

OVCHARENKO, I. Kh., inzh.

Calculation of an unflooded spillway with lateral pressure. Izv. vys.
ucheb. zav.; energ. no. 9:104-111 S '58. (MIRA 11:11)

1. Dovochoerkasskiy inzhenerno-meliorativnyy institut.
(Hydraulic engineering)

11.

66174
SOV/143-59-9-18/22

24(8) 10.2000
AUTHOR:

Ovcharenko, I.Kh., Engineer

TITLE:

The Problem of Calculating High-Speed Flows of Rectangular Cross-Section

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy, Energetika, 1959, Nr 9, pp 114-121 (USSR)

ABSTRACT:

The basic differential equation for a steady-state irregular motion may be written in the following form (according to M.D. Chertousov (Ref.10)): $- dz = dh_v + dh_f$ (1)

where dz = change of the coordinates of the free surface of the flow in an elementary section ds ; dh_v = magnitude of pressure, used for creating a velocity in the section ds ; dh_f = friction losses. The integration of this equation was performed by many hydraulics experts in the USSR and abroad. The works of Soviet scientists are mentioned in this connection: B.A. Bakhmetev (Ref. 2), N.N. Pavlovskiy (Ref.9), I.I. Agroskin (Ref.1), M.D. Chertousov (Ref.10), M.M. Skiba (Ref.7) and others. The basic equation of an irregular motion and its integrals were established for the

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The Problem of Calculating High-Speed Flows of Rectangular Cross-Section

case of slowly changing motions, or the absence of centrifugal forces. In actual practice, there are frequently cases, where a flow, passing thru some structure, is deformed to such an extent that the model of a slowly changing motion may no longer be used. Centrifugal forces will appear, which are expressed in the aforementioned equation by dh_i , thus $-dz = dh_v + dh_f + dh_i$. (2)

The presence of the magn^{itude} dh_i complicates the integration of the equation to a considerable extent. There are attempts in solving this problem theoretically, for example G.I. Sukhomel (Ref.8), however, no results for practical use have been obtained. Taking into consideration the difficulty of solving this problem by theoretical methods, the author attempted to solve experimentally the case of a high-speed flow in a rectangular cross-section. These investigations dealt with: a) the determination of the degree of flow deformations in the cross-section of the model, depending on the compression of the flow upon entering; b) studies of generally known integrals of the equation (1) concerning their use in calculations of deformed flows; c) determination of empiric depend-

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The Problem of Calculating High-Speed Flows of Rectangular Cross-Section

cies for calculating the depths in the cross-section. The investigations were performed at the Novocherkassk Institute of Melioration Engineering during 1957 and 1958 under the guidance of Candidate of Technical Sciences, Docent M.M. Skiba. A model of a high-speed flow was built especially for these investigations. Its plan is shown in fig.4. The dimensions of the model are listed. According to the method of Professor A.P. Berezinskiy (Ref.3), only one half of the flow was investigated. The results of these investigations were compiled in seven sets of graphs. Deviations of theoretical values from experimental data are given in percentages. Using formulas of M.M. Skiba, I.I. Agroskin and Bussinska-Bakhtev, the author derives a calculation method for the curves of a free surface in high-speed flows of rectangular profile. Experimental data of A.P. Segzhda (Ref.5) are mentioned in this connection. This paper was presented by the Kafedra gidravliki (Chair of Hydraulics). There are 2 diagrams, 7 sets of graphs, 2 tables and 10 Soviet references. ✓

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OVCHARENKO, I.Kh.

Stationary waves in chute spillways. Trudy NPI 106:105-109
'60. (MIRA 15:5)

(Spillways)

OVCHARENKO, I. Kn., Cand. Techn. Sci. (diss) "Investigation and Hydraulic Computation of "vystrotokov" of right-angle Section," Kiev, 1961, 31 pp. (Kiev Automobile-Road Inst.) 180 copies (KL Supp 1-61, 271).

OVCHARENKO, I.Kh., inzh.

Calculating chutes with rectangular cross sections. Izv.vys.
ucheb.sav.; energ. 2 no.9:114-121 S '59.
(MIRA 13:2)

