

L 10538-66 EWT(d)/FSS-2

ACC NR: AR5018780

SOURCE CODE: UR/0274/65/000/007/V004/V004

SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz'. Svodnyy tom, Abs. TV23 44

AUTHOR: Zakharov, V. M. 55 B

TITLE: Operation of a chain of compensators on a linear variation of attenuation

CITED SOURCE: Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR, vyp. 21, 1964, 109-115

TOPIC TAGS: signal level compensator, communication channel, Laplace transform, electronic circuit, error 6, 55

TRANSLATION: The dynamics of controlling the level in a chain of astatic compensators is considered when the line sections undergo linear attenuation variations. Based on an analysis with Laplace transforms, curves are obtained of a function which determines the dynamic control error in a circuit comprising i compensators in the case of a simultaneous disturbance to all of them. From

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UDC: 621.395.664.078

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the apparatus data, possible control errors in a chain of five V-3 and V-12 compensators are determined. Similar calculations are carried out for the case of nonsimultaneous disturbances to i controllers. An inference is drawn that, with a permissible dynamic-control error up to 0.1 nep, the compensation rate must exceed the rate of attenuation variation by 20 times or more. Also, the dynamic error in a chain of static compensators is considered. It is stated that, in this case, the error is lower than that in a similar chain of astatic compensators. Bib 2, figs 3.

SUB CODE: 17, 09

Card 2/2 *pw*

USSR

ONUFRIYEV, V. P., SHVETSOV, Yu. F., DUDNIKOV, A. I., PRONIN, I. A.,
ZAKHAROV, V. M., and Kravets, I. K., All-Union Scientific Research
Institute of Foot-and-Mouth Disease, USSR

"Effect of Immune Serum on the Formation of Active Immunity to
Foot-and-Mouth Disease"

Sofia, Veterinarna Sbirka, Vol 63, No 11, pp 5-9

Abstract: Immune serum is used to produce passive immunity in cattle in regions in which foot-and-mouth disease occurs. The effect of preceding administration of immune serum on the formation of active immunity upon injection of live virus of type 0 was tested on mice. The immune serum was derived from cattle that had recovered from foot-and-mouth disease after infection with type 0 virus. It was established that administration of the immune serum to the mice 5-7 days before immunization with live virus prevented formation of active immunity in them, while administration of the immune serum 10, 15, 20, or 30 days before immunization with the virus had no effect on the development of active immunity. On administration of immune serum to the mice, the passive immunity persisted for 7 days. Tables.

1/1

ZAKHAROV, V. N.

"Methods of Determining Maximum Power Amplification Frequency and Maximum Generated Frequency of Transistors," Semiconductor Devices and Their Uses; Collection of Articles, No 2, p. 205, Moscow, Izd-vo "Sovetskoye radio," 1957, 398 p.

ZAKHAROV, V.N.

Determining maximum frequencies of power amplification and
oscillation of crystal triodes. Poluprov. prib. i ikh prim.
no.2:205-222 '57. (MIRA 11:6)
(Transistor amplifiers) (Oscillators, Transistor)

ZAKHAROV, V.N.

Mechanical feeding of shive into furnaces. Tekst.prom. 17 no.2:44-
45 F '57. (MLRA 10:2)

1. Glavnyy inzhener Latvyskogo l'notresta.
(Stokers, Mechanical)

ARKHANGEL'SKIY, V.L.; BIRMAN, B.A.; ZAKHAROV, V.N.; MARGOLIN, L.M.;
NEMCHINOV, S.V.; PASHKOV, Yu.S.

Brief news. Meteor. i gidrol. no.8:63-64 Ag '63. (MIRA 16:10)

ZAKHAROV, V.M.

In the presidium of the scientific-Technological Council of the
Chief Administration of the Hydrometeorological Service. Meteor.
i gidrol. no.6:69 Je '56. (MIRA 9:9)
(Meteorology)

ZAKHAROV, V.N.

