of~~ ~~XXXXXX~~
 Intestator: Charles V. ... (Min. F. ...)
 (K.S. Charles v. State ... (1971) ...)
 ... (1971, ...)

L 8813-66 EWT(1)/EWT(m)/ETC/ENG(m)/EWP(j) JW/RM

ACC NR: AP5022734

SOURCE CODE: UR/0101/65/007/009/2843/2844

AUTHOR: ^{44,55} Kitaygorodskiy, A. I.; ^{44,55} Koresnikov, B. D.; ^{44,55} Pikus, Ye. L.

45
B

ORG: ^{44,55} Institute of Hetero-Organic Compounds, Moscow (Institut elementoorganicheskikh sovedineniy)

TITLE: Characteristic temperature of molecular crystals

SOURCE: Fizika tverdogo tela, v. 7, no. 9, 1965, 2843-2844

TOPIC TAGS: molecular crystal, organic crystal, ^{21, VV, 55} thermodynamics

ABSTRACT: The characteristic temperature θ , defined as the mean geometric frequency of the normal mode, is calculated for a number of organic crystals. The results are given graphically. It is found that organic molecular crystals have low characteristic temperatures lying in the narrow range of 80-150°K. In most cases, the characteristic temperatures fall smoothly with temperature. The derivatives of θ with respect to T lie within an even narrower range than the values of θ . Consequently their Grüneisen constants γ are extremely close. Orig. art. has: 1 figure.

SUB CODE: 20/

SUBM DATE: 15Feb65/

ORIG REF: 009/

OTH REF: 011

BVK
Card 1/1

GNILORYBOV, I.V., kandidat meditsinskikh nauk; PIKUS, Z., kandidat meditsinskikh nauk; BAMDURISTYY, N.V., kandidat meditsinskikh nauk, OSTREYKO, V.Ye.

Expert medical determination of working capacity in osteoarticular tuberculosis. Ortop., travm. i protez. 17 no.3:36-41 My-Je '56.
(MLRA 9:12)

1. In Denpropetrovskogo filiala Tsentral'nogo nauchno-issledovatel'skogo instituta ekspertisy trudo sposobnosti i organizatsii truda invalidov (dir. - prof. A.P.Kotov)

(TUBERCULOSIS, OSTEOARTICULAR,
working capacity determ. (Rus))

(WORK,
capacity determ. in osteoarticular tuberc. (Rus))

KOBO ORTS, Kh. [Cobo Orts, J.]; PIKUS, Z.R.; POKHVALINA, I.M.;
TSIMMERMAN, M.G.; TURBIN, T.N., retsentsent; VOSKOBOYNIK, D.I.,
doktor tekhn.nauk, nauchnyy red.; PUICH-TORRES, Kh. [Puig Torres, J.],
inzh., red.; SOBOLEVA, N.M., tekhn.red.

[Concise Spanish-Russian and Russian-Spanish scientific and technical
dictionary] Kratkii ispansko-russkii i russko-ispanskii nauchno-
tekhnicheskii slovar'. Nauchn.red. D.I.Voskoboinik, Red.K.Puich-Torres.
Moskva, Akad.nauk SSSR, In-t nauchn.informatsii, 1960. 438 p.

(MIRA 13:10)

(Spanish language--Dictionaries--Russian)
(Russian language--Dictionaries--Spanish)
(Technology--Dictionaries)

Translation from: Referativnyy zhurnal, Geografiya, 1957, Nr 6,
p 79 (USSR) 14-57-6-12258

AUTHOR: Pikush, N. V.

TITLE: Construction of a Hydrometric Weir and a Nonsilting
Spillway With an Automating Water Level Recording
Mechanism (Ustroystvo gidrometricheskogo lotka i
nezallyayemogo vodosliva s obshchim samopistsem
urovnya)

PERIODICAL: Tr. Ukr. n.-i. gidrometeorol. in-ta, 1956, Nr 6,
pp 70-72

ABSTRACT: Bibliographic entry

Card 1/1

IRUSH, N. V.

