

VINOGRADOVA, Tat'yana Pavlovna ; AVERBAKH, M.M., red.

[Diagnosis of osteoarticular pathology by biopsy] Diagnostika kostno-sustavnoi patologii po biopsiiam. Moskva, Meditsina, 1964. 191 p. (NIRA 17:8)

KAKITELASHVILI, Ya.V.; AVERBAKH, M.M.

Morphological characteristics of large and giant caverns in
pulmonary tuberculosis, resection data. Khirurgiia 39
no.8:11-19 Ag '63. (MIRA 17:6)

1. Iz kafedry khirurgii legochnogo tuberkuleza i drugoy legochnoy
patologii (zav.- chlen-korrespondent AMN SSSR prof. L.K. Bogush)
i patomorfologicheskoy laboratorii (zav.- prof. V.I. Puzik)
Tsentral'nogo instituta tuberkuleza Ministerstva zdravo-
okhraneniya SSSR.

KRAYEVSKIY, Nikolay Aleksandrovich; NEMENOVA, Nadezhda Maksimovna;
KHOKHLOVA, Margarita Petrovna; AVERBAKH, M.M., red.

[Pathological anatomy and problems of the pathogenesis of
leukemia] Patologicheskaya anatomia i voprosy patogeneza
leikozov. Moskva, Meditsina, 1965. 417 p.

(MIRA 18:7)

VOROPAYEV, M.M.; SARKISOV, D.S.; MAZAYEV, P.N.; ADANYAN, A.A.;
AVERBAKH, M.M., red.

[Late sequelae of blind gunshot wounds of the lungs]
Otdalennye posledstviia slepykh ognestrel'nykh ranenii
legkikh. Moskva, Meditsina, 1965. 140 p.

(NIRA 18:9)

AVERBAKH, M.N., inzhener

Expanding the field of application and the new method of regulating
the capacity of "Prokhodka-500M" ventilators. M.N.Averbakh. Ugol'
30 no.4:10-12 Ap '55. (MIRA 8:6)

1. Nachal'nik ventilyatsii shakhty.
(Mine ventilation)

AVTRESKH, M.N.

Effect of depression on gas emission. Ugol' 33 no. 7:43-44 J1 '58.
(MIRA 11:7)

(Mine gases)

AVERBAKH, M. S.

FA53T78

USSR/Medicine - Nervous System
Medicine - Nerves

Dec 1947

"The One Way Passage of Impulses in an Altered
(Al'terirovannoa) Nerve," M. S. Averbakh, 2 pp

"Vest Leningrad Universitet" No 12

Explains Verigo's phenomenon: when a short portion
of a nerve is polarized, only those impulses which
originate at anode are able to pass through; im-
pulses originating at cathode are not conducted.
This article is author's candidate thesis.

LC

53T78

AVERBAKH, M.S.

Conditions for the conversion of the peripheral nerve of the
frog into a unilateral physiological conductor. Uch. zap. Len.
un. no.99:88-113 '49. (MLRA 10:2)

1. Iz Laboratorii nervno-myshechnoy fiziologii Fiziologicheskogo
instituta imeni akademika A.A. Ukhtomskogo Leningradskogo
gosudarstvennogo universiteta.
(NERVES) (ELECTROPHYSIOLOGY)

AVERBAKH, M. S.

CA DO

61

491 THE PRINCIPLE OF SELF-ADJUSTMENT OF AN INTENSIFYING EXCITATION ("ALL OR NONE") (Original text in Russian), M. S. Averbaikh and B. M. Nasonov; *PHYSIOLOGICAL JOURNAL* (Moscow) Jan-Feb '58 (36-1 BI-Monthly); pp 46-63; 12 illus, 4 pb.

One of the aspects of the Nasonov theory on the behavior of impulses is explained. According to Nasonov, an excitation spreads along the nerve or muscular fibers, and the electrical responsive reaction of the protoplasm at any given point of the fiber is always gradual, i.e., it is in correct quantitative relation to the excitation force and is not subject to the principle of "all or none." If an electrical irritation of the nerve exceeds in magnitude of the running impulse, the local potential should exceed the magnitude of the running permanent impulse. The local potential should spread in decrements until it equals the value of potential OB. From this moment on the impulse should move forward without decrements, automatically adjusting its constant value, until it reaches the end of the nerve. Tests made on a sciatic nerve of a frog, separated from the spine to the larger finger of the rear extremity, have verified the Nasonov theory and have shown that an electrical irritation of the nerve, equivalent to four times the threshold value, increases the value of the local potential to almost twice the value of the self-adjusting running peak. The length of the increment impulse travel was equal to 1.5 cm. Further movement of the impulse until it reaches the very end of the nerve takes place without decrement. The mentioned results are graphically represented.

ADDITIONAL LITERATURE CLASSIFICATION

USHAKOV, B.P.; AVEERBAKH, M.S.; SUZDAL'SKAYA, I.P.; TROSHINA, V.P.; CHEREPANOVA, T.N.

Parabiotic nature of physiological electrotonus. Fiziol. zh. SSSR 39
no.2:218-225 Mar-Apr 1953. (GIML 24:3)

1. Laboratory of Histophysiology of the Institute of Physiology imeni A. A. Ukhtomskiy, Leningrad State University imeni A. A. Zhdanov.

AVERBAKH, M.S.

Comparative characteristics of the 8th and 9th anterior nerve roots
of the spinal cord. Uch.zap.Leh.un.n. 176:119-124 '54. (MLRA 9:9)

1. Iz laboratorii sravnitel'noy fiziologii fiziologicheskogo instituta
imeni akademika A.A.Ukhtomskogo pri Leningradskom gosudarstvennom
ordana universitete.
(SPINAL CORD)

BEREZINA, Mariya Pavlovna; VASILEVSKAYA, Natal'ya Yefimovna; AVERBAKH, Mikhail Solomonovich; VETYUKOV, Ivan Aleksandrovich, dots.; GOLIKOV, Nikolay Vasil'yevich; GULYAYEV, Pavel Ivanovich; ZHUKOV, Yevgraf Konstantinovich; LATMANIZOVA, Lyudmila Vladimirovna; MAKAROV, Petr Osipovich; NIKITINA, Iya Pavlovna; SPERANSKAYA, Yekaterina Nikolayevna; VASIL'YEV, L.L., prof., red.; PEREDEL'SKAYA, N.M., red.; PARSADANOVA, K.G., red. izd-va; GRIGOR-CHUK, L.A., tekhn. red.

[Comprehensive laboratory manual of human and animal physiology] Bol'shoi praktikum po fiziologii cheloveka i zhivotnykh. Izd.2., ispr. i dop. Moskva, Gos. izd-vo "Vyshaia shkola," 1961. 674 p. (MIRA 14:8)
(PHYSIOLOGY—LABORATORY MANUALS)

AVERBAKH, Mikhail S.

"The role of personality structure in the adaptability of
the patient in the postpsychotic period"
Report to be submitted for the Second International Congress
on Rehabilitation, Dresden, East Germany, from 11-15 June 1962

Institute of Physiology imeni A. A. Ukhtomskiy, Leningrad
State University, Leningrad

AVERRAKH, Nikolay Valdimirovich; BARANOV, Yu.K., redaktor; ALEKSHYEV, A.I.,
redaktor izdatel'stva; LAVRENOVA, N.B., tekhnicheskii redaktor

[The use of radar in navigation] Ispol'zovanie radiolokatsionnoi
stantsii v sudovozhdenii. Moskva, Izd-vo "Morskoi transport,"
1956. 50 p. (MIRA 10:3)
(Radar in navigation)

~~AVIABAKH~~ N. V. shturman dal'nego plavaniya.

Graphic plotting is a reliable method for radar observation of approaching vessels. Mor.flot 16 no.9:10-11 S '56. (MLRA 9:10) (Radar in navigation) (Collision at sea--Prevention)

AVERBAKH, N.V.; BARANOV, Yu.K.

[Determining maneuvering elements of seagoing vessels and log
correction] Opređenje manevrennykh elementov morskogo sudna i
popravki loga. Leningrad, Izd-vo "Morskoi transport," 1957. 52 p.
(Navigation) (MIRA 11:2)

AVERBAKH, N. V., Candidate of Tech Sci (diss) -- "Determination of the elements of surface ocean streams by using radioactive indicators". Leningrad, 1959. 18 pp (Min Maritime Fleet USSR, Leningrad Higher Engineering Maritime School in Admiral S. O. Makurov), 150 copies (KL, No 20, 1959, 111.)