1. Novocherkasskiy inzhenerno-meliorativnyy institut. Predstavlena
kafedroy gidravliki.
(Hydraulic engineering)

SOV/14c-58-16/18

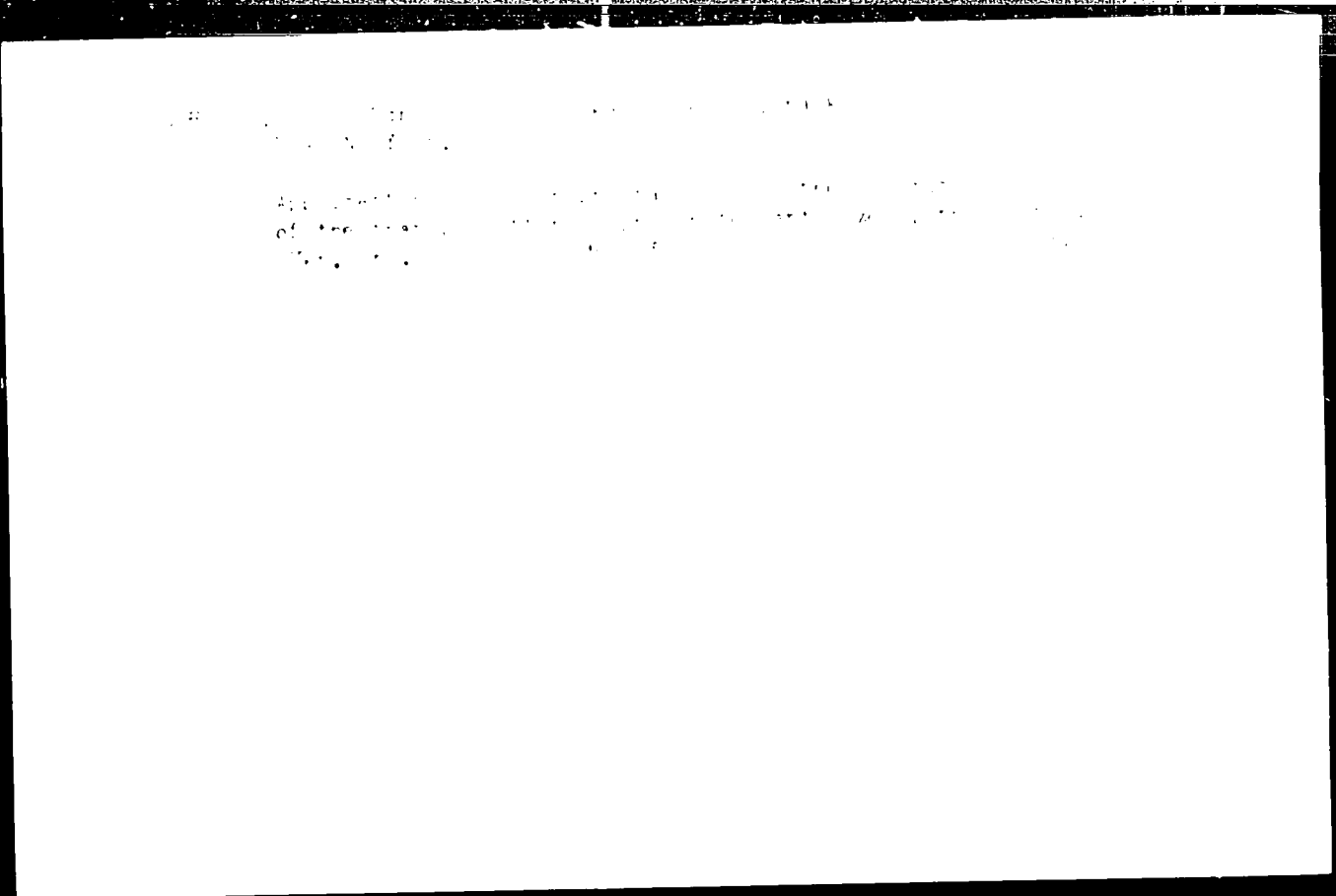
AUTHOR: Ovcharenko, I.Kh., Engineer

TITLE: On Computing a Non-Flooded Spillway with a Lateral Compression (K voprosu o raschete nezatoplennogo vodosliva s bokovym szhatiyem)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Energetika, 1958, Nr 3, pp 104-111 (USSR)

ABSTRACT: There are a number of works on this problem, all of which however, make further tests necessary. The author feels that the throughput capacity of a spillway is influenced by the following factors: a) The degree of lateral compression; b) The proportional width of the spillway; c) The slope factor of the supply channel. Tests were made in the hydraulic laboratory of the Novorocnerkassk Amelioration Engineering Institute in 1957 under the direction of N.M.Skiba. The tests and calculations show that the capacity of a spillway depends not only on the form of the supply channel, but also on the slope factor of the channel

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OVCHARENKO, I.Ye.; TUNITSKIY, L.N.; YAKUTIN, V.I.

Vibration constants and dissociation energy of the BeCl molecule.
Opt. i spektr. 8 no.6:746-751 Je '60. (MIRA 13:8)
(Silicon chloride--Spectra)

OVCHARENKO, I.Ye.

Multiply superharmonic functions. Us.mat.nauk 16 no.3:197-200
My-Je '61. (MIRA 14:8)
(Harmonic functions)

OVCHARENKO, I.Ye.; KUZYAKOV, Yu.Ya.

Bands of the SiCl molecule in the region 3220-2735 Å. Opt.1
spektr. 13 no.5:635-641 N '62. (MIRA 15:12)
(Silicon chloride--Spectra)

OVCHARENKO, I.Ye.

Use of the method of direction functionals in the theory of
precommuting operators. Dokl. AN SSSR 154 no.5:1038-1041 F'64.
(MIRA 17:2)

1. Odesskiy inzhenerno-stroitel'nyy institut. Predstavleno
akademikom L.S. Pontryaginym.

OVCHARENKO, I. Ye.

Continuation of hermitian-positive functions . Dokl. AN Arm. SSR
38 no. 5: 257-261 '64. (MIRA 17:6)

1. Odesskiy inzhenerno-stroitel'nyy institut. Predstavleno akademikom
AN Armyanskoy SSR M. M. Dzhrbasnyanom.

LEVIN, P. Ya., (P. HARENK), I. Ya.

Description of the construction of Hermitian polynomials.
Dokl. AN SSSR 149 no. 2 (1974) p. 161. (1974)

1. Khar'kovskiy gosudarstvennyy universitet imeni V. I. Vernadskogo
i Odeskyye universitet - str. Stal'nyy instytut. Institut matematicheskoy
fiziki im. P. M. Pecherzheva.

S/051/62/013/005/003/017
E202/E192

AUTHORS: Ovcharenko, I.Ye., and Kuzyakov, Yu.Ya.

TITLE: The bands of the SiCl molecule in the region of
3220 - 2735 Å

PERIODICAL: Optika i spektroskopiya, v.13, no.5, 1962, 635-641

TEXT: Using detailed experimental data from the zero lines and Deslandres' tables, the authors determined vibrational constants ω_e ; $\omega_e x_e$ for the $B^2\Sigma$; $X^2\Pi^{3/2}$ and $X^2\Pi^{1/2}$ states of the $Si^{28}Cl^{35}$ and $Si^{28}Cl^{37}$ molecules, in order to interpret further the bands of the B - X system in the region 2830-2770 Å, and to find in particular reliable vibrational constants for the $B^2\Sigma$ excited state. The SiCl₄ vapour discharge tube used was of the type used by H. Schuler (Spectrochim. Acta, v.4, 1950, 63). Various types of discharges in the SiCl₄ were tried to embrace the various SiCl bands. Low current density glow discharge was used to isolate the hitherto not described low intensity bands, e.g. an extensive Deslandres series with $v' = 2$, and a large number of bands in the isotopic molecule. A special high current density,
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The bands of the SiCl molecule in ...

S/051/62/013/005/003/017
E202/E192

impulse discharge tube with a central constriction, previously described (I.Ye. Ovcharenko, I.N. Tunitskiy, V.I. Yakutin, Optika i spektr. 8, 1960, 746), was used in exciting high vibrational levels to observe the bands with $v'' = 8$ and $v' = 4,5$ - also hitherto unobserved. In all, 16 new bands of the B - X system of the $\text{Si}^{28}\text{Cl}^{35}$, and 21 bands of the isotopic molecules, were identified and tabulated, reducing the wavelength in air to wave-numbers in vacuum by means of the Kayser tables. The extensive transverse $v' = 2$ series and the bands (3,1), (4,1) and (5,2) yielded much higher accuracy in the determination of the vibrational constant of the upper excited state $B^2\Sigma$ and also served as a cross-check.

There are 2 tables.

SUBMITTED: September 14, 1961

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5034
S/051/60/006/06/002/024
E201/E691

5.4130
AUTHORS:

Ovcharenko, I.Ye., Tunitskiy, L.N. and Yakutin, V.I.

TITLE:

Analysis of the Fine Structure of the SiCl Molecular Bands

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 6, pp 746-751 (USSR)

ABSTRACT:

Four electron states ($X^2\Pi$, $B^2\Sigma$, $C^2\Delta$ and $D^2\Sigma$) of the SiCl molecule are known (Refs 1-4). The vibrational constants of these four states were reported by Jevons (Ref 4) and are listed in Table 1; the constants with question marks were considered unreliable by Jevons. The present paper reports new values of the rotational constants of the $B^2\Sigma$, $X^2\Pi_{3/2}$, $X^2\Pi_{1/2}$ states, derived from the rotational analysis of the (1, 0), (0, 0) and (0, 1) bands of the $B^2\Sigma \rightarrow X^2\Pi$ transition. The spectra of SiCl were excited in a quartz pulse-discharge tube, similar to one used earlier (Ref 5) and shown schematically in a figure on p 746. The tube was filled with a mixture of silicon tetrachloride and helium. The spectra were photographed with a DFE-3 spectrograph in the third order (dispersion of 0.57 Å/mm, resolving power of 432 000), and measured with a IZA-2 comparator (an iron arc spectrum was used as the wavelength standard, cf. Table 2).