Arctic conference. Meteor.i gidrol. no.8:67 Ag '56. (MLBA 9:11)
(Arctic regions)

ZAKHAROV, V.N.

International award. Meteor.i gidrol. no.9:67-68 S '56.

(MLRA 9:11)

(Meteorology)

ZAKHAROV, V.N.

Conference in Kazakhstan. Meteor. i gidrol. no.3:67-68 M_r
'57.

(MLRA 10:5)

(Kazakhstan--Meteorology, Agricultural--Congresses)

SOV/50-60-1-17/20

3(7)
AUTHOR:

Zakharov, V. N.

TITLE:

On the Board of the Main Administration of the Hydrometeorological Service

PERIODICAL: Meteorologiya i gidrologiya, 1960, Nr 1, p 62 (USSR)

ABSTRACT:

The Board of the Glavnoye upravleniye gidrometeoroslužby (Main Administration of the Hydrometeorological Service) met on October 8, 1959 to discuss the problem of improving coordination and planning in scientific research work on hydrometeorology. This problem had previously been closely dealt with in the institutes and in the Presidium Nauchno-tekhnicheskogo soveta GUGMS (Presidium of the Scientific Technical Council of the Main Administration of the Hydrometeorological Service). Following resolutions adopted by the Board, a new planning system was worked out and enforced for scientific research work, experiments, designing, and expeditions. The coordination of scientific investigations will be the task of the central and zonal institutes of the Gidrometeoroslužba (Hydrometeorological Service). The fields to be coordinated are sharply outlined and divided up between the institutes. The central institutes are to coordinate investigations on hydrometeorological forecasts and

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On the Board of the Main Administration of the
Hydrometeorological Service

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information (TsIP(Central Institute of Forecasts)), on
climatology and general meteorology (GGO(State Hydrological
Institute)), on water reserves, calculation of water economy,
hydrometry, hydrophysics, processes occurring in river beds,
hydrological instruments (GGI(State Hydrometeorological Institute)),
the physics of the free atmosphere, and methods of its
investigation (TsAO), on oceanography and maritime meteorology
(GOIN(State Oceanographic Institute)), the elaboration of
meteorological, aerological and oceanographic instruments
(NII GMP(Scientific Research Institute of Hydrometeorological
Instruments)), aeroclimatology and mechanization of interpreting
hydrometeorological data (NIIAK). The zonal institutes are to
coordinate the investigation of landslides, snow covers, and snow
avalanches as well as problems of glaciology. Furthermore,
coordination commissions were formed at the Nauchno-tekhnicheskii
sovet GUGMS (Scientific Technical Council of the Main
Administration of the Hydrometeorological Service).

Card 2/2

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2808, 1413, 4016

26750
S/122/61/000/002/003/011
A161/A126

AUTHORS: Genkin, M. D., Candidate of Technical Sciences, Zakharov, V. N.,
Engineer, Misharin, Yu. A., Candidate of Technical Sciences.

TITLE: Some results of gear tests with hot lubricants.

PERIODICAL: Vestnik mashinostroyeniya, no. 2, 1961, 14 - 16

TEXT: Gears have been tested in a special test machine for 50 hours at 200°C lubricating oil temperature, and for seizure at 150 and 150°C. The article includes details such as the gear module, tooth numbers, contact factor, steel grade, hardness, etc. Oil was fed into contact area. Gears were rotated with 33.4 m/sec. velocity. The test results led to the conclusion that seizure presents the highest danger at high temperature. It appeared in 75 % of all tests as the first cause of wear. Pitting did not develop progressively. The phenomena proved a high effect of the heat balance in gears and a drop in mechanical strength in teeth surface as a result of tempering. Higher effect of tempering was stated on pinions than on the mating gears, due to smaller cooling surface and hence a higher temperature in pinions. It is expected that an oil feed in-

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Some results of gear test with hot lubricants.