3 (9)

AUTHOR: Averbakh, N. V.

SOV/50-59-9-11/16

TITLE: Determination of the Elements of Sea Surface Currents by the Method of Radioactive Indicators

PERIODICAL: Meteorologiya i gidrologiya, 1959, Nr 9, pp 41 - 45 (USSR)

ABSTRACT: At present, there are 4 principally different methods of determining the current elements (Ref 2): float-, ventilator-, electromagnetic and navigation methods. Only the first one, the float-method, permits a direct measurement of the current elements. This method can be improved by using as floats particles of a radioactive indicator sunk into the water layer. Figure 1 shows the principle of this method. A radioactive indicator is lowered into the water to a certain depth, and driven by the current from this place past an initial counter to one of the final counters which are set up at a certain distance from the initial counter. At the passage, the radioactive indicator is recorded by these two counters. The requirements necessary for radioactive radiation are pointed out. A β -radiation is best suited for this purpose. The ionization method was chosen for recording the β -radiation. Recording was done by means of a halogen counter. The construction of the

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Determination of the Elements of Sea Surface Currents SOV/50-59-9-11/16
by the Method of Radioactive Indicators

device for determining the current elements by means of radioactive indicators is described in brief. The calculation of the necessary and of the sufficient activity is indicated, and formula (9) is derived for its determination. Formula (10) for determining the root mean square error in the determination of the current direction is derived. The method described here permits the elements of the sea surface currents to be determined much more rapidly than by means of other methods. This method permits the current velocity to be determined with a somewhat higher accuracy than the ventilator method. The small current velocities and current directions can be more accurately determined by this method than by any other method. The advantage of this method over the ventilator method is the possibility of evaluating very easily the accuracy of each observation. The method permits the quantity of observations of the currents to be considerably enlarged by one device and with little waste of time. The method described permits the amount of the wind drift to be determined. The application of

Card 2/3

Determination of the Elements of Sea Surface Currents SOV/50-59-9-11/16
by the Method of Radioactive Indicators

small doses of activity permits this method to be widely used.
The observation of the elementary safety measures ensures the
absence of danger in this method. There are 1 figure, 6 tables,
and 2 Soviet references.

Card 3/3

GAMOV, Anatoliy Grigor'yevich; AYERBAKH, Nikolay Vladimirovich;
MATSUTO, A.F., spetsred.; PETIN, M.I., red.; LAVRINOVA,
N.B., tekhn.red.

[Location by radar in navigation, Ispol'zovanie radiolo-
katsii v sudovozhdenii. Moskva, Izd-vo "Morskoi transport,"
1960. 232 p. (MIRA 14:2)
(Radar in navigation)

AYERBAKH, N. V

PHASE I BOOK EXPLOITATION

SOV/5429

Gamov, Anatoliy Grigor'yevich, and Nikolay Vladimirovich Averbakh

Ispol'zovaniye radiolokatsii v sudovozhdenii (Utilization of Radar in Marine Navigation). Moscow, Izd-vo "Morskoy transport," 1960. 237 p.

Errata slip inserted. 7,000 copies printed.

Special Ed. : A. F. Matsyuto; Ed. : M. I. Petin; Tech. Ed. : N. B. Lavrenova.

PURPOSE: This book has been approved by the Ministry of the Merchant Marine, USSR, as a textbook for refresher courses of Merchant Marine command personnel. It is intended for navigators, who, according to the author, should be perfectly acquainted with the operation of ship-board radar equipment and with its use for navigation.

COVERAGE: The authors discuss in detail the methods of utilizing ship-board radar for such navigational purposes as: fixing the position of

Card 1/7

AVERBAKH, N.V., assistant

Determining the amount of drift caused by wind with the help
of radioactive indicators. Sudovozhdenie no.2:105-106 '62.

(MIRA 17:4)

1. Kafedra sudovozhdeniya Leningradskogo vysshego inzhener'nogo
morskogo uchilishcha im. admirala Makarova.

BARANOV, Yu.K., dotsent, kand.tekhn.nauk; AVERBAKH, N.V., assistant

Length of the path traveled to determine log corrections and the speed of a vessel with the help of a ship's radar. Sudovozhdenie no.2:111-115 '62. (MIRA 17:4)

1. Kafedra sudovozhdeniya Leningradskogo vysshego inzhenernogo morskogo uchilishcha im. admirala Makarova.

AVERBAKH, Nikolay Vladimirovich; GAMOV, Anatol'iy Grigor'yevich;
MATSUYTO, A.F., retsenzent; GERASTMENKO, V.I., spets. red.;
SERKO, G.S., red.; KHLOPOVA, L.K., tekhn. red.

[Radar hydrometeorology in navigation] Radiolokatsionnaya
gidrometeorologiya v sudovozhdenii. Moskva, Izd-vo "Morskoi
transport," 1962. 46 p. (MIRA 15:8)
(Radar in navigation) (Meteorology, Maritime)

AVERBAKH, Nikolai Vladimirovich; BARANOV, Yuriy Konstantinovich;
GAMOV, A.G., red.; STUL'CHIKOVA, N.P., tekhn. red.

[Determining the maneuvering properties of a seagoing vessel
and log corrections]Opredelenie manevrennykh elementov morskogo
sudna i popravki laga. Leningrad, Izd-vo "Morskoi transport,"
1962. 75 p. (MIRA 15:11)
(Ship trials) (Logbooks)

AVERBAKH, N.V., kand. tekhn. nauk, kapitan dal'nego plavaniya

Calculation of small noninductive compensators of quarterly deviation. Sudovozhdenie no.4:76-79 '64.

(MIRA 18:3)

1. Kafedra sudovozhdeniya Leningradskogo vysshego inzhener'nogo morskogo uchilishcha imeni admirala Makarova.

RASHKOVSKAYA, Ye.A.; AVERBAKH, R.A.; DANILOVSKAYA, M.P.; NISENGOL'TS, F.S.

Isotherms of the solubility of the Na_2HCO_3 , $\text{SO}_4 + \text{H}_2\text{O}$; K_2HCO_3 , $\text{SO}_4 + \text{H}_2\text{O}$; Na_2CO_3 , $\text{SO}_4 + \text{H}_2\text{O}$; Na_2CO_3 , $\text{CO}_2 + \text{H}_2\text{O}$ and K_2CO_3 , $\text{CO}_2 + \text{H}_2\text{O}$ systems at 35°C. Ukr. khim. zhur. 24 no.4: 510-520 '58.
(MIRA 11:10)

1. Khar'kovskiy nauchno-issledovatel'skiy institut osnovnoy khimii.
(Systems (Chemistry)) (Solubility)

AVERBAKH, R.D.

Technical modifications of an apparatus for drying plasma by the method devised by the Central Division of the Leningrad Institute of Blood Transfusion. Vop.perel.krovi 4:274-277 '55. (MLR 9:12)
(BLOOD PLASMA) (DRYING APPARATUS)

PA 11/49T77

USSR/Medicine - Hearing
Medicine - Relaxation

May 48

"The Relaxation Theory of Hearing," V. Averbakh, 1948

"Uspekhi Fiz Nauk" Vol. XXXIV, No 1

Outlines theory developed by Ya. I. Frenkel' in recent article in "Dok Ak Nauk USSR" No 4, 1948. Advises further research.

11/49T77

AVERBAKH, V. [L]

PA 11/49T93

USSR/Nuclear Physics - Protons Jun 48
Nuclear Physics - Photoelectric Effect

"Nuclear Photoeffect Caused by the Departure of One Proton," V. Averbakh, 4 $\frac{1}{2}$ pp

"Uspekhi Fiz. Nauk" Vol. XXXV, No 2

Theory of this effect was worked out by Weiskopf and Ewing (Phys Rev, 1940). Describes similar experiments conducted by Herzog and Waffler. (Helvetica Physica Acta, 1947).

11/49T93

AVERBAKH, V. [L.]

PA 33/49T94

USSR/Nuclear Physics - Mesotrons Oct 48
Nuclear Physics - Particles, Elementary

"Nuclear Splitting by Mesotrons," V. Averbakh, 2 pp

"Uspekhi Fiz Nauk" Vol XXXVI, No 2

Summarizes work done by Lukirskiy, Perfilov, and Alikhanyan. Stresses importance of the "stars" formed by slow mesotrons, as it is possible to determine size of particles by their radiation. Two photographs show mesotron traces and stars.