"An Extraordinary Atmospheric Phenomenon,"

(Fiery streak observed at Moscow on Jan. 1977),

Priroda, No. 7, 1977.

PIKUSH, N. V.

"Method of Mixing for the Determination of the Discharges of Water," Meteorol. i gidrologiya, No 2, 1953, pp 35-38

The electrolytic method of measuring the discharge of water of small currents (up to tens of cubic meters per second) is based on the measurement of the electric conductivity of the electrolyte solution the cloud of which passes through a special system of electrodes. The system consists of a twin-core conductor with chlorvinyl insulation, a small part of which is exposed. The nonuniformity of depth of flow is compensated by the correspondingly nonuniform disposition of the exposures on the conduit which serve as electrodes. Measurement of electric conduction is done by usual methods. Preliminary calibration permits establishing the dependence between conductivity and water discharge (carried out by computational formula). The quantity of salt required for measurements amounts to 0.2 to 0.5 kilo-gram per m³/sec of water discharge. In the author's opinion, use of the indicated method obviates the necessity for creating a steady-state regime of mixing and of finding the direction of total mixing. In parallel measurements of 75 discharges of water by spillways and water vanes and by the electrolytic method it was established that for flows with mean speed greater than 5 meter per second the error did not exceed -8% for ordinary electrodes. Less accurate were the measurements on rivers with speeds of the order 0.05 to 0.10 m/sec. (RZhGeol, No 5, 1954)

SO: Sum. No. 568, 6 Jul 55

PIKUSH, N. V.

"The Runoff from Elementary Areas"

Izv. In-ta Gidrolologii i Gidrotekhniki AN USSR, 10, (17), 193-210, 1973

The author briefly describes the runoff areas (watershed area) of the Boruslavl hydrological station and the results of observations on the runoff from these areas. The majority of the article is taken up with tables of data on rain runoff and on runoff due to melted snow. The surface runoff from areas with large soil moisture is observed when precipitation is higher than 5 mm; for the case of dry soil is not observed even when the precipitation is 16 mm. Maximum daily runoff from melting snow does not exceed 6.6mm. (BZhGeol, No 3, 1974)

SO: W-31187, 8 Mar 55

PIKUSH, N.V.

Electrolytic method for determining discharges of water. Trudy
Ukr. NIGMI no.3:143-150 '55. (MIRA 9:10)

1. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy
institut. (Stream measurements)

PIKUSH. N.Y.

Evaporimeter with a liquid indicator. Trudy Ukr.NIGMI no.4:109-
111 '55. (MLRA 10:1)

(Atmometer)

PIKUSH, N.V.

Determining the capacity of small hydroelectric power stations
and computing water flow in them. Trudy Ukr. NIGMI no.6:77-47
'56.

(MLRA 10:5)

(Hydroelectric power stations)

PIKUSH, N.V.

Construction of a water measurement trough and a nonsilting
spillway with a common self-recorder of the level. Trudy Ukr.
NIGMI no.6:70-72 '56. (MLRA 10:5)
(Stream measurements)

PIKUSH, N.V.

Measuring flow rate on the basis of discharge of the fluid from
a container. Trudy Ukr.NIGMI no.6:73-77 '56. (MLRA 10:5)
(Stream measurements)

PIKUSH, N.V.

Computing the inflow and outflow volumes and the water surface
area of reservoirs on the basis of the intensity of level
fluctuations. Trudy Ukr.NIGMI no.6:78-81 '56. (MLRA 10:5)
(Reservoirs)

PIKUSH, N.V.

Calculating flow at hydroelectric power stations. Meteor. i gidrol.
no. 9:41-42 S '56. (MLRA 9:11)
(Stream measurements)

AUTHORS: PIKUSH, N. V.
Lebedeva, N. V.; Mishutin, D. A.; Pikush, N. V.

TITLE: The Disastrous Cloudburst in Nikolayev (Katastroficheskiy liven' v Nikolayeve)

PERIODICAL: Meteorologiya i Gidrologiya, 1957, Nr 1, pp 37-41 (U.S.S.R.)