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X

crease to a certain limit and oil cooling applied to the gear body will have a positive effect on the load capacity of transmissions at high temperatures. The load application mode was also stated to have some effect. Conclusions: 1) The most dangerous kind of destruction in gears working at 150 - 250°C is seizure. The mechanical strength and resistance to scoring of gears designed for such service must be evaluated taking into account the changing properties of oil and metal at high temperature. 2) The bending resistance of gears made of 18XH0A(18KhNVA) steel practically does not decrease at 150 - 250°C. 3) The metal strength in contact is dropping (due to reduced hardness and rising friction factor), but fatigue cracks mostly do not have time to develop into progressively growing cavities due to seizure. 4) The relative strength reserve for fatigue pitting and bending in hot gears is higher than that for seizure. This is particularly clear in short-life transmissions where contact stresses can normally be raised without expecting pitting from fatigue. There are 3 Soviet-bloc references.

Card 2/2

TKACHEV, V.V., inzh.; SHOLENINOV, V.M., inzh.; Prinsipali uchastiya:
KONSTANTINOV, V.G.; LEVIN, L.Ya.; GRIGOR'YEVYKH, G.F.;
ZAKHAROV, V.N.; ZHDANOV, L.A.; PUZANOV, N.A.; SUKHANOV, F.I.;
VASIL'YEV, A.N.; ZHELEZNAYA, F.T.; TUGARINOVA, Ye.A.; LEVKIN,
A.S.; MOKIYEVSKIY, N.M.; SHAKHALOV, V.; SMIRNOV, A.I.

Developing the technology of producing a high-basicity
open-hearth sinter. Stal' 25 no.8:683-686 Ag '65.

(MIRA 18:8)

1. Cherepovetskiy metallurgicheskiy zavod (for Tkachev,
Sholeminov).

ZHUCHKOV, V.I. (Sverdlovsk); LEPINSKIKH, B.M. (Sverdlovsk); MIKULINSKIY, A.S.
(Sverdlovsk); Prinsipal uchastiy: ZAKHAROV, V.M.

Electric conductivity and thermoelectromotive force of solid
manganese oxides at high temperatures. Izv. AN SSSR. Mat.
no.4:46-50 JI-Ag '65. (MIRA 18:3)

BOGHIN, N.A.; BULAVEO, A.G.; VLADIMIROV, A.M.; GRIGOR'YEV, V.I.; YEFREMOV, P.V.;
ZAKHAROV, V.N.; MARGOLIN, L.M.; NENCHIKOV, S.V.; PASHKOV, Yu.S.;
SOVERSHAYEV, V.A.; FEDOROV, V.G.

Brief news. Meteor. i gidrol. no.9:61-64 S '65.

(MIRA 18:8)

TUMANYAN, B.Ye.; KALIKHEVICH, F.F.; IVAKINA, T.Ya.; BRATIYCHUK, M.V.;
BELENKO, V.I.; KRYLOV, A.G.; SENTSOVA, Yu.Ye.; SHILKINA, Z.S.;
YUREVICH, V.A.; ZAKHAROV, V.N.

Results of photographic observations of artificial earth satel-
lites. Bul.sta.opt.nabl.isk.sput.Zem. no.29:37-44 '62.

(MIRA 1692)

1. Nachal'nik Yerevanskoy stantsii nablyudeniya iskusstvennykh sputnikov Zemli (for Tumanyan).
2. Nikolayevskaya stantsiya nablyudeniya iskusstvennykh sputnikov Zemli (for Kalikhevich, Ivakina).
3. Nachal'nik Uzhgorodskoy stantsii nablyudeniya iskusstvennykh sputnikov Zemli (for Bratiychuk).
4. Zvenigorodskaya stantsiya Astronmicheskogo soveta AN SSSR (for Belenko, Krylov, Sentsova, Shilkina, Yurevich).
5. Nachal'nik Irkutskoy stantsii nablyudeniya iskusstvennykh sputnikov Zemli (for Zakharov).

(Artificial satellites--Tracking)

BELOGUROV, Yu.A.; BELYAYEV, A.F.; VISHNEVSKIY, P.; ZAKHAROV, V.N.;
KAGANER, M.; MARGOLIN, L.M.; PASHKOV, Yu.S.; POLYAKOVA, Ye.A.
SMIRNOVA, S.I.