33/49T94

AVERGONIN

3/23

Averkhov, V. L., and Mel'nikov, I. V. On the theory of quantized space-time. Doklady Akad. Nauk SSSR (N.S.) 64, 41-44 (1949) (Russian)

The authors investigate the theory of quantized space-time proposed by H. S. Snyder [Physical Rev. (2) 71, 38-41 (1947); these Rev. 8, 412]. They regard the method of Snyder as essentially a consideration of the group of motions of a hypersphere in five-space, and from this standpoint explain the arbitrariness in his choice of momentum operators as associated with the well-known arbitrariness in the definition of "distance" in a space of constant curvature. They point out that Snyder's scheme can be obtained uniquely if one imposes certain conditions on the coordinate operators. They also set up a more general scheme, of which Snyder's is a special case, and find that the former, like the latter, is not invariant under translations. The assumption of commuting coordinates is found to lead to results essentially equivalent to those of the usual quantum theory.

The authors treat the field equations considered by Snyder [Physical Rev. (2) 72, 68-71 (1947), these Rev. 8, 608] by introducing new variables in the space of which ("the wave-equation space") the equations take on their usual form. However, in this space point charges are found to have extended charge distributions, leading to differences from the usual theory. N. Rosen (Chapel Hill, N. C.).

Source: Mathematical Reviews, Vol. 10 No. 8

Smart

AVERBAKH, V.S.; ZHIDKO, Yu.M.

Reciprocal ferrite switch using a slot bridge. Izv. vys. ucheb.
sav.; radiotekh. 6 no.3:259-264 My-Je '63. (MIRA 16:9)

1. Rekomendovana Nauchno-issledovatel'skim radiofizicheskim
institutom pri Gor'kovskom gosudarstvennom universitete imeni
Lobachevskogo.

(Electric switchgear)

L 55996-55 EWI(1)/EEC(b)-2/EWA(h) Pm-4/Pac-4/Peb/P1-4/Pj-4
ACCESSION NR: AP5015820 UR/0109/65/010/006/1150/1153
611.372.413

AUTHOR: Averbakh, V. S.; Vlasov, S. N.; Talanov, V. I.

32
30
B

TITLE: Effect of first- and second-order aberrations on the characteristics of an open resonator

SOURCE: Radiotekhnika i elektronika, v. 10, no. 6, 1965, 1150-1153

TOPIC TAGS: resonator, phase aberration, millimeter band resonator

ABSTRACT: General characteristics of the solutions of the problem formulated in the title are analyzed, and some numerical and experimental results are reported; the problem was formulated by A. G. Fox and T. Li (Proc. IEEE, 1963, 51, 80). Generalized symmetry relations are derived for misaligned mirrors; the near-plane resonators are more sensitive to symmetrical misalignments. The fundamental equations were investigated in detail by solving them numerically on a digital computer by the iteration method. The theoretical results were

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L 5596-65
ACCESSION NR: AP5015820

verified by experimentation with open resonators at a wavelength of 8 mm; both cw and pulse (after J. P. Cristian and G. Goubau, IRE Trans., 1961, AP-9, 256) methods were used. The pulse resonator was formed by a spherical mirror (600 cm radius) and a plane 120-cm-diameter mirror. The cw resonator consisted of identical 50-cm-radius mirrors. Both outfits used square masks on the mirrors. "The authors wish to thank S. F. Morozov and L. V. Piskunova who performed all necessary computations on a BESM-2 computer."

Orig. art. has: 2 figures and 7 formulas.

[03]

ASSOCIATION: none

SUBMITTED: 16 Jul 64

ENCL: 0

SUB CODE: EC

NO REF SOV: 003

OTHER: 004

ATD PRESS 4034

Card 5/2

L 23323-66 EWT(1)/EWA(h)

ACC NR: AP6011456

SOURCE CODE: UR/0109/66/011/004/0750/0752

AUTHOR: Averbakh, V. S.; Vlasov, S. N.; Popova, E. M.; Sheronova, N. M.

ORG: none

TITLE: Experimental study of a mirror-type beam waveguide *25*

31
B

SOURCE: Radiotekhnika i elektronika, v. 11, no. 4, 1966, 750-752

TOPIC TAGS: beam waveguide, waveguide mirror, millimeter wave propagation

ABSTRACT: A study has been made of the characteristics of a mirror-type waveguide consisting of reflectors in the form of 150 x 210 mm sections shaped as ellipsoids of revolution. The principal radii of curvature were $R_x = 50$ cm and $R_y = 100$ cm. The mirror reflectors were made by deposition of a layer of silver on an epoxy base. They were mounted parallel to each other at a distance of 50 cm and spaced in such a way that the center of each mirror coincided with the focal points of the preceding and succeeding mirrors. The angle of incidence was 45° . The array consisted of eight mirrors with rectangular aperture masks which when shifted could vary the Fresnel parameter c . The transmission coefficient of the waveguide was determined by the effectiveness of excitation and reception and the value of the energy loss during reflection. Theoretical calculations indicated that the upper limit of the excitation coefficient for the primary power mode of a waveguide with a rectangular radiating horn was 0.91 for $c = 3.5$ and 0.84 for $c = \infty$. Three types of radiators operating at

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UDC: 621.372.833.1.01

L 23323-66

ACC NR: AP6011456

8 mm with $c = 3.5$ were tested. The results are shown in the table. The ohmic loss per one mirror was 0.3%, which exceeded the value of 0.06% expected for the skin-

Table 1. Test results

No.	Radiating horn type	Radius of curvature of wave front at horn output, mm	Principal mode excitation factor
1	Circular horn, 100 mm in diameter, TE ₁₁ mode	500	0.7
2	Square horn, 100 mm ² , TE ₁₀ mode	500	0.75
3	Rectangular horn, 120 x 85 mm, TE ₁₀ mode	750	0.8

effect, and may be attributed to imperfections in the silver reflecting layer. Horn-type no. 3 (see Table 1), whose dimensions were optimum, excited the primary mode with a loss of only 1 db. Total losses were 3.2 db. The tests indicate that the losses in mirror-type arrays are less than in arrays using lens reflectors. Orig. art. has: 2 figures and 1 table.

[BD]

SUB CODE: 09/ SUHM DATE: 21Apr65/ ORIG REF: 004/ OTH REF: 003/ ATD PRESS:

Card 2/2 W

4232

L 33389-66 EWT(1)

ACC NR:AP6011458

SOURCE CODE: UR/0109/66/011/004/0757/0759

AUTHOR: Averbakh, V. S.

ORG: none

30
B

TITLE: Oscillations in an open resonator in the unstable zone near the confocal point

SOURCE: Radiotekhnika i elektronika, v. 11, no. 4, 1966, 757-759

TOPIC TAGS: SHF antenna, resonator, quasioptic resonator

ABSTRACT: A two-mirror quasi-optical confocal resonator was investigated experimentally in its unstable region; 160-mm diameter copper mirrors mounted on a solid base were excited from a SHF klystron oscillator. Mirror radii: 380 and 470 mm; the position of one mirror was adjustable. With completely open mirrors, only three axisymmetrical modes TEM_{01} , TEM_{02} , TEM_{03} were observed; their amplitudes had a ratio of 1 : 0.4 : 0.1, respectively. In the unstable region, the transmission factor dropped rapidly, amplitudes of all modes became equal, and the difference between their frequencies varied slowly. With the mirrors shaded by square masks, only the lower mode was excited. It is found that, with small deviations of the mirror radii (production tolerance), a properly selected shading practically does not affect the dominant mode and yet protects from increased loss in the unstable zone, near the confocal point. Orig. art. has: 2 figures and 5 formulas.

SUB CODE: 09 / SUBM DATE: 02May65 / ORIG REF: 001 / OTH REF: 003

Card 1/1 *dy*

UDC: 621.378.01

L 39936-66

ACC NR: AP6014253

SOURCE CODE: UR/0109/66/011/005/0943/0945

AUTHOR: Averbakh, V. S.; Vlasov, S. N.; Talanov, V. I.