ABSTRACT: The force and effects of a terrific cloudburst (with lightning and hail) which occurred on June 30, 1955, in Nikolayev and its surroundings during which time from 165.0 to 195.0 mm of water were deposited, are described. Table 1 shows the amounts of precipitation deposited in various points of the region affected. The dynamics of the storm according to pluviograph recordings are analyzed. Many homes were flooded, many damaged, and some completely destroyed. The asphalt sidewalks on many streets were demolished, stone bridges were washed away and trolley car lines damaged. The water depth in some places reached up to 1 - 1.5 meters, the depositions in some streets were 0.5 - 0.7 m. Railroad causeways were washed out in many places and the crops suffered immensely. Large numbers of wild life (rabbits, birds) were killed. It was the first case in 150 years of meteorological observations that the Nikolayev region has seen such a cataclysm. Chart in Fig. 1 shows the distribution of precipitation in the Nikolayev region on 6/30/1955. Fig. 2 shows the weather chart at 2100 hrs. on that memorable day.

Card 1/2

~~RIKHTER, G. E.~~ PIKUSH, N V

MISHUPIN, D.A., kandidat geograficheskikh nauk; PIKUSH, N.V., kandidat
tehnicheskikh nauk.

Unusual shower. Priroda 46 no.6:125 Je '57. (MLHA 10 7)

1. Ukrainskiy nauchno-issledovatel'skiy gidrometinstitut (Kiyev)
(Nikolayev--Rain and rainfall)

PIKUSH, N.V.

Measuring water discharges with a tachymeter. Trudy
UkrNIIGMI no.50:93-103 '65.

(MIRA 19:11)

PIKUSH, N.V.

Measuring the mean velocity of a watercourse by the
electrolytic method. Trudy UkrNIGMI no.50:104-107 '65.
(MIRA 18:11)

PIKUSH, N.V.

A precipitation gauge and precipitation self-recorder with a liquid shield. Trudy GGO no.175:164-166 '65. (MIRA 18:8)

1. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskij institut.

KONSTANTINOV, A.R.; KISILENKO, A.A.; PIKUSH, N.V.; MIRMOVICH, L.A.;
BELOUSOV, V.V.; VITKOVSKIY, B.I.

Experimental study of methods of measuring liquid precipitation.
Trudy UkrNIGMI no.41:163-185 '64. (MIRA 18:1)

PIKUSH, N.V., kand. tekhn. nauk

Outflow method and the tachymeter for measuring water current
velocity. Meteor. i gidrol. no.3:46-48 Mr '65.

(MIRA 18:2)

1. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy
institut.

PIKUSH, N.V.

A swinging water gauge and bathometer. Trudy UkrNIGMI no. 32:58-60 '62.
(MIRA 15:7)

(Flow meters)

PIKUSH, N.V.

A water flow meter. Tipy UkrNIGMI no.34:61-67 '62.
(Flow meters)

(MIRA 15:7)

PUSHEK, B.S., kand. geogr. nauk; POPOV, I.V., kand. geogr. nauk; OBRAZTSOV, I.N., inzh.; FEDOROV, N.N., kand. tekhn. nauk; GRUSHEVSKIY, M.S., kand. tekhn. nauk; KRIVOSHEY, B.Z., inzh.; POPOV, O.V., star. nauchnyy sotr.; PIKUSH, N.V., kand. tekhn. nauk; LEVIN, A.G., kand. tekhn. nauk; ZHIDIKOV, A.P., inzh.; GAVRILOV, A.M., kand. geogr. nauk; KONDRAT'YEV, N.Ye., kand. tekhn. nauk, red.; URYVAYEV, V.A., kand. tekhn. nauk, red.; SHATILINA, M.K., red.; SOLOVEYCHIK, A.A., tekhn. red.