In the Main Administration of the Hydrometeorological Service.
Meteor. i gidrol. no.6:62 Je '64 (MIRA 17:8)

In the institutions of the Hydrometeorological Service. Ibid.:
63.

Meetings, conferences, seminars. Ibid.:63-64

Abroad. Ibid.:64.

ZAKHAROV, V.N.

Fiftieth anniversary of the Hydrochemical Institute. Meteor.
1 gidrol no.8:58-59 Ag '64 (MIRA 17:8)

AVAGIMOV, Ye.A. [Avahimov, E.A.], assistant; ZAKHAROV, V.N., student 4-go
kursa; ZAKHAROVA, A.A., student 4-go kursa; BELOKUROV, V.G.
[Bielokurov, V.H.], student 4-go kursa

Stand for cleaning fuel and oil filters. Mekh. sil'. hosp. 13
no.9:10-11 S '62. (MIRA 17:3)

1. Kubanskiy sel'skokhozyaystvennyy institut.

BALAKHONOV, V.P.; BOCHIN, H.A.; GUTERMAN, I.G.; ZAKHAROV, V.N.; ZMIYEV,
A.B.; KARMANOV, V.D.; KEBUKH, A.M.; MARGOLIN, L.M.; TOPAL, I.D.

Brief news. Meteor.i gidrol no.2:61-64 F '63.
(Meteorology)

(MIRA 16:2)

MARKOV, Yu.V.; ZAKHAROV, V.N.

Using a quartz clock at the Irkutsk Tracking Station. Biul.
sta. opt. nabl. isk. sput. Zem. no.30:5-10 '62.

(MIRA 16:6)

1. Irkitskaya astronomicheskaya observatoriya, Stantsiya
nablyudeniya iskusstvennogo sputnika Zemli No. 1079.
(Irkutsk--Astronomical clocks)

ZAKHAROV, V.N.; MOSKVITINA, E.N.; POTEYKO, V.I.

Observations of lunar occultations of stars in Irkutsk.
Astron. tsir. no.233:5-6 F '63. (MIRA 16:6)

1. Stantsiya nablyudeniy iskusstvennykh sputnikov Zemli,
Irkutsk.

(Occultations)

ZAKHAROV, V.P.

M

PROCESSES AND PROPERTIES: METALS

"New Non-Ferrous Alloys Having Special Values of the Specific Electrical Resistance. V. P. Zakharov (*Vestn. Elektroprom.*, 1940, 11, (11), 30-33; *Chem. Zvest.*, 1941, 118, (11), 2016; *C. Abstr.*, 1943, 38, 4310). (In Russian.) A good substitute for tin-bronze and ordinary bronze in electrical machines was found in a brass with 32.2% of copper and 47.5% of zinc. The cast and the forged alloy (specific electrical resistance - 0.045-0.05 ohm/sq. mm./m.) have, respectively, tensile strengths 43 and 54 kg./sq. mm., yield points 13-14 and 18-22 kg./sq. mm., elongations 20-25 and 25%. Brinell hardness numbers 90-95 and 105-111. As a conductor, a manganese brass with copper 60-68, manganese 3-3.8, iron 1-1.5%, remainder zinc, was very satisfactory, having a tensile strength of 45 kg./sq. mm., yield point 20 kg./sq. mm., elongation 30%, with the same electrical resistance as ordinary bronze. Aluminium-manganese alloys containing 2.5, 5, and 10% of manganese are more suitable for windings than is pure aluminium, as they have a higher resistance (up to 0.2 ohm/sq. mm./m.).

AS 354 METALLURGICAL LITERATURE CLASSIFICATION

ZAKHAROV, V. P.

Termist. Utv. v kachestve uchebnika dlia remeslennykh uchilishch.
Sverdlovsk, Mashgiz, 1946. 191 p. illus., tables.

Bibliography: p. 188.

Heat-treatment technician.