ORG: none

TITLE: Nonaxial-mode discrimination in open quasi-optical systems

SOURCE: Radiotekhnika i elektronika, v. 11, no. 5, 1966, 943-945

TOPIC TAGS: mode discrimination, quasioptic system, millimeter wave, *resonator*

ABSTRACT: A highly mode-selective open-resonator system is considered. If the dimensions of a two-concave-mirror system are so proportioned that the caustic surfaces are formed only for the dominant (axial) mode, only this mode will be located near the system axis. Or else: any infinite-nonplanar-mirror resonator can be conformally mapped into a plane-parallel system filled with a nonhomogeneous dielectric. These considerations were verified by a numerical solution of an integral equation that described the field in a two-dimensional resonator; selectivity curves are shown. A qualitative corroboration was obtained from an experimental study of a resonator with 200-mm diameter mirrors operating at an 8-mm wavelength. "The authors wish to thank L. V. Piskunova and V. F. Morozov for their work on an electronic computer." Orig. art. has: 3 figures and 1 formula.

SUB CODE: 20, 09 / SUBM DATE: 16Aug65 / ORIG REF: 004

Card 1/1 *JS*

UDC: 621.372.4

14
B

L 31125-66

ACC NR: AP6011396

SOURCE CODE: UR/0057/66/036/003/0497/0507

AUTHOR: Averbakh, V. S.; Vlasov, S. N.; Talarov, V. I. 47
B

ORG: Scientific-Research Radiophysics Institute at the Gor'kiy State University im. N. I. Lobachevskiy (Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete)

TITLE: An open resonator with an arbitrarily located stop

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 3, 1966, 497-507

TOPIC TAGS: laser, laser theory, resonator, electromagnetic field

ABSTRACT: The authors consider the normal modes and losses in an open resonator consisting of two spherical mirrors with a single beam-limiting diaphragm located at an arbitrary position on the optical axis. Such a resonator is regarded as a model of a laser with external mirrors in which the beam is limited by the dimensions of the working medium. All dimensions are assumed to be sufficiently large so that geometrical optics can be employed. The conditions for focusing are specified by the two parameters $g_i = 1 - L/R_i$ ($i = 1, 2$), where L is the distance between the mirrors and R_i is the radius of curvature of the i -th mirror. The effect of misalignment of the mirrors is taken into account. Two types of diaphragm are considered: a perfectly transparent rectangular aperture, and an absorbing aperture in which the transmission is a Gaussian function of the distance from the axis. The basic equations are taken

Card 1/2

UDC: 538.565 2

AVERBAKH, Y.

"Alcohol as a social problem" by H.V. Keyserlink. Reviewed by
IA. Averbakh. Zhur. nevr. i psikh. 61 no. 3: 461-462 '61. (MIRA 14:7)
(ALCOHOLISM) (KEYSERLINK, H.V.)

AVERBAKH, Ya.K. (Moskva)

Repeated abstinence [symptoms] in the clinical aspects of
alcoholism. Trudy Gos. nauch.-issl.inst. psich. 38:101-106'63.
(MIRA 16:11)

Causes of relapses in alcoholism. Ibid.:113-121

*

FEDOTOV, D.D., prof., otv. red. SEGAL, B.M., zam. otv. red.;
AVERBAKH, Ya.K., red.; AVRUTSKIY, G.Ya., red.; ALEKSANDROVSKIY,
Yu.A., red.; BALASHOVA, L.N., red.; BELKIN, A.I., red.;
GUROVICH, I.Ya., red.

[Problems of exogenous and organic neuropsychic disorders;
materials of the scientific conference of the State Scientific
Research Institute of Psychiatry of the Ministry of Public
Health of the R.S.F.S.R. March 1964.] Voprosy ekzogennykh i or-
ganicheskikh nervno-psikhicheskikh rasstroystv; materialy na-
uchnoi konferentsii Gosudarstvennogo nauchno-issledovatel'skogo
instituta psikhiatrii MZ RSFSR. Mart 1964. 164 p. No.2. 1964.
164 p. (MIRA 17:9)

1. Moscow. Gosudarstvennyy nauchno-issledovatel'skiy institut
psikhiatrii. 2. Direktor Gosudarstvennogo nauchno-issledovatel'-
skogo instituta psikhiatrii Ministerstva zdravookhraneniya
RSFSR (for Fedotov). 3. Otdel psikhovozv pozdnego vozrasta Gosu-
darstvennogo nauchno-issledovatel'skogo instituta psikhiatrii
Ministerstva zdravookhraneniya RSFSR (for Belkin). 4. Otdel
ekzogennykh nervnopsikhicheskikh rasstroystv Gosudarstvennogo
nauchno-issledovatel'skogo instituta psikhiatrii Ministerstva
zdravookhraneniya RSFSR (for Segal). 5. Gosudarstvennyy nauchno-
issledovatel'skiy institut psikhiatrii Ministerstva zdravoo-
khraneniya RSFSR (for Averbakh).

AVERBAKH, Ya. K. (Moskva)

Some characteristics of the remission in alcoholism patients.
Trudy Gos. nauch.-issl. inst. psikh. 208125-133 '63.
(MIRA 17c7)

SEGAL, B.M., nauchn. sotr.; AVERBAKH, Ya.K., nauchn. sotr.;
LUKOMSKIY, I.I., prof., red.

[Treatment of alcoholics with ciamide (calcium carbomide citrate) in hospitals and under outpatient conditions; an instructive and methodological letter] Lechenie lits, stradaiushchikh alkogolizmom, tsiamidom (tsitratom karbamida kal'tsiia) v statsionare i vnebol'nichnykh usloviakh; instruktivno-metodicheskoe pis'mo. Moskva, 1964. 7 p.
(MIRA 17:0)

1. Moscow. Gosudarstvennyy nauchno-issledovatel'skiy institut psikhiatrii.

FEDOTOV, D.D., prof., otv. red.; REMEZOVA, Ye.S., zam. otv. red.;
AVERBAKH, Ya.K., red.; BOLDYREV, A.I., (Moskva) red.;
GOL'DOVSKAYA, G.I., red.; KOPSHITSER, I.Z. (Moskva), red.

[Materials of the All-Russian Conference on the Problem
of Epilepsy, April 1964] Materialy Vserossiyskoy konferen-
tsii po probleme epilepsii, Moskva, Gos.nauchno-issl. in-t
psikhiatrii, 1964. 293 p. (MIRA 18:1)

1. Vserossiyskaya konferentsiya po probleme epilepsii, 1964.
2. Direktor Gosudarstvennogo nauchno-issledovatel'skogo in-
stituta psikhiatrii Ministerstva zdravookhraneniya RSFSR
(for Fedotov).

S/75/63/000/001/018/035
D4 3/D308

AUTHOR: Averbakh, Ye. M.

TITLE: A laboratory apparatus for measuring kinetic parameters of semiconductors

PERIODICALS: Referativnyy zhurnal, Elektronika i yeye primeneniye, no. 1, 1963, 15 abstract 102 (Sb. nauchn. rabot aspirantov Voronezhsk. un-
a, no. 2, 1962, 3-7)

TEXT: A description is given of an apparatus which provides for simultaneous measurement of the kinetic parameters of semiconductors (σ , R , $\Delta p/p_n$, thermo-EMF, and constants for the transverse and longitudinal Nernst-Ettinghausen effects). The heaters, magnetic circuit and probe holder mounted in its gap are all contained inside a vacuum system. The magnetic circuit is made from Armco iron, the field in its gap being 5×10^4 Oe. The specimen to be tested is placed in the probe holder and clamped at its ends by copper lead-in conductors. These conductors pass through the heater ovens, and fulfil the role of heating and cooling elements.

Card 1/2

A laboratory apparatus ...

S/275/63/000/001/018/035
D413/D308

Two pairs of probes making contact with the specimen on its opposite surfaces are placed one above the other. The probes are made of Ta in the form of knife-edges. By varying the order of connection of the probes in pairs, one can carry out measurements of all the kinetic parameters. X-A thermocouples are mounted at the ends of the specimen. The asbestos cement body of the holder ensures that isothermal conditions are attained. The measurement was carried out in an argon atmosphere, the system first being exhausted to 10^{-2} mm Hg. Graphs of several measurements taken with the equipment are given. 3 references. [Abstractor's note: Complete translation.]

Card 2/2

24.7700

36169

S/181/62/004/003/007/045

B102/B104

AUTHORS: Ugay, Ya. A., Averbakh, Ye. M., Marshakova, T. A., and Matveyev, O. V.