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OVCHARENKO, L. I.
AID Nr. 993-9 19 June

ENERGY AND DENSITY OF IONS IN AN ELECTROMAGNETIC TRAP (USSR)

Lavrent'yev, O. O., L. I. Ovcharenko, B. G. Safronov, V. O. Sidorkin, and
B. A. Nemashkalo. *Ukrayins'kyi fizichnyi zhurnal*, v. 8, no. 4, Apr 1963,
452-459. S/185/63/008/004/006/015

The conditions for the confinement of low-density plasma in an electromagnetic trap have been investigated. The density and lifetime of electrons, the density and energy of ions, and the magnitude of the potential well were measured. The density of electrons in the trap at the moment of space-charge formation was determined by the injection current of electrons. The density of electrons after termination of the injection was determined from the electron emission occurring while the electrostatic trap was open, and the mean energy of the emerging ions, by the retarded-potential method. The energy of the potential well was determined by the passage time of krypton ions through the inner region of the trap. The actual ion energy is the sum

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AID Nr. 993-9 19 June

ENERGY AND DENSITY OF IONS [Cont'd]

8/185/63/008/004/006/015

of the mean energy of the ions and the energy of the potential well. The ionic density was determined by the total number of ions emerging from all magnetic gaps and was of the order of $10^{10}/\text{cm}^3$. The results of the analysis are shown in graphs of the following: electron injection current versus time, electron density in the trap versus magnetic-field intensity, ion density versus injection-pulse duration, ion density versus magnetic field intensity, and mean energy of ions emerging from the trap versus 1) the energy of electrons and 2) the energy distribution of ions emerging from the trap. [JA]

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ACCESSION NR: AT4025313

S/0000/63/000/000/0233/0236

AUTHORS: Lavrent'yev, O. A.; Nemashkalo, B. A.; Ovcharenko, L. I.;
Safronov, B. G.; Sidorkin, V. A.

TITLE: Measurement of potential well in a plasma by means of the
time of flight of charged particles

SOURCE: Diagnostika plazmy* (Plasma diagnostics); sb. statey.
Moscow, Gosatomizdat, 1963, 233-236

TOPIC TAGS: plasma research, ionized plasma, plasma source, plasma
injection, plasma confinement

ABSTRACT: A method is proposed for measuring the potential of a
plasma during the time of flight of a beam of charged particles
through the plasma. In the case of a dense plasma, when the Debye-
screening radius is small and the electric fields in the plasma are
concentrated in a narrow boundary layer, methods using beams of

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ACCESSION NR: AT4025313

charge particles entail experimental difficulties. The operation of the experimental setup is such that after the injection pulse is completed, the potential of the grid of the plasma gun becomes lower than the cathode potential, and the electrons are locked in a trap. The plasma is produced as a result of ionization of the residual gas by the electrons. The potential well is measured by passing a modulated beam of krypton ions through the plasma. The time dependence of the plasma potential is determined from oscillograms which show the phase shift of the ions in the beam. Orig. art. has: 4 figures and 6 formulas.

ASSOCIATION: None

SUBMITTED: 19Oct63

DATE ACQ: 16Apr64

ENCL: 02

SUB CODE: ME > .

NR REF SOV: 001

OTHER: 001

Card 2/4

ACC NR: A7008906

SOURCE CODE: UR/0185/66/011/009/0982/0989

AUTHOR: Lavrent'yev, O. A.; Ovcharenko, L. I.; Safronov, B. H.; Sydorin, V. O.
ORG: Physics-Engineering Institute, Ukrainian Academy of Sciences, Kharkov

(Fiziko-tekhnichnyy instytut AN UkrSSR)

TITLE: Electron injection into an electromagnetic trap

SOURCE: Kravinskyy fizychnyy zhurnal, v. 11, no. 9, 1966, 982-989

DESCRIPTORS: electron beam, electron capture

DTIC: 33

ABSTRACT: The authors investigate the conditions of 1-MeV-density electron beam capture in an electromagnetic trap. The position and dimensions of the cathode are determined so as to secure the most effective injection of electrons. The life of the electrons in the trap is measured and compared for the cases of magnetic and electrostatic confinement of the plasma electrons. The main neutral atom ionization cross-sections and loss by the electron is determined. The coefficient of neutral atom diffusion of the electrons as a result of collision with neutral atoms is measured. It is shown that with a magnetic field strength exceeding a certain critical value the escape of electrons from the trap is conditioned by diffusion processes only. Orig. art. has:

13 figures, 17 formulas and 1 table. [SP8: 38,417]

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ACC NR: AT6008846

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where σ_{10} is the charge exchange cross section; n_0 is the density of the residual gas; R is the radius of the region occupied by the plasma. This relationship may be used to establish the energy distribution of the stream of ions circulating in the trap from the distribution of neutral ions. By narrowing the time interval for registration of the recharged particles, the variation in the intensity of a stream of ionized atoms of a given energy may be plotted as a function of time, which means that the same may be done for the intensity of ions of a given energy in the trap. It is shown that there is a hot plasma with an average ion energy of the order of 400 ev in an electromagnetic trap when the injected electrons have an energy of the order of 2 kev. The decay time after the injection pulse is 50-80 μ sec which agrees with the previously measured lifetime for hot electrons in this trap. A comparison of the lifetimes for ions with various energies shows large losses of low energy ions. This is apparently due to an increase in the cross section of resonance charge exchange for hydrogen ions at low energies. Orig. art. has: 3 figures.

SUB CODE: 20/

SUBM DATE: 20Oct65/

ORIG REF: 003/

OTH REF: 000

Card 2/24a

VIACHESLAVSEIY, V. VCHARENKO, M.; STARODUBOVA, A.

Requirements of the Soviet Union for the development of the
transportation system in the USSR.

1. Partiynoye komsobrazovaniye avtomobilya.
(Party organization of the automobile)

DOROGUNTSEV, V.G., kand.tekhn.nauk (Moskva); OVCHARENKO, N.I., kand.tekh.
nauk (Moskva)

Certain problems concerning the construction of a power directional
relay based on the Hall effect. Elektrichestvo no.9:57-63 S
'61. (MIRA 14:9)

(Electric relays)

DORONIN, V.M., inzh.; Prinsipalni uchastiye: OYCHARENKO, M.I., tekhnik;
YEVYKSEVA, A.M., tekhnik

Heat treatment and the mechanical properties of 1Kh12N2VMF steel.
Stal' 23 no.2:162-166 F '63. (MIRA 16:2)
(Chromium-nickel steel--Heat treatment)

OVCHARENKO, M.N., otv. za vypusk; YARENCHUK, A.V. [Iaremchuk, A.V.], tekhn.red.

[Economy of Lvov Province; a statistical manual] Zarodne hospodarstvo
L'viva'koi oblasti; statystychnyi sbirnyk. L'viv, Derzhstatvydav,
1958. 338 p. (MIRA 12:3)

1. Lvov (Province) Statystychno upravlinnia.
(Lvov Province--Economic conditions)

OVCHARENKO, M. V., (Veterinary Surgeon, North-Baikal Raion, Buryat SSR)

Echinovocillin in necrobacillosis of reindeer

Veterinariya vol. 38, no. 10, October 1961, pp. 81-80.

OVCHARENKO, N., insh.

Electronics in the service of industrial hygiene. Okhr.
truda i sots.strakh. 3 no.6:57-58 Je '60.