DLC: TN731.Z3

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of
Congress, 1953.

ZAKHAROV, V.P.; GULYAYEV, A.P., professor, doktor tekhnicheskikh nauk,
referent; PLOKHOV, B.G., inzhener, referent; DUGINA, N.A.,
tekhnicheskikh redaktor

[The universal heat-treatment furnace operator] Termist-universal.
Izd. 3-e. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroitel'noi
lit-ry, 1954. 240 p. (MLRA 8:4)
(Steel--Heat treatment)

YURCHAK, I.Ya., kand. tekhn. nauk; ZAKHAROV, V.P.; SAZHKO, V.P.; REZNIKOV,
L.G.; KLYMER, M.B.

Organizing assembly lines in Ukrainian porcelain manufacture. Trudy
GIKI no.3:31-52 '56. (MIRA 11:5)
(Ukraine--Ceramic industries) (Pottery) (Assembly line methods)

LUGNINA, I.G., kand. tekhn. nauk; ZAKHAROV, V.P., inzh.; KLASSEN, V.K., inzh.

Causes of the appearance of clinker dust. Tsement 30 no.3:11-12
My-Je '64. (MIRA 17:11)

1. Kazakhskiy tekhnologicheskii institut i Chimkent'skiy tsementnyy zavod.

L 37118-66 EWT(1)/EWT(m)/T/EWE(t)/ETI/EWE(1) IJP(c) JD/GG/AT

ACC NR: AP6015768 (A, N)

SOURCE CODE: UR/0048/66/030/005/0789/0792

AUTHOR: Pilyankovich, A. N.; Zaldinrov, V. P.; Chugayov, V. N.

ORG: Institute for the Study of Materials, Academy of Sciences of the USSR
(Institut problem materialovedeniya Akademii nauk USSR)

TITLE: Investigation of recrystallization of thin films under electron bombardment
Report, Fifth All-Union Conference on Electron Microscopy held in Siny 6-8 July 1965

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 5, 1966, 789-792

TOPIC TAGS: electron microscopy, semiconducting film, germanium, silicon, film grain, crystallization, electron diffraction

ABSTRACT: The recrystallization under the influence of electron bombardment of approximately 500 Å films of silicon and germanium, vacuum deposited at 1×10^{-4} mm Hg, was observed with an electron microscope. The fresh films were in a metastable quasi-amorphous state; no grain structure could be observed with the electron microscope and the electron diffraction patterns exhibited four very diffuse halos. Recrystallization was effected by rapidly refocusing the 25 µA 50 KV electron beam of the microscope onto a small portion of the film. Recrystallization was "practically instantancous", although under normal operation of the microscope no change in the film could be perceived after 30 minutes of exposure. After electron bombardment

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ACC NR: APG015768

three sharply distinguished regions were discerned: a central region with fine equi-axial grains; an intermediate region with 10 \AA acicular or dendritic crystals oriented radially from the periphery toward the center of each mesh of the supporting grid; and a peripheral region in which the film retained its initial structure. This zone structure is ascribed to the action of temperature gradients arising in the film under electron bombardment as a result of the high heat conductivity of the wires of the supporting grid. When the films were heated directly in the microscope there were no large temperature gradients and the anneal led to the appearance of fine equiaxial crystals which grow by recrystallization. The electron diffraction patterns of the crystallized films showed, in addition to many lines of the diamond-type lattice of germanium and silicon, a number of lines associated with the face-centered cubic lattice and forbidden for the diamond-type lattice by the structure factors. It is suggested that these forbidden lines may be due to multiple diffraction. Orig. art. has: 3 figures.

SUB CODE: 20/

SUBM DATE: 00/

ORIG REF: 000/

OTH REF: 004

Card 2/2 *MT*

SEDEL'NIKOV, G.N., polkovnik meditsinskoy sluzhby; ZAKHAROV, V.P.,
podpolkovnik meditsinskoy sluzhby; SOKHADZE, V.F., podpolkovnik
meditsinskoy sluzhby

Ways of leading (unloading) of wounded on naval vessels.
Voen. med. zhur. no.10:47-49 0 '65. (MIRA 18:11)

ZAKHAROV, V.P.