TITLE: Some electrical properties of the intermetallic semiconducting compound Cd_4Sb_3 doped by various impurities

PERIODICAL: Fizika tverdogo tela, v. 4, no. 3, 1962, 615 - 617

TEXT: In order to determine the effect of Ag, Cd, In, Sn, Pb, Sb, and Te impurities in quantities of up to 1 at% on Cd_4Sb_3 , the temperature dependence of conductivity in the range 20 - 300 °C, the Hall constant, and the thermo-emf at room temperature were measured. d - c measurements were made with a two-probe compensation method; the thermo-emf was determined with respect to copper; the field strength in the slit of the electromagnet was 2500 oe. Cd_4Sb_3 (impurity concentration $2.1 \cdot 10^{-3}\%$) was fused together with the doping metals (purity 99.996%) in evacuated quartz ampoules. The conduction type of the stoichiometric Cd_4Sb_3 (p-type) was changed only by Te impurities.

Card 1/3

S/181/62/004/003/007/045
B102/B104

Some electrical properties ...

Composition	Thermo-emf μv/deg	Conductivity (ohm·cm) ⁻¹	Carrier mobility cm ² /v.sec
Cd ₄ Sb ₃	+100	30	900
with Ag	+47	4000	800
with In	+130	80	45
with Te	+29 or -77	2900 or 5100	345 or 1035

The forbidden band width as determined from the log σ versus (1/T) curve was 1.25 ev. Cd₄Sb₃ of stoichiometric composition has a carrier concentration of 2.10·10¹⁷ cm⁻³. Sb additions increase this value up to ~10¹⁸ cm⁻³, the other metals even up to ~10¹⁹ cm⁻³. The Cd-Sb alloy consists of CdSb and Cd₄Sb₃. The stoichiometric and the Te-doped samples (p-type) show rectifying properties; the Te-doped samples also show a range of negative resistivity in the back direction. If the current is raised to more than 4 ma the rectifying effect vanishes. There are 2 figures, 1 table, and 5 Soviet references.

Card 2/3

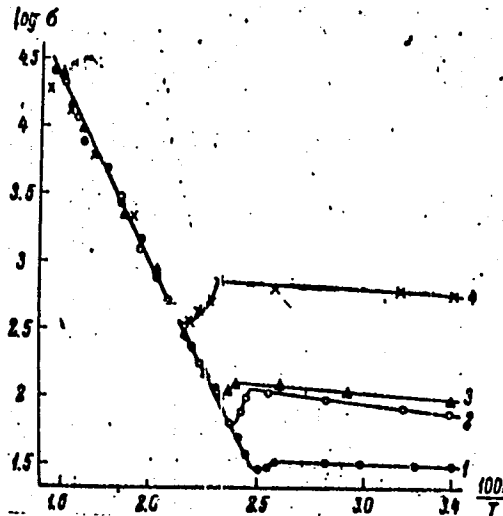
Some electrical properties ...

S/181/62/004/003/007/045
B102/B104 .

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet (Voronezh State University)

SUBMITTED: October 2, 1961

Legend to Fig. 1: (1) Cd_4Sb_3 ,
(2) Cd_4Sb_3+In , (3) $\sim+Sb$,
(4) $\sim+ Cd$.



Card 3/3

24.7700

43130
S/181/62/004/011/031/049
B125/B186

AUTHORS: Ugay, Ya. A., Averbakh, Ye. M., and Lavrov, V. V.

TITLE: Certain electric properties of the intermetallic compound
 $\beta\text{-Zn}_4\text{Sb}_3$

PERIODICAL: Fizika tverdogo tela, v. 4, no. 11, 1962, 3270-3272

TEXT: In order to reveal semiconducting properties in stoichiometric Zn_4Sb_3 the temperature dependences of the electric conductivity and of the thermo-emf, of single and polycrystals were measured in the range 20-400°C. The Hall constant was measured at room temperature. A stoichiometric melt of Zn and Sb was kept slightly above the melting point of Zn_4Sb_3 and was continuously mixed by vibration. Small crystals of β -modification were prepared by quenching the melt in ice-water. The coarsely crystalline specimens were produced by slowly cooling. Single crystals were obtained by zone melting of the coarsely crystalline specimens. At room temperature all samples showed hole-type conductivity. Results: Zn_4Sb_3 can be purified by zone melting. $\beta\text{-Zn}_4\text{Sb}_3$ is a semiconductor with a width of the forbidden
Card 1/3

Certain electric properties of...

S/181/62/004/011/031/049
B125/B186

band of 1.20 ev. The clear metallic conductivity of the β sample A7 (Fig.1) is attributed to additional acceptors formed as a result of lattice defects in quenching. There are 2 figures and 1 table.

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet (Voronezh State University) ✓

SUBMITTED: June 29, 1962

Fig. 1. $\log \sigma$ versus inverse temperature. Legend: B5 - single crystal, 612 - coarsely crystalline, A7 - β -modification.

Fig. 2. Differential thermo-e.m.f. ($\mu\text{v}/\text{deg}$) versus inverse temperature.

Card 2/3

Investigation of semiconducting phases based on antimony. Ya. A. Ugay.

Semiconducting phases in the system zinc-antimony. Ya. A. Ugay,
Ye. M. Averbakh.

[Study and some properties of thin layers of indium phosphide.
Ya. Ugay, R. L. Fogel'son, V. V. Lavrov. (Not presented).]

Report presented at the 3rd National Conference on Semiconductor Compounds,
Kishinev, 16-21 Sept 1963

L 11116-63 EWP(q)/EWT(m)/HDS AFFTC/ASD JD

ACCESSION NO: AP3000602

S/0181/63/0015/005/1291/1292

AUTHOR: Ugar, Ya. A.; Averbakh, Ye. M.

55
54

TITLE: Some electrical properties of intermetallid: ϵ -Zn₃Sb₂

SOURCE: Fizika tverdogo tela, v. 5, no. 5, 1963, 1291-1292

TOPIC TAGS: zinc antimonide electrical property, zinc antimonide electroconductivity, zinc antimonide differential thermal emf

ABSTRACT: Measurements of temperature dependence of electroconductivity and differential thermal emf in the interval of 20 to 470C were carried out on five polycrystalline specimens of ϵ -Zn₃Sb₂ of stoichiometric composition obtained by slow-cooling the melt. It was established that the low temperature ϵ -phase of Zn₃Sb₂ is a hole-type semiconductor with a 0.2-eV width of the forbidden zone. The hole concentration of $6.6 \times 10^{18} \text{ cm}^{-3}$ and mobility of $200 \text{ cm}^2/\text{v} \times \text{sec}$ were determined from the measurements of the Hall effect at room temperature and 100-oe magnetic field intensity. The discontinuities of the differential thermal emf observed at 405 and 437C can be explained by phase transitions of the intermetallic Zn₃Sb₂ compound. Orig. art. has: 1 figure.

✓ 1/2/ Voronezh State University

L 16976-63
FD-4 JD/AT

BWP(1)/EWG(k)/EWP(q)/EWT(m)/BDS AFFTC/ASD/ESD-3/IJPC
8/020/63/149,006/023/021

70

AUTHOR: Ugay, Ya. A., Averbakh, Ye. M., Gukov, Yu. Ya., and Lavrov, V. V.

TITLE: A new semiconductor phase in zinc-antimony system

PERIODICAL: Akademiya nauk SSSR. Doklady. v. 14, no. 6, 1963, 1387-1389

TEXT: The authors investigated the intermetallic compound Zn_3Sb_2 in the Zn-Sb system, suspecting this compound to be a semiconductor. To prove this, they chose the beta-modification of Zn_3Sb_2 , stably existing between -10 and 465°C. They isolated for the first time monocrystals of this compound by three different techniques and found it to be a gray substance with a metallic luster, fairly brittle, with a slightly vitreous, conchoidal fracture. Microhardness approximately 200 kg/mm². The pycnometric specific weight of large crystals is 6.81. The possibility of cleaning this compound by zone recrystallization was demonstrated. The physicochemical and electrical properties of Zn_3Sb_2 also are described here for the first time. There are 3 figures and 1 table.

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet (Voronezh State University)

SUBMITTED: August 3, 1962

Card 1/1

ACCESSION NR: AP4041373

S/0048/64/028/006/1044/1047

AUTHOR: Ugay, Ya.A.; Averbakh, Ye.M.