(MIRA 13:7)

(Electronic measurement)

OVCHARENKO, M., inzh.

Electronic apparatus stands on guard. Ochr.truda i sots.
strakh. no.12:62-63 D '59. (MIRA 13:4)
(Electronic apparatus and appliances) (Industrial hygiene)

OVCHARENKO, N. insh.

Electronic safety devices. Okhr.truda i sots.strakh. no.7:
68-69 J1 '59. (MIRA 12:11)
(Industrial safety)

PETROV, Ye.; OVCHARENKO, N.

Role of industrial television in industrial hygiene. Ochr.
truda i sote.strakh. no.5:83-84 N '58. (MIRA 12:1)
(Industrial television) (Industrial hygiene)

PETROV, Ye.; OVCHARENKO, N.

Automatic control of electric lights. Ochr.truda i sots.strakh.
no.5:84-86 N '58. (MIRA 12:1)
(Electric lighting)

OVCHARENKO, N., insh.

Burner for singeing pig carcasses and heads. Mias. ind. SSSR
29 no.1:45 '58. (MIRA 11:3)

1. Rostovskiy-na-Donu myasokombinat.
(Packing houses--Equipment and supplies)

ОУЧАРЕНКО: №

OVCHARENKO, N.; TKACHENKO, G.

Improvement for horizontal vacuum pans. *Mias. ind. SSSR* 28 no. 5:29-31 '57.
(MIRA 11:1)

1. Rostovskiy-na-Doni myasokombinat.
(Drying apparatus) (Meat industry--Equipment and supplies)

OVCHARENKO, N.I., kand. tekhn. nauk

Special features of symmetric current components of double contacts to ground. Izv. vys. ucheb. zav.; energ. 2 no.2:52-62 F '59. (MIRA 12:7)

1. Moskovskiy ordena Lenina energeticheskiy institut.
Predstavlena kafedroy rel'eynoy zashchity i avtomatizatsii energosistem.
(Electric currents--Grounding)

OVCHARENKO, N., inzh.

Electronics aids safety. Okhr.truda i sots.strakh. 3
no.4:68 Ap '60. (MIRA 13:6)
(Electronic apparatus and appliances)

OVCHARENKO, N.A.

Fulfillment of socialist obligations to aid agriculture in honor
of the 22d Congress of the CPSU. Izvest. 1 okh. nedr 27 no. 2
59-60 Ag '61. (MIRA 1961)

1. Ukrainskiy respublikanskiy komitet professional'nogo soyuz
rabochikh geologorazvedochnykh rabot
(Shirokoye District (Dnepropetrovsk province)--Agriculture.
engineer of

OVCHASIN, M. I.

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OVCHARENKO, N. I., kand.tekhn.nauk

Filtering devices using semiconductors for relay protection installations. Izv.vys.ucheb.zav.; energ. 3 no.6:21-27 '60. (MIRA 13:6)

1. Moskovskiy ordena Lenina energeticheskii institut. Predstavlena kafedroy releyroy zashchity i avtomatizatsii energeticheskikh sistem.)
(Electric lines) (Electric protection)

PETROV, Ye.A., inzh.; OVCHARENKO, N.I.

Photoelectric automatic control of lighting. Prom.energ. 12
no.8:24-27 Ag '57. (MIRA 10:10)
(Photoelectric cells)
(Electric lighting)

1
PETROV, Ye.A., inzh.; OVCHARENKO, N.I., inzh.

Devices for checking the condition of the grounding conductor of
electric instruments. Energetik 6 no.3:31-32 Mr '58. (MIRA 11:2)
(Electric instruments)

HUDKIN, V.V., inzh.; DOROGUNTSEV, V.G., kand.tekhn.nauk;
OVCHARENKO, N.I., kand.tekhn.nauk

Direktional power relay based on galvanomagnetic effects. Izv.
vys.ucheb.zav.; energ. 5 no.11:24-29 N '62. (MIRA 15:12)

1. Moskovskiy ordena Lenina energeticheskiy institut. Predstavlena
kafedroy releynoy zashchity i avtomatizatsii energosistem.
(Electric relay)

OVCARENKO, N.I., kand.tekhn.nauk

Use of the Hall effect in electric power engineering. *Atom. energ.*
18 no.7:28-35 J1 '63. (MIRA 16:9)
(Hall effect) (Electric measurements)

OVCHARENKO, N.I.

D.c. voltage galvanomagnetic amplifier. Prib. i tekhn. eksp. 7
no.3:107-109 My-Je '62. (MIRA lc:7)

1. Moskovskiy energeticheskiy institut.
(Magnetic amplifiers)

VOSTROKNUTOV, Nikolay Nikolayevich; DOROGUNTSEV, Viktor Gavrilovich;
MARANCHAK, Vadiliy Makarovich; OVCHARENKO, Nikolay Il'ich;
SIROTINSKIY, Yevgeniy Leonidovich; FABRIKANT, Veniamin
L'vovich; IVANOV, V.I., prof., retsentsent; GIZIL, Ye.P.,
~~dots., retsentsent~~; SIROTKO, V.K., kand. tekhn. nauk, retsen-
zent; SOLOV'YEV, I.I., prof., red.; FEDOSEYEV, A.M., prof.,
red.; OVSYANNIKOVA, Z.G., red.; GOROKHOVA, S.S., tekhn.red.

[Use of transistors in relay protection and system automa-
tion]Primenenie poluprovodnikov v ustroistvakh releinoi
zashchity i sistemnoi avtomatiki. Moskva, Vysshaya shkola,
1962. 282 p. (MIRA 16:3)

(Electric protection) (Electric relays)
(Transistor circuits)

43260

S/143/62/000/011/001/002
D201/D308

AUTHORS: Budkin, V.V., Engineer, Doroguntsev, V.G. and Ovchar-
enko, N.I., Candidates of Technical Sciences

TITLE: Power flow relays based on the Hall Effect

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Energetika,
no. 11, 1962, 24-29

TEXT: The authors analyze the operation of a power protec-
tion relay having two Hall Effect sensing elements which constitute
the load of a ~~single~~ relay. Owing to two sensing elements there
are no second harmonic components of the Hall Effect emf. Compared
with the existing type of Hall Effect protection relay the unit des-
cribed has a greatly increased sensitivity. This is achieved by:
a) restricting the periodicity of the change of magnetic induction
in the current circuit by lowering the voltage to its minimum per-
missible value; b) by limiting the magnetic induction and power dis-
sipated in the current circuit due to S.C. currents exceeding the
nominal value; c) by momentary increase of input power of sensing

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OVCHARENKO, N.I.

Safety device for limiting dangerous currents should a break occur in the wires of a trolley line. Prom. energ. 15 no.11: 36-38 N '60. (MIRA 14:9)
(Electric protection) (Electric lines--Overhead)
(Electric cranes)

OVCHARENKO, Nikolay Il'ich; KRUSTALEVA, N.I., red.; GOROKHOVA, S.S.,
tekh. red.

[Galvanomagnetic effects in semiconductors and their
technological uses] Gal'vanomagnitnye iavleniia v polu-
provodnikakh i ikh tekhnicheskoe ispol'zovanie. Moskva,
Gos. izd-vo "Vysshiaia shkola," 1961. 99 p. (MIRA 15:4)
(Semiconductors) (Hall effect)

FABRIKANT, Veniamin L'vovich; OVCHARENKO, N.I. ; red.; SUD'DYAYEV,
N.A., tekhn. red.