[Investigation of unsteady flow of water in the Tvertsa and Oredez River] Issledovaniia neustanovivshegosia dvizheniia vody na rekakh Tvertse i Oredez. Pod red. N.E. Kondrat'eva i V.A. Uryvaeva. Leningrad, Gidrometeor. izd-vo, 1961. 287 p. 6 charts (in pocket) (MIRA 14:8)

1. Leningrad. Gosudarstvennyy gidrologicheskiy institut. (Tvertsa River—Hydrology) (Oredez River—Hydrology)

PIKUSH, N.V.

Formation of rain-water runoff in minor basins and possible
methods for its calculation. Trudy UkrNIGMI no.19:66-84
159. (MIRA 13:4)

(Runoff)

PIKUSH, N.V.

Possibility of determining the flow rate of underground waters
by the intensity of water exchange in a bore hole. Trudy
UkrNIGMI no.19:149-150 '59. (MIRA 13:4)
(Water, Underground)

PIKUSH, N.V.

Profile of complete mixing and deformation of the solution cloud
in the flow. Trudy UkrNIGMI no.15:56-60 '58. (MIRA 12:7)
(Hydrodynamics)

7105H, N.V.

PIKUSH, N.V.

Generalizing the experience in determining water discharge by the electrolytic method. Trudy Ukr. NIGMI no.9:79-87 '57. (MIRA 11:1)
(Stream measurements)

PIKUSH, N.V.

USER/Miscellaneous - Apiculture

Card 1/1 Pub. 86 - 39/40

Authors : Pikush, N. V.

Title : Round frame-like beehive

Periodical : Priroda 3, 126-127, Mar 1954

Abstract : The construction of a new form beehive (round frame-like), is reported. The dimensions and internal lay-out of the beehives, are described. Drawing; illustration.

Institution :

Submitted :

FIKUSH, M.V.

Using dry salt for detection of the presence of water by the mixing
method. (MLRA 10:8)

PIKUSHCHAK, L.K.

Technique for capillarography. Vrach.delo no.8:135-136 Ag '62.
(MIRA 15:11)

1. Kafedra propedevtiki vnutrennikh bolezney Omskogo meditsinskogo
instituta. Nauchnyy rukovoditel' raboty - V.P.Putalova.
(CAPILLARIES)

ACC NR: ~~AP5025260~~
 AP7002457

(A)

SOURCE CODE: UR/0113/64/000/006/0007/0010

AUTHOR: Livanov, A. P.; Pikushov, A. N.

ORG: Kavkaz Branch, Central Scientific Research Institute of Mechanization and Power Engineering for Forest Industry (Tsentral'nyy nauchno-issledovatel'skiy institut mekhanizatsii i energetiki lesnoy promyshlennosti (Kavkazskiy filial))

TITLE: Exhaust braking in four-cycle diesel vehicles

SOURCE: Avtomobil'naya promyshlennost', no. 6, 1964, 7-10

TOPIC TAGS: brakes, vehicle ^{power transmission} ~~transmission~~ system, ~~motor vehicle~~ ^{special purpose truck,} diesel engine, internal combustion engine component / Tatra-111R truck

ABSTRACT: To increase the effectiveness of deceleration of heavy four-cycle diesel trucks intended for travel on mountain roads, the exhaust braking system is investigated. In this system, the motor exhaust is covered whenever braking action is desired. The increased pressure in the cylinders and the exhaust system (the fuel is not supplied to the motor at this time) increases the braking action. The effectiveness of this system was tested at the Kavkaz Branch of TsNIIME (Kavkazskiy filial TsNIIME) in 1961 and 1962 on the Tatra-111R 10 ton, V-12 cylinder, four-cycle diesel truck. Its maximum power is 180 hp at 1800 rpm. The test results of deceleration with and without the use of exhaust braking system are tabulated. The effectiveness of the exhaust braking system is such that the deceleration effect is approximately equivalent to shifting down by one gear. Orig. art. has: 7 formulas, 1 table, and 6 figures.

SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 003

Card 1/1

UDC: 621.43.06:62-59