TITLE: Some electric properties of single crystals of ZnSb-CdSb solid solutions
Report, Third Conference on Semiconductor Compounds held in Kishinev 16-21 Sep 1963

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.6, 1964, 1044-1047

TOPIC TAGS: semiconductor, solid solution, zinc antimonide, cadmium inorganic compound, electric conductivity, thermal emf, temperature dependence, Hall constant

ABSTRACT: The electric conductivity, Hall constant and thermal emf of single crystals of ZnSb-CdSb solid solutions were measured at temperatures from 20 to 220°C. The measurements were undertaken because of the low thermal conductivities and high thermal emf's of zinc and cadmium antimonides and the fact that these substances form solid solutions in all proportions. Single crystals of the solid solutions were obtained by the zone leveling method. The crystals of the solid solutions, as well as those of the pure compounds, had two unequally marked cleavage planes. The samples were oriented for measurement with the less marked cleavage plane parallel to the current and perpendicular to the magnetic field. All the materials proved to

Card 1/3

ACCESSION NR: AP4041373

be p-type semiconductors. The thermal emf was found to be positive for all the samples over the full temperature range investigated. This is regarded as an indication that the hole mobility exceeds the electron mobility in the intrinsic conduction region, i.e., that the materials are anomalous semiconductors. The Hall mobilities were found to be proportional to T^{-n} (T is the absolute temperature) with n between 1.7 and 2.0. The value of n for the pure compounds is 1.66. The difference is ascribed to the greater concentration of lattice defects in the solid solutions. In about half the samples the value of n increased suddenly by a large factor (about 4) at some temperature within the range investigated and remained large at higher temperatures. This behavior is not understood. The energy gap, as determined from the temperature dependence of the conductivity, was 0.41 eV in both pure compounds and was less in the solutions. The minimum energy gap was 0.21 eV and occurred at a composition of 64 mole percent CdSb. The energy gap determined from the temperature dependence of the Hall constant was approximately 20% greater than that determined from the conductivity. This discrepancy is ascribed to the fact that not only the energy gap, but also the formation of lattice defects, contributes to the temperature dependence of the Hall constant. Orig.art.ins: 2 formulas, 4 figures and 1 table.

Card 2/3

ACCESSION NR: AP4041373

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet (Voronezh State University)

SUBMITTED: 00

ENCL: 00

SUB CODE: SS, IC

NR REF SW: 007

OTHER: 005

Card 3/3

ACCESSION NR: AP4041363

S/0048/64/028/006/0998/0999

AUTHOR: Ugay, Ya. A.; Averbakh, Ye. M.; Fogel'son, R. L.;
Gol'dfarb, V. A.

TITLE: Some properties of thin indium phosphide layers

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 28, no. 6,
1964, 998-999

TOPIC TAGS: indium, indium phosphide, indium phosphide film, indium
phosphide property, film property, film electric conductivity

ABSTRACT: The temperature dependence of electric conductivity of in-
dium phosphide twin films and of their limit of absorption in the
longwave range have been investigated. Films were produced by a
separate vacuum vapor deposition of components, first of indium and
then of phosphorus, under pressure of about 10^{-5} mm Hg at 400C.
Electron diffraction patterns of the films corresponded to those of
the InP compound. The temperature dependence of electric conductivity
of InP films 0.55—0.06 μ thick was determined at 20—500C. One of
the two films investigated was first annealed in vacuum at 250C.

Card 1/3

ACCESSION NR: AP4041363

for 3 hr. As shown in the diagram (see Fig. 1 of the Enclosure), the electric conductivity of the films at high temperature is almost identical. The width of the forbidden zone determined from this diagram is 1.42 ev. The width of the forbidden zone determined from the longwave absorption edge was 1.27 ev. The higher value obtained from the temperature dependence of electric conductivity is explained by partial decomposition of indium phosphide at high temperatures. Orig. art. has: 2 figures.

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet
(Voronezh State University).

SUBMITTED: 00

ATD PRESS: 3058

ENCL: 01

SUB CODE: SS, IC

NO REF SOV: 002

OTHER: 001

Card 2/3

UGAY, Ya.A.; AVEREAKH, Ye.M.

Some electric properties of single crystals of the solid
solutions $Zn_xCd_{1-x}Sb$. Izv. AN SSSR. Ser. fiz. 28 no.6:1044-
1047 Je '64. (MIRA 17:7)

1. Voronezhskiy gosudarstvennyy universitet.

UGAY, Ya.A.; AVERBAKH, Ye.M.; FOGEL'SON, R.L.; GOL'DFARB, V.A.

Some properties of thin films of indium phosphide. Izv. AN
SSSR. Ser. fiz. 28 no.6:998-999 Je '64. (MIRA 17:7)

1. Voronezhskiy gosudarstvennyy universitet.

AVERBAKH, Ye.M.

Laboratory equipment for measuring the kinetic parameters
of semiconductors. Sbor.nauch.rab.asp. VGU no.2:3-7 '62.
(MIRA 18:11)

L 2708-66 EWT(1)/EWT(m)/I/EWP(t)/EWP(b)/EWA(h)/EWA(c) IJP(c) JD/AT

ACCESSION NR: AP5017183

UR/0139/65/000/003/0129/0133

AUTHOR: Ugay, Ya. A.; Averbakh, Ye. M.; Kruglova, G. S.

44,55 44,55 44,55 21,44,55 37 B

TITLE: On the production of single crystals of semiconductor phases in the Zn-Sb system

SOURCE: IVUZ. Fizika, no. 3, 1965, 129-133

TOPIC TERMS: zinc alloy, antimony alloy, solid solution, single crystal growth, zone melting

ABSTRACT: The authors discuss the various technical difficulties involved in the production of single crystals of intermetallic ZnSb. Although they succeeded in using the Bridgman or the Chalmers method to produce single ZnSb crystals up to 12 mm long and 8 mm in diameter, drawn at a rate of 4 mm/hr, the end parts of the ingot were not monocrystalline, and the crystals contained an excess of antimony over the stoichiometric composition. It is shown, however, that such single crystals can be used as primers to grow stoichiometric ZnSb crystals by zone-melting. The technique and the properties of the grown crystals are described. It is claimed that the procedure employed conforms more closely to the properties of the Zn-Sb state diagram, is simpler, and takes less time. This technique was tried also to grow β -Zn₄Sb₃ single crystals, with limited success, owing to the low tem-

Card 1/2

L 2708-66

ACCESSION NR: AP50171B3

perature at which a $\beta \rightarrow \gamma$ phase transition takes place, and to grow Zn_3Sb_2 single crystals, with no success whatever. Orig. art. has: 10 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 15Oct63

ENCL: 00

SUB CODE: 88

NR REF SOV: 012

OTHER: 008

CC
Card 2/2

AVERBAKH, Yu.; KIREYEV, I.

In a coke and chemical plant. Posh.delo 8 no.2:12 F '62.

(MIRA 15:2)

1. Glavnyy inzh. Gubakhinskogo koksokhimicheskogo zavoda (for Averbakh).

(Chemical plants—Fire; and fire prevention)

SOV/91-58-12-17/20

AUTHORS: Averbakh, Yu.A., Gusev, A.S., Gerashchenko, A.I., Engineers

TITLE: The Reconstruction of the LMZ AK-25-1 (TN-165) Turbine
(Rekonstruktsiya turbiny LMZ AK-25-1 (TN-165))

PERIODICAL: Energetik, 1958, Nr 12, pp 27-29 (USSR)

ABSTRACT: The following improvements have been introduced into the LMZ AK-25-1 turbines. The steam-pass section of the high-pressure cylinder has been reconstructed. The console thrust bearing has been replaced by a combined journal-thrust bearing. The hydraulic end-sealing has been replaced by steam sealing (pressure 1.2 to 1.5 atm). There are 2 variations of the reconstructed steam-pass section of the turbine. One maintains steam bypass, the other eliminates it. The reconstructed turbines work more reliably and economically. Heat consumption dropped 3 to 5 % at a 21,000 to 25,000 kW output, which is equal to a 3,000 ton fuel economy yearly. The entire reconstruction work was done by the Knar'kov branch of the Central Constructor's Bureau attached to the Glavenergo-remont of the MES in 1954-55. There are 3 diagrams.

Card 1/1

AVERBAKH, Yu.A., inzh.; BERLYAND, V.I., inzh.

Conversion of turbines to back-pressure operation. Elek. sta. 36
no.6:25-29 Je '65. (MIRA 18:7)

AVERBAKH, Yu.A., inzh.; NAYMANOV, O.S., inzh.

Choice of the type of a reversible control diaphragm for central heating take-off. Elek. stat. 35 no.1:16-18 Ja '64.

(MIRA 17:6)

AVERBUKH, A.

Use of electricity for military mines. Voenn. znan. 31 no. 6:23 Je'55.
(Shil'der, A.A.) (Mines, Military) (MLRA 8:11)

AVERBUKH, A., kandidat khimicheskikh nauk.