[Filters with symmetrical components] fil'try simetrichnykh
sostavliaushchikh. 2. izd. porer. Moskva, Gosenergoizdat,
1962. 423 p. (MLA 15:10)

(Electric filters) (Radio filters)

OVCHARENKO, N.I., kand. tekhn. nauk

Hall effect in semiconductors. Prom. energ. 18 no.5:47-51
My '63. (MIRA 16:6)

(Hall effect) (Semiconductors)

OVCHARENKO, N.I., kand.tekhn.nauk

Using electronics in safety engineering in machinery-industry plants.
Vest.mash. 41 no.7:77-81 J1 '61. (MIRA 14:6)
(Machinery industry—Safety measures)

PETROV, Yevgeniy Andreyevich; OVCHARENKO, Nikolay Il'ich; KASATKIN, A.S.,
prof., retsenzent; BORISOV, Ye.V., inzh., retsenzent; POPOV, G.A.,
inzh., red.; KUZ'MINA, Ye.M., red. izd-va; DOBRITSYNA, R.I., tekhn.
red.; SMIRNOVA, G.V., tekhn. red.

[Electronic devices for the protection of workers in the machinery
industry] Elektronnye ustroystva dlia okhrany truda v mashinostroenii.
Moskva, Mashgiz, 1961. 119 p. (MIRA 14:11)
(Industrial safety) (Electronic instruments)

S/105/61/000/001/003/007
E194/E4 55

94370

AUTHORS

Doroguntsev, V.G., Candidate of Technical Sciences
Ovcharenko, N.I., Candidate of Technical Sciences (M.S.U.)

TITLE

Certain problems in making a power directional relay
based on the Hall effect

PERIODICAL

Elektrichestvo, 1961, No. 9, pp. 57-63

TEXT

V. F. Sirotko and V. I. Bolomolov (Ref. 1, Elektrichestvo, 1959, No. 11; Ref. 2, Fizika tverdogo tela, 1959, No. 12) have proposed directional power relays based on the Hall effect but the arrangement they propose cannot yet be used in practice because it requires very sensitive polarized relays which are not sufficiently reliable. Nevertheless, the Hall effect is of considerable interest for relay circuits and attention must be paid to the nature of the semiconductor material used in the pickup coil, the results of the relay and of the operating device. Indium antimonide (InSb) is a most promising material for Hall effect emitters in directional power relays. However, the advantages of the material are only realized effectively if the emitter is connected to a source of voltage contained in the current.

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S/105/01/000/004/007/00
E194/E455

Certain problems in making

of the relay. With this method of connection, the output power of the emitter delivered to the load under the worst relay operating conditions is much greater than if the emitter were connected to a current source. The operating conditions of a stationary fractional power relay are such that one of the electrical magnitudes, for example the voltage (and the magnetic flux, which is proportional to it), may be very nearly zero. Accordingly, the load resistance should match the resistance exhibited by the Hall effect emitter when it is in a zero field. Further consideration is given to the output power of a Hall effect emitter and it is shown that if, in a particular case, the emitter is supplied from a voltage source, the output power is 2.5 times greater than if it is supplied from a current source. The reason is that the voltage between the current electrodes of the pickup remains relatively constant despite the change in the electrical conductivity. Provided that it is connected in series with a Hall effect emitter of InSb is the most suitable for fractional power relay. Under fault conditions, when the voltage falls, the emitter is subject to overload and its temperature rises.

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E194/E455

Certain problems in making

current remains constant, because the emitter resistance is reduced and the input power is correspondingly increased. However, faults involving loss of voltage are usually of short duration and so such overloads are usually tolerable. However, overloading by short circuit currents is usually intolerable and the rated current of the Hall effect emitter should be selected accordingly. The use of a Hall-effect emitter of InSb requires that the load resistance should be less than one ohm. The emitter can be used to increase the speed of protection only when the emitter is combined with inertialess transistor amplifiers. The input impedance of such amplifiers may be tens or hundreds of ohms. In such cases, relay sensitivity is ensured not so much by the output power of the emitter as by the e.m.f. developed, i.e. by the voltage sensitivity of the emitter. Germanium Hall effect emitters have the greatest voltage sensitivity and moreover are relatively unaffected by temperature. Accordingly, they are recommended for use in relays associated with transistor amplifiers. They were in fact used in a model of a directional power relay which had as an operating device a zero indicator based on transistor diodes. Two circuits of directional power
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S/103/61/000/009/007/00

E194/E195

Certain problems in making

relays based on the Hall effect are possible. One is a differentiation circuit and the other a circuit in which the voltage and current applied to the relay are split into two components at right angles to one another. The first of these circuits is the sampler but does not neutralize the alternating component of the Hall e.m.f. The more complicated circuit shown in Fig 2b neutralizes the alternating component under all steady state operating conditions, whether the resistance of the emitters is practically independent of the magnetic induction or not. A circuit may be devised in which the current is split without drawing reactive power from the current transformer. The circuit of a directional power relay of this sort using semiconductor emitters is shown in Fig 5. Tests on a directional power relay showed that with a minimum operating power of 1.5 VA and a rated current of 1A, the power drawn from the current transformer transformers under rated conditions is not more than 1 and 0.5 VA respectively. Dynamic tests of the relay showed that the possibility of obtaining high operating speeds, in practice the operating time is not less than half a cycle of power frequency.

End 4/7

Certain problems in making ...

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because it is adversely affected by the aperiodic component of the short-circuit currents. For a sine directional power relay, as used in zero-phase-sequence directional protection, the voltage-splitting circuit of Fig. 8 may be used, giving much more favourable transient operation. By limiting the range of change of magnetic induction in the relay circuit the minimum relay operating power may be reduced to 0.1 VA. As high-speed d.c. amplifiers are so insensitive, one way of increasing the sensitivity whilst simultaneously reducing the power drawn from the instrument transformers is to convert the constant component of the Hall e.m.f. into alternating current with subsequent amplification and phase-sensitive rectification. There are 9 figures and 9 Soviet references. H

SUBMITTED: February 20, 1961

Card 5/7

S/143/60/000/006/008/008 XX
A189/A026

AUTHOR: Ovcharenko, N.I., Candidate of Technical Sciences

TITLE: Transistor Filter Units for Protective Relaying Devices

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Energetika, 1960, No. 6,
pp. 21 - 27

TEXT: The paper analyzes the operation and gives the design of selective and directional power filter units for protective relaying of two-phase ground faults occurring at various spots in the system with an isolated, or compensated neutral. The filter units disconnect one faulty line and preserve the operation of the other one. They were built and tested in the laboratory of protective relaying and automation of power systems of the Moskovskiy energeticheskii institut (Moscow Power Engineering Institute). The selective filter unit consists of two three-phase voltage filters - forward and reverse sequence - a voltage amplitude-equalizing circuit, an adding circuit, and a three-phase phase-sensitive circuit. The selective filter unit operates at ground faults with A and C phases only. It can directly be connected into contactless transistor protective circuits, e.g.: a high-frequency phase-difference protective circuit. Also, a sensitive zero indicator can be connected to the output of the phase-sensitive

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S/143/60/000/006, 008 008 XX
A189/A026

Transistor Filter Units for Protective Relaying Devices

circuit. The directional power filter unit consists of a single-phase reverse-sequence voltage filter, a three-phase forward-sequence filter, a voltage amplitude-equalizing circuit, an adder circuit, a frequency filter, a phase-sensitive circuit and a transformer. It is advisable to use a transistor transducer of the Hall emf (Ref. 9) in place of the phase-sensitive circuit with electric addition. By using the transducer as a harmonic analyzer (Ref. 10), the frequency filter can also be omitted. There are 4 figures and 10 Soviet references.