Limiting cycles of infinite multiplicity. Dif. urav. 1 no.4:
464-466 Ap '65. (MIRA 18:5)

1. Chuvashskiy pedagogicheskiy institut imeni Yakovleva.

ZAKHAROV, V.P., akademik

Raising the efficiency of combined power generation and
irrigation systems. Vest. AN Kazakh. SSR 20 no.1:11-15
Ja '64. (MIRA 17:3)

1. Akademiya nauk Kazakhskoy SSR.

GARASHCHUK, V.P.; ZAKHAROV, V.P.

Concentration of lithium and strontium in the plasma of a d-c
arc in a helium atmosphere at high pressures. Opt. i spektr.
15 no.1:129 J1 '63. (MIRA 16:8)

(Electric arc)

(Plasma (Ionized gases))

ZAKHAROV, V. P.

"Ways of Overcoming Difficulties Created by Sludge Ice at Hydroelectric
Power Station Constructions in Central Asia," Gidrotekh. Stroi., No.1, 1948

ZAKHAROV, V. P.

Hydrodynamics

Statistical methods of determining the maximum water discharge of rivers.
Izv. An SSSR Otd. tekhn. nauk, No. 3. 1952.

Monthly List of Russian Accessions, Library of Congress,
October, 1952. UNCLASSIFIED.

1. SHUL'TS, V. L.; ZAKHAROV, V. P.
2. USSR (600)
4. Hydrology
7. Ways of further developing Soviet river hydrology. Izv. AN SSSR Otd. tekhn. nauk no. 8, 1952

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

1. ZAKHAROV, V. P., PROF., USHAKOV, A. P.
2. USSR (600)
4. Main Turkmen Canal
7. Cold-weather operating conditions of the hydro-technical structures of the Main Turkmen Canal. Gidr. stroi. 21 no. 8, '52.

10/10/72

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

ZAKHAROV, V.P.

Statistical methods for working with cartographic material. Izv.
AN Kazakh.SSR.Ser.energ. no.7:47-50 '54. (MLRA 5:12)
(Cartography)

ZAKHAROV, V.P.; CHIZHOV, O.P.

Combating ice jams in the Syr Darya by blasting. Meteor.i gidrol.
no.1:44-45 '56. (MLRA 9:6)
(Syr Darya--Ice)

ZAKHAROV, V.P.

Dividing the republics of Central Asia into districts on the basis of power requirements. Izv. AN Uz.SSR no.7:35-43 '56. (MIRA 14:5)

1. Chlen-korrespondent AN KazSSR.
(Soviet Central Asia--Electric power)

SOV/112-58-3-3766

8(5) .

Translation from: Referativnyy zhurnal. Elektrotehnika, 1958, Nr 3, p 35 (USSR)

AUTHOR: Zakharov, V. P. and Chokin, Sh. Ch.

TITLE: Basic Methods for Determining an Estimated Rule Curve for Operation of Hydro Plants and the Hydro-Power System (Osnovy metodiki opredeleniya raschetnoy obespechennosti raboty GES i gidroenergosisemy)

PERIODICAL: Izv. AS Kazakhskaya SSR, Ser. energ., 1956, Nr 10, pp 3-47

ABSTRACT: Fundamental methods are presented for determining the optimum hydro-operating schedules for hydro plants and for power systems with predominating hydro plants, for both cases of controlled and noncontrolled runoffs. Principal power-economy peculiarities of operating such plants and power systems are presented. Additional cost of labor caused by variable hydro-power production conditions is discussed in detail, methods are presented for evaluating the power-production deficits under various plant operating conditions (curves of energy deficit division, curves of hydro-plant

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Basic Methods for Determining an Estimated Rule Curve for Operation of Hydro

shares in peak-load taking; an analysis is submitted of additional cost of non-productive labor caused by variable conditions of energy production at hydro plants; an evaluation is