Smokeless gunpowder. Voen. znan.: [92] no. 3:30 Nr. '56. (MIRA 9:7)
(Gunpowder, Smokeless)

AVREBUKH, A., kand. tekhn. nauk; GLUSHKO, M.Ye., inzh.

Using communication graphs in organizing intrafactory traffic at
the Dzerzhinskii Plant. Biul. TSNITGDM no.3:66-69 '58. (MIRA 11:5)
(Railroads, Industrial--Freight)

PROCESSA AND PATENTIER INDEX

29

CA

AVERBUKH, A-A

Kid leather from sheepskin. Ya. I. Perkin and A. A. Averbukh. U.S.S.R. 64,681, April 30, 1945. In order to preserve in the raw skin as much of the noncollagen components as possible and thereby to increase the strength of the finished product, the skins are soaked for 2-24 hrs. without astringent, and limed for 5-8 hrs., with the least possible delay in the sequence of the operations preceding tanning proper. M. Hosh

COMMON ELEMENTS

MATERIALS INDEX

ASSOCIATED METALLURGICAL LITERATURE CLASSIFICATION

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APR 1946

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HVERKUKIT, A-A.

27

CA

Depilated hides. A. A. ~~Aviluh~~ M. G. Babakina, B. I. Gribkhes, and M. S. Lyuksenburg. U.S.S.R. 69718, Nov. 30, 1947. Raw hides are fermented in the presence of an alkali sulfite and sulfhydryte and NaSH. The depilated hide is then treated for several hrs. in an alk. bath, the pH of which is gradually raised from 7 to 12.5. The hides are then washed, neutralized, softened, and pickled at 30-35°. M. Hosh

L 28101-66 ENT(m)/EMP(t)/ECT IJP(c) JD/WH/GD

ACC NR: AT6013789

(N)

SOURCE CODE: UR/0000/65/000/000/0000/0102

AUTHOR: Tomashov, N. D. (Doctor of chemical sciences, Professor); Modestova, V. N.;
Plavich, L. A.; Averbukh, A. B.

ORG: none

TITLE: Study of the electrochemical behavior of titanium *v1*

70
68
34

SOURCE: Korroziya metallov i splavov (Corrosion of metals and alloys), no. 2
Moscow, Izd-vo Metallurgiya, 1965, 80-102

TOPIC TAGS: electrochemistry, corrosion, titanium, electric potential, anodization,
sulfuric acid, titanium oxide

ABSTRACT: Ti is an electronegative metal. The standard electrode potential of its
dissolution in the form of divalent ions Ti^{2+} is -1.63 v, and in the form of tri-
valent ions Ti^{3+} , -1.21 v. Nevertheless, the intense corrosion of Ti, as well as its
anodic dissolution in solutions of non-oxidizing acids, occurs in the presence of
potentials that are approx. 1 v more positive than the above values, i.e. at -0.45
and -0.25 v. This indicates that the dissolution of Ti during corrosion and anodic
depolarization occurs with an exceptionally high anodic inhibition. In studies of
the electrochemical behavior of Ti allowance must be made for the thermodynamic

Card 1/4

T 28101-66
ACC NR: AT6013789

possibility of the existence of both the hydride and the oxides of Ti at the surface of Ti over a broad range of potentials, the more so as it is known that not only the oxides but also the hydride of Ti usually inhibit the corrosion rate of Ti in acids. It has also been observed that prior cathodic polarization inhibits in certain cases the anodic dissolution of Ti. In this connection the authors investigate the effect of the hydride layer, forming on Ti during its corrosion or cathodic polarization, on the electrochemical dissolution and oxidation of Ti. To this end, the anodic potentiostatic curves were plotted for Ti with various duration of prior cathodic polarization of its surface. On comparing curves 1 and 2 in Fig. 1 it can be seen that the hydride layer produced during 1 hr of cathodic polarization sharply inhibits the process of the anodic dissolution of Ti: the limiting passivation current is reduced nearly in half. If this prior cathodic polarization is prolonged for 18 hr, however, an opposite effect is produced: the maximum anodic current increases (curve 3). This is due to the loosening and augmentation of true surface area of Ti owing to the absorption of hydrogen. In the region of active anodic dissolution the surfaces of Ti (whether pure or with hydride layer) get oxidized. The degree of this oxidation increases as the potential changes from its normal value to a positive (anodic) value. Studies of the corrosion resistance of Ti oxides show that the oxides forming in the presence of a potential of +1.0 v in a 3N H₂SO₄ solution, and particularly in diluted 0.5N or 0.1N H₂SO₄ solutions, are relatively resistant in the region of active anodic dissolution and in conditions of cathodic polarization. In

Card 2/4

L 28104-66

ACC NR: AT0013789

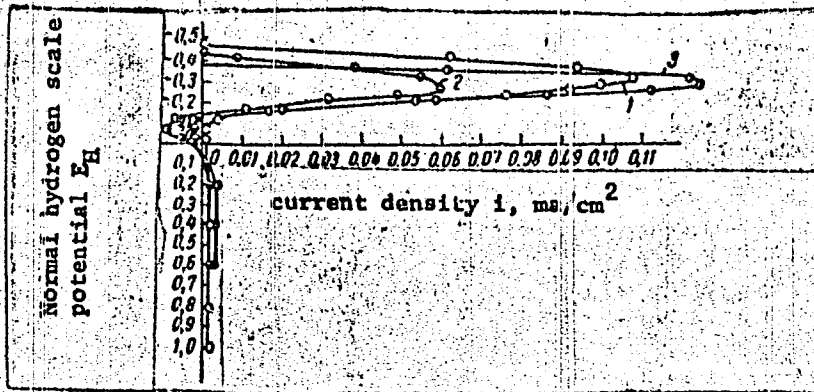


Fig. 1. Anodic potentiostatic curves plotted for Ti in 3% H_2SO_4 solution:

1 - titanium with a hydride layer produced after 1 hr of cathodic polarization at $i = 50 \text{ ma/cm}^2$ and $\delta \approx 2 \mu$; 3 - titanium after 18 hr of cathodic polarization at $i = 5 \text{ ma/cm}^2$, $\delta \sim 10 \mu$

Card 3/4

J. 28104-55

ACC NR: AT6013789

the process of the anodizing of Ti the oxides form on the hydride layer of Ti. The thickness of the hydride layer then is hardly affected. In the course of anodic oxidation, diffusion of Ti ions takes place from the metal across the hydride layer. The relative corrosion resistance of Ti in the solutions of acids in which corrosion occurs with hydrogen depolarization is due to hydride-oxide passivity. Orig. art. has: 11 figures, 1 table

SUB CODE: 07, 11 SUBM DATE: 19Jul65/ ORIG REF: 013 OTH REF: 008

Card 4/4 LC

AVERBUKH, A.G.

Tectonic structure of the southern part of the Dniester-Prut
interfluvium based on regional seismic prospecting. Geotektonika
no.4:110-112 JI-Ag '65. (MIRA 18:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh
metodov razvedki, Moskva.

AVERBUKH, A.G.

Determining the position of the refracting boundary and
wave velocities from hodographs of nonlongitudinal profiles
in the correlation method of refracted waves. Prikl. geofiz.
no.38:58-68 '64. (MIRA 18:11)

AVEFBUKH, A.G.

Some kinematic characteristics of refracted waves. Prikl. geofiz.
no.44:79-93 '65. (MIRA 18:9)

AVERBUKH, A.G.; ZAYTSEV, V.I.; SUMERINA, E.P.; GORBACH, L.M.

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(Seismic waves)

AVERBUKH, A.G.

Accuracy of determining the depth of penetration of a ray with
Chibisov's formula. Prikl. geofiz. no.37:64-66 '63. (MIRA 16:10)

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by the correlation refracted wave method. Prikl. geofiz. no.36:
38-49 '63. (MIRA 16:9)

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Determining the attenuation ratio by the frequency characteristics
of automatic control systems. Trudy MAI no.75:63-72 '57.
(Automatic control) (MLRA 10:6)

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168000 (1103, 1329, 1013)

AUTHOR: Averkhkh, A. I.