ASSOCIATION. Moskovskiy ordena Lenina energeticheskii institut (Moscow "Order of Lenin" Power Engineering Institute)

PRESENTED: Department of Protective Relaying and Automation of Power Systems

SUBMITTED: December 25, 1959

✓

Card 2/2

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39159
S/120/62/000/003/025/048
E192/E382

AUTHOR: Sycharenko, N.I.

TITLE: A galvanomagnetic amplifier for direct voltages

PERIODICAL: Pribery i tekhnika eksperimenta, no. 3, 1962,
107 - 109

TEXT: The amplifier is based on the use of the resistance changes in a semiconductor in a magnetic field. If the semiconductor is in the form of a thin germanium plate and the magnetic field does not exceed 6×10^3 Oe, the change in the resistance can be described by the following formula:

$$(\rho - \rho_0) / \rho = 0.2 HU \cdot 10^{-4} \quad (2)$$

where H is the magnetic field,

U is the voltage of the sample,

ρ_0 is the resistivity of the sample in the absence of a magnetic field and

ρ is the resistivity in the presence of a magnetic field.

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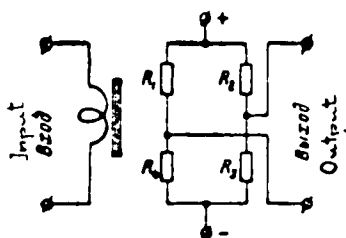
A galvanomagnetic

S/120/62/000/003/025/048
E192/E382

ASSOCIATION: Moskovskiy energeticheskiy institut
(Moscow Power-engineering Institute)

SUBMITTED: September 15, 1961

Fig. 2:



Card 3/3

DOROGUNTSEV, V.G., kand.tekhn.nauk; OVCHARENKO, N.I., kand.tekhn.nauk

Power directivity relay based on the Hall effect. Elek. sta. 32
no.12:51-53 D '61. (MiR 15:1)
(Electric relays) (Electric power distribution) (Electric protection)

OVCHARENKO, N.I., kand.tekhn.nauk

Use of automatic reclosing for maintaining one of the damaged lines in operation in the case of grounding at two points.
Izv. vys. ucheb. zav.; energ. 3 no. 7:1-5 J1 '60. (MIRA 13:8)

1. Moskovskiy ordena Lenina energeticheskiy institut. Predstavlena kafedroy releyroy zashchity i avtomatizatsii.
(Electric currents--Grounding)
(Electric lines)

PETROV, Ye.A.; OVCHARENKO, N.I.

Relay using semiconductors for explosionproof automatic control.
Prom.energ. 13 no.4:24-26 Ap '58. (MIRA 11:4)
(Electric relays)
(Mines and mining--Equipment and supplies)

OVCHARENKO, N.I. Cand. Tech. Sci. -- (diss.) "Quick-acting safety devices in circuits with short-circuited currents." Moscow, 1957. 12 pp. 20 pp. (diss. submitted to the USSR Acad. Order of Lenin Power Engineering Inst. in Moscow, Mol. sov). 1 x 20 pp. (KL, 23-57, 113)

AUTHOR: Petruv, Ye.A., Votarenko, V.I., Engineers

TITLE: Instruments Testing the Good Condition of an Electric Lamp
Ground Wire. Iritory dlya proverki ispravnosti raznykh tipov
go provoda elektrainsstrumenta - exchange of experience
opytov

PERIODICAL: Energetik, 1968, Nr 4, pp 41-42, USSR

ABSTRACT: Since it is dangerous to test the condition of a lamp with
electric drill with the help of a control lamp or a voltmeter,
the lower Engineering Division of VIAM - the Vsesoyuznyy In-
stitut Aviamotostroyeniya - All-Union Institute of Avia-
Motor Construction developed another testing unit, whose
technical structure as well as operation method is given in
the article. The lamps used with the new tester are of the
M-10 type (B-1 and G-17 A). Both tools with a combined
plug-connector and ground-contact, and those not having this
combination, can be tested with the new unit. The author re-

Card 1/2

Instruments Testing the Good Condition of an Electric Tool & Instrument
Exchange of Experience.

marks at the end, that the new system can only be applied
if the power network's neutral lead is grounded.
There is 1 photo and 1 circuit diagram

Card 2 2

OYCHARENKO, N.I., inzhener.

Application of phase-comparison carrier relays in compensated
circuits. Elektrichestvo no.4:30-35 Ap '57. (MLRA 10:5)

1.Moskovskiy energeticheskiy institut im. Molotova.
(Electric networks)

OVCHARENKO. N.I., kand.tekhn.nauk

Behavior of directional high-frequency filter protection in the
case of double contact to ground. *Izv.vys.ucheb.zav.; energ.*
no.9:18-23 S '58. (MIRA 11:11)

1. Moskovskiy ordena Lenina energeticheskiy institut.
(Electric networks)

PETROV, Ye.A., inzhener; OVCHARENKO N.I., inzhener.

Protective device employing a radioactive isotope. Prom.energ.
11 no.9:19-21 S '56. (MLRA 9:11)

(Electric apparatus and appliances)
(Radioisotopes--Industrial applications)

OVCHARENKO, N. I.

USE OF HIGH-FREQUENCY DIFFERENTIAL-PHASE PROTECTION IN COMPENSATED SYSTEMS. N. I. OVCHARENKO. Elektrichestvo, 1957, No. 4, 30-6. In Russian.

2

A specific problem in such systems is the behaviour of protective devices during double earth faults at different points of the system. An analysis of the operation of this method during double earth faults in systems with compensated neutral is given and the variation necessary for protective action when one only of the affected lines is disconnected is considered. Laboratory investigations show that this type of protection, with the a.c. circuit variations indicated, can be used in systems with low earth current. The protection acts on disconnection of one of the faults in no less than two-thirds of the cases of double earth fault at different points of the system. In the other cases it sometimes keeps one of the fault lines.

Rev
002

PETROV, Ye.A., inzhener; OVCHARENKO, N.I., inzhener.

Electronic protective arrangement. Prom.energ.11 no.4:5-8 Ap '56.

(MIRA 9:7)

(Machinery--Safety appliances) (Electronic apparatus and appliances)

SOV/143 58-4/13

AUTHOR: Ovcharenko, V. I., Candidate of Technical Sciences

TITLE: Behavior of a Directional Frequency Filter Protection with Double Contact to Ground (Povedeniye filtrovoy napravlennoy vysokochastotnoy zashchity pri dvoynoy zamykaniyakh na zemlyu)

PERIODICAL: Izvestiya vysshnikh uchebnykh zavedeniy - Energetika, 1958, No. 1, pp 19-23 (USSR)

ABSTRACT: The paper gives the results of an analysis of the behavior of a parallel filter fuse with high frequency blocking upon double contact to ground in the circuits with an insulated zero point. The author examines circuit alterations which will ensure that the protection cuts off only one point of contact to ground of the two phases in various parts of the circuit. Analysis shows that a directional filter protection behaves uncertainly with double contact to ground, e.g. a) it usually breaks both damage lines, as well as the spare contacts of all relays. b) In radial circuits it often breaks one line only, if the torque leading to

Card 1/3

SOV/14358-1-1 18

behavior of a directional frequency filter protection with routine
Contact to Ground

SUBMITTED: May 7, 1958

Card 3/3

24(3)

SOV/147-592327/10

AUTHOR: Ovcharenko, N.I., Candidate of Technical Sciences

TITLE: Some **Peculiarities** of Symmetric Components of Double Ground Short Circuits (O nekotorykh osobennostyakh simmetrichnykh sostavlyayushchikh tokov dvoynnykh zamykanij na zemlyu)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedenij - Energetika, 1959, Nr 3, pp 52-62 (USSR)

ABSTRACT: Methods for calculating double ground short circuits in compensated networks are adequately covered in literature. Therefore, the author considers some **peculiarities** of damaged lines with ground short circuits of two phases at different points of networks with various configurations and derives formulae for symmetric current components in such lines. The formulae are to be used for the analysis of the work of protective relays in case of double ground short circuits. The formulae were presented in a simplified form, thus they are more suitable for such an analysis. A ring network with two feed sources is

Card 1/2

OVCHARENKO, N.L.

Durability of a blast furnace hearth and hearth bottom.

Metallurg 7 no.10:24-25 0 '62.

(MIRA 15:9)

1. Dnepropetrovskiy metallurgicheskiy institut.

(Blast furnaces--Design and construction)

OVCHARENKO, N.L., inzh.

Prevention of heat excesses and gas release in blast-furnace
casting yards. Bezop.truda v prom. 4 no.9:15-16 S '60.

(MIRA 13:9)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Blast furnaces--Safety measures)

OVCHARENKO, N.L., insh.

Preventing gas explosions during the blanking of blast
furnaces. Besop.truda v prom. 4 no.7:24-25 J1 '60.
(MIRA 13:8)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Blast furnaces—Safety measures)

CONFIDENTIAL, PROPRIETARY, AND/OR RESTRICTED

Illustrations in next Summary. (See text.) (MIA) (P...)

GEGUZIN, Ya.Ye.; OVCHARENKO, N.M.

Investigating certain physical processes occurring on the surface of crystals at high temperatures. Part 7: Role of viscous flow in smoothing out roughnesses on the surface of a solid. Fiz. met. i metalloved. 11 no. 5:807-809 My '61. (MIRA 14:5)

1. Institut khimii pri Khar'kovskom gosudarstvennom universitete. (Surfaces (Technology)) (Viscosity)

IZMAYLOV, N.A., prof., zaslužhenny deystel' nauki, otv.red.; KRAVCHENKO,
A.N., red.; OYCHARENKO, M.N., kand.khim.nauk, red.; DJBINSKIY,
G.P., dotsent, red.; KOVALEV, P.V., dotsent, red.; TRIST'YAKOVA,
A.N., red.; POGOZHEV, P.P., tekhn.red.

[In the open spaces of the wonderful motherland; collection from the
Departments of Physical Education and Sports, and General Physical
Geography of Kharkov University and the Kharkov Mountaineering Section]
Na prostorakh rodiny chudesnoi; sbornik kafedry fizicheskogo vospitaniia
i sporta i obshchei fizicheskoi geografii Khar'kovskogo ordena Trudovogo
Krasnogo Znameni gosudarstvennogo universiteta imeni A.M.Gor'kogo,
khar'kovskoi gorodskoi seksii al'pinizma. Khar'kov, Izd-vo Khar'kovsko-
go gos.univ., 1959. 397 p. (MIRA 13:12)
(Mountaineering) (Tourism) (Physical Geography)

OVCHARENKO, V. H.

Crystallization kinetics of thin layers on extraneous amorphous
slide. (ch. 7a). (MOS 71.6-68 '56. (1956) 1. 1. 1.)
(crystallization) (Salol) (length 1)

GEGUZIN, Ya.Ye. [Geguzin, IA.IB.]; OVCHARENKO, N.M.

Effect of "impurities" on production of diffuse porosity. Ukr
fiz.zhurn. 3 no.5:696-698 S-0 '58. (MIRA 12:?)

1. Khar'kovskiy gosudarstvennyy universitet i nauchno-issledovatel'skiy institut Khar'kovskogo gosudarstvennogo universiteta.
(Ionic crystals)

GEGUZIN, Ya.Ye.; OVCHARENKO, N.N.

Microscopic pycnometry of solids with microcavities. Porosh.met.
2 no.5:15-19 3-0 '62. (MIRA 15:11)

1. Khar'kovskiy ordena Trudovogo Krasnogo Znameni gosudarstvennyy
universitet im. A.M.Gor'kogo.
(Metallography) (Metals--Density)

GROUZIN, Ya.Ye.; OVCHARENKO, N.N.

Excess vacancies occurring in tin during zinc evaporation (in systems with "vacancy source"). Fiz. met. i metalloved. 4 no.3:400-406 '57.
(MIRA 10:11)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gor'kogo.
(Tin-zinc alloys) (Diffusion) (Crystal lattices)

OVCARENKO, N. N.

USSR/Engineering -Metal Surfaces

Card 1/1 Pub. 22 - 13/40

Authors : Grusin, Ya. E., and Ovcharenko, N. N.

Title : Metal surfaces at high temperatures

Periodical : Dok. AN SSSR 99/3, 389-390, Nov 21, 1954

Abstract : Experiments intended to determine the state of metal surfaces at high temperatures (800 - 950°C) are described. The experiments were conducted on copper samplings. The surface properties of the samples under the temperatures mentioned are also described. Four Russian references (1936-1952). Illustrations.

Institution: Kharkov State University A. M. Gorkiy

Presented by: Academician N. V. Belov, June 7, 1954

OYCHARENKO N.N.

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Handwritten: Phys Chem

The interfacial tension at the boundary of a solid and a liquid phase. Ya. N. Gogvin and N. N. Oycharenko (State Univ., KHARKOV). *Doklady Akad. Nauk SSSR*, 1953, 637-8 (Russian summary, 638-9).--The expt. demonstrates the "pecking" of the liquid on its own solid phase, i.e. a visual proof is given that $\sigma_{11} < \sigma_1 - \sigma_2$, where σ_{11} is the interfacial tension at the boundary solid-liquid, σ_1 is the surface tension on the boundary solid-vacuum, σ_2 the surface tension at the boundary liquid-vacuum. This was demonstrated with the aid of needles of menthol (I) that were placed inside a film of liquid I. Werner Jacobson

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OVCHARENKO, N. N.

The Study of Some Physical Processes, Proceeding at the
 Surface of Metals at High Temperatures. II. Recrystalliza-
 tion of the Surface Layer of a Metal. Ya. E. Goguzin and
 N. N. Ovcharenko (*Izv. Akad. Nauk S.S.S.R.*, 1956,
 (1957), 5-14) (In Russian). The kinetics of recrystn.
 of Cu polycrystals intersecting the polishing plane were
 studied. The natural roughness of the surface of the sample
 is the reason for the increase in the mean time of stabilization
 of the grain, as a result of which the surface layer arises. The
 connection between the thickness of the layer and the mean
 grain size in a polycryst. sample was examined. N. E. B.

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Orcharenko, N. N.

62 ✓ Physical processes on a metal surface at high temperatures. I. Natural roughness of polycrystalline surfaces. N. N. Orsharenko and N. N. Orsharenko. *Izv. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1956, No. 1, 109-18.

Surface conditions were observed on polished polycryst. Cu specimens (99.98% pure). The specimens were polished either mechanically or electrolytically in a bath contg. H_2PO_4 (sp. gr. 1.19) for 15 min. at 70 mv. They were next heated (to 1000°) in a high vacuum (10^{-4} - 10^{-5} mm. Hg), and the surface studied metallographically and with micro-interferometers. Under certain conditions the surface becomes rough. The step-like roughness can be characterized by the data of the depth and periodicity of the steps. Evaporation and condensation were active causes of the surface roughening. W. M. Starnberg

of

ORCHARENKO, N. N.

✓ Investigation of some physical processes occurring on the metal surface at high temperature. II. Recrystallization in the metal adjoining the surface. Ya. E. Geyuzin and N. N. Orcharenko (State Univ., Khar'kov). *Izv. Akad. Nauk SSSR, Otdel. Tekh. Nauk* 1956, No. 2, 3-14; cf. C.A. 49, 12908e. — The recryst. kinetics in a polycryst. Cu sample, crossed by the section plane, is studied experimentally. The natural roughness form on the metal surface is found to be the same as in the case of a smooth surface.

2

OR

126-3-3/34

AUTHORS: Geguzin, Ya. Ye. and Ovcharenko, N. N.

TITLE: Excess vacancies occurring in brass during evaporation of zinc (in a system with a "vacancy source"). (Ob izbytochnykh vakansiyakh, vznikayushchikh v latuni pri isparenii tsinka (v sisteme s "istochnikom vakansiy").

PERIODICAL: "Fizika Metallov i Metallovedeniye" (Physics of Metals and Metallurgy), 1957, Vol.IV, No.3, pp. 400-406 (U.S.S.R.)

ABSTRACT: In this paper the authors aimed to follow experimentally certain details of phenomena taking place in one of the types of specimens with a "vacancy source", namely, in specimens of an alloy from which the volatile component is removed. The selection was governed by the desire to follow simultaneously the kinetics of the coagulation of the excess vacancies and the kinetics of their removal from the specimen which can be materialised most easily on specimens of an alloy which does contain a volatile component. Brass containing 30% zinc was used for the investigations in the form of 20 mm long, 4 mm dia. cylindrical specimens after preliminary stabilisation by annealing at 820 C. The time and temperature dependence of the decrease in weight and volume of α -brass specimens was followed experimentally after removing the volatile component, i.e. the zinc. On the basis of the obtained

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L 57580-65 EWI(1)/EPA(s)-2/EWI(m)/EWP(w)/EPF(c)/EPF(n)-2/EWA(d)/T/EWP(t)/EEC(b)-2/
 EWP(b)/EWA(e) Pr-4/Pt-7/P1-4/Pu-4 IJP(c) JD/JG/GG
 ACCESSION NR: AP5013718 UR/0070/65/010/003/0371/0379
 548.4

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64
B

AUTHOR: Ceguzin, Ya. Ye.; Ovcharenko, N. N.; Vorob'yeva, I. V.

TITLE: Investigation of phenomena on the surface of single crystals. On the mechanism and kinetics associated with the healing of deep cracks on the surface of ionic single crystals.

SOURCE: Kristallografiya, v. 10, no. 3, 1965, 371-379

TOPIC TAGS: crystallography, crystal imperfection, ionic crystal

21

ABSTRACT: The healing mechanism of deep cracks in single NaCl crystals was observed experimentally. Cracks were introduced artificially in single crystals using a razor blade or a special heated knife with an apex angle of 30° which was slowly pressed into the sample. Heat treatment was done in the region just below the melting point and was interrupted sporadically to observe changes occurring in the crack opening. A long-focus optical system was used so that the changes in the crack could be observed without destroying the sample. During isothermal annealing, the crack opening is displaced due to the influx of material. A large number of pro-

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ACCESSION NR: AP5013718

trusions form at the crack opening giving it an ulcerated front. In some places bridges form. The healing of the crack is accomplished by at least two processes which take place simultaneously: 1) the closing of the crack accompanied by change in its apex angle; 2) the transport of material from the plane regions of the crack profile to its mouth. Approximate calculations are derived and presented for the displacement of the crack opening during healing assuming that the mechanism is one of diffusion in a gaseous medium. Results of analogous calculations assuming volumetric diffusion and surface diffusion are presented without derivation. Theoretical considerations show that the application of stress during healing decreases the flare angle and should substantially accelerate the self-healing. This was confirmed in experiments with single NaCl crystals by applying 7 to 120 gram weights per mm² perpendicular to the plane of the crack. Orig. art. has: 8 figures, 1 table, 7 formulas.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet (Kharkov State University)

SUBMITTED: 22Jun64

ENCL: 00

SUB CODE: SS

NO REF SOV: 006

OTHER: 001

Card *2/2*

GEGUZIN, Ya.Ye ; OVCHARENKO, N.N.

Motion of macroscopic gaseous inclusions in NaCl single crystals under the action of small electric fields. Dokl AN SSSR 163 no.3:621-623 1965. (MIRA 18:7)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M.Gor'kogo. Submitted November 30, 1964.

GEGUZIN, Ya.Ye.; KOVALEV, I.N.; OSHARENKO, N.N.

Studying self-diffusion in the surface layer of gold by the "mass transfer" and radioisotope methods. Fiz. tverd. tela 5 no.12:1530-1534, 1963.
(MIRA 17:2)

1. Khar'kovskiy gosudarstvennyy universitet i Ukrainkiy institut metallov.

OVCHARENKO, N.N.

Visual method of investigating the kinetics of oxidation and the decomposition of oxides on metal surfaces. Porosh. met. no.4: 37-41 JI-Ag '61. (MIRA 16:5)

1. Nauchno-issledovatel'skiy institut khimii, Khar'kov.
(Metallic films) (Activation analysis)

GEGUZIN, Ya.Ya.; OVCHARENKO, N.N.

Anisotropy of the surface diffusion coefficient in metals.
Fiz. tver. tela 4 no.11:3117-3123 N '62. (MIRA 15:12)

1. Khar'kovskiy gosudarstvennyy universitet imeni
Gor'kogo.

(Diffusion)
(Metals—Heat treatment)

GEGUZIN, Ya.Ye.; OVCHARENKO, N.N.

Kinetics of thermal etching of twin boundaries in gold and copper. Fiz. tver. tela 4 no.11:3110-3116 N '62. (MIRA 15:12)

1. Khar'kovskiy gosudarstvennyy universitet imeni Gor'kogo.

(Surfaces)

(Metals—Heat treatment)