TITLE: S. A. Chaplygin's theorem as related to the theory of optimum processes

PERIODICAL: Avtomatika i telemekhanika, v. 22, no. 10, 1981, 1309-1313

TEXT: The relation between S. A. Chaplygin's theorem on differential inequalities and optimum control is considered. The conditions of applicability of this theorem on a given interval are obtained. If, of two functions $y(x)$ and $z(x)$ which have the same value for $x = X_0$ (as well as their $n-1$ derivatives), the first function satisfies the differential equation $y^{(n)} = f(x, y, y', \dots, y^{(n-1)})$, and the second—the inequality $z^{(n)} > f(x, z, z', \dots, z^{(n-1)})$, then $z(x) \geq y(x)$ on some interval $[X_0, X_1]$. Chaplygin's theorem on differential inequalities states the upper bound of X_1 : the solution of the conjugated equation should be

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non-negative (on the interval $[X_0, X_1]$). This applies to linear equations. For nonlinear equations, matters are more complicated. Chaplygin's problem of ascertaining the conditions for which, on $[X_0, X_1]$,

$z(x) \geq y(x)$ if

$$y^{(n)} = f(x, \dots, y^{(n-1)}), \quad z^{(n)} \geq f(x, \dots, z^{(n-1)})$$

can be solved by the methods used in the theory of optimum systems. If, from the conditions

$$y_i' = f_i(x, y_1, \dots, y_n),$$

$$z_i' \geq f_i(x, z_1, \dots, z_n), \quad (i = 1, \dots, n)$$

$$y_i(X_0) = z_i(X_0) = y_{i0}$$

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it follows that

$$z_i \geq y_i \quad (i = 1, \dots, n) \quad (2)$$

then for all $u_i(x) \geq 0$, the solutions of system

$$\begin{aligned} y_i' &= f_i(x, y_1, \dots, y_n), \\ z_i' &= f_i(x, y_1, \dots, z_n) + u_i(x), \end{aligned} \quad (3)$$

$$y_i(x_0) = z_i(x_0) = y_i^0$$

satisfy

$$y_i(x) \leq z_i(x) \quad (i = 1, \dots, n) \quad (4)$$

for all $x \in [x_0, x_1]$. In order to determine the conditions for which (4) holds, the circumstance is used that $z_i(x)$ is a functional of

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$u(x) = u_1 \{x, \dots, u_{n_1}(x)\}$, and $y_i(x)$ -- the value of this functional for $u(x) \equiv 0$. Hence, the variation of the functional with the variation of the controller $u(x)$ from $u \equiv 0$ to $u(x)$ has to be determined. System (3) is written

$$\begin{aligned} v^{(0)}(x) &\equiv 0, & v^{(1)}(x) &\equiv u(x), \\ \delta x_k(x) &= z_k(x) - y_k(x), \\ c_k = 1 \text{ и } c_j &= 0 \text{ для } j \neq k. \end{aligned}$$

hence

$$z_k(X) - y_k(X) = - \int_{x_0}^X \sum_{i=1}^n p_i u_i dx - \eta, \tag{9}$$

where

$$y' = f_i(y_1, \dots, y_n, x),$$

$$p'_i = - \sum_{s=1}^n p_s \frac{\partial f_s(y_1, \dots, y_n, x)}{\partial y_i} \quad (i = 1, \dots, n), \tag{10}$$

$$p_k(X) = -c_k, \quad p_j(X) = 0 \text{ для } j \neq k \quad (k = 1, \dots, n). \tag{11}$$

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where γ_i is a remainder. The solution of Chaplygin's problem reduces to finding the conditions for which the right-hand side of Eq. (9) is non-negative for any $u_i(x) \geq 0$. These conditions are that the functions $p_i(x)$ which satisfy system (10) should be non-positive on $[X_0, X_1]$ for any initial conditions (11). Hence, the necessary condition for applying Chaplygin's theorem for system (1) is: for any k and any $X \in [X_0, X_1]$, the quantities $p_{i,k}(x)$ which are the solutions of the n systems

$$y'_i = f_i(x, y_1, \dots, y_n),$$

$$p'_{i,k} = - \sum_{v=1}^n p_{v,k} \frac{\partial f_v}{\partial y_i} \quad (i=1, \dots, n), \quad (12)$$

$$p_{i,k}(X) = -c_{i,k} \delta_{i,k} \quad (c_{i,k} > 0) \quad (i=1, \dots, n),$$

should be non-positive on $[X_0, X]$. From the arbitrariness of $|c_{i,k}|$

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and the linearity of system (12) it follows that the necessary condition is that the solutions p_i should have the following property: for any $x \in [X_0, X_1]$, $p_i(x)$ should be negative for $x \in [X_0, X]$, if $p_i(x)$ is negative for any $i = 1, \dots, n$. If the system is linear in y_i , then $\gamma \equiv 0$, and the above condition is also sufficient. In particular, for a single n -order equation, it is necessary that the solution of the conjugated equation with zero initial conditions should not change sign on $[X_0, X]$ for any $X \in [X_0, X_1]$. In case of a linear n -order equation, this is also the sufficient condition. Further, an extension of Chaplygin's theorem is considered. The above method permits ascertaining the dependence of the limits (interval) of applying Chaplygin's theorem on the variables y_1, \dots, y_n of the problem. There are 7 Soviet-bloc references.

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AUTHOR:

Averbukh, A.I. (Moscow)

TITLE:

On the choice of actual parameter-values in analysis of systems with random parameters

PERIODICAL: Avtomatika i telemekhanika, v. 23, no. 4, 1962, 497-502

TEXT: A refinement is proposed to B.G. Dostupov's method (Ref. 1) of determining the mean and dispersion of the solutions of a system of differential equations with random parameters; (Ref. 1: Avtomatika i telemekhanika, v. 18, no. 11, 1957). The systems of equations

$$x_i = f_i(t; x_1, \dots, x_n; v_1, \dots, v_m) \quad (i=1, \dots, n) \quad (1)$$

is considered, where v_1, \dots, v_m are random parameters; it is assumed that these parameters are uncorrelated, with zero mean and dispersion $\sigma_k^2 = Mv_k^2$. The method, proposed in Ref. 1 (Op.cit.) involves

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N integrations of system (1); (for the s-th integration, the random parameters are chosen as equal to ξ_{si}); thereupon the mean and dispersion of the solutions $x_j(t)$ are determined by formulas:

$$\overline{Mx_i(t)} = \sum_{s=1}^N \alpha_s x_{si}(t), \quad \overline{Mx_i^2(t)} = \sum_{s=1}^N \alpha_s x_{si}^2(t) \quad (i=1, \dots, n). \quad (3)$$

The numbers α and ξ are arbitrary for any system (1), except for the conditions:

$$\sum_{s=1}^N \alpha_s = 1, \quad \sum_{s=1}^N \alpha_s \xi_{si} = 0 \quad (i=1, \dots, m). \quad (4)$$

$$\sum_{s=1}^N \alpha_s \xi_{si} \xi_{sj} = 0 \quad (i \neq j, i, j = 1, \dots, m), \quad \sum_{s=1}^N \alpha_s \xi_{si}^2 = \sigma_i^2 \quad (i=1, \dots, m);$$

N does not depend on m. The actual values of N, α_s , and ξ_{si} , proposed in Ref. 1 (Op.cit.), have the disadvantage of involving very high values of ξ_{si} . In the present article, values of N, α_s and ξ_{si} X

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are obtained, which satisfy (4) with comparatively small values of ξ_{si} . First, conditions (4) are transformed by means of

$$\sqrt{\alpha_s} = \mu_s, \quad \sqrt{\alpha_s} \xi_{si} = u_{si}. \quad (5)$$

The minimum condition

$$B = \sum_{s=1}^N \sum_{i=1}^N \xi_{si}^2 = \min \quad (9)$$

leads to

$$1 \leq \max_{s,k} |\xi_{sk}| \leq \sqrt{m}. \quad (12)$$

Further, the case of $m = 4\lambda - 1$, is considered. Thereby Hadamard's (H-) matrices are used. H-matrices of $(m+1)$ -order are written down for $m = 1$ and $m = 4\lambda - 1 = 3; 7; 11$. Then the mean and dispersion of $x_i(t)$ can be calculated by formula (3), in which $N = m + 1$, $\alpha_s = 1/(m + 1)$, and $\xi_{sk} = \pm \sigma'_k$ (the sign depending on the $(k + 1)$ -st

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column, s-row element of the H-matrix). If $m \neq 4\lambda - 1$, but some of the parameters v_m are normally distributed, then the above results can be extended to the general case. This, however, involves a certain ambiguity, due to the fact that the proposed interpolation formulas are valid only in the quadratic approximation (for the mean). As an example, the velocity stabilization system of an aircraft is considered. There are 4 Soviet-bloc references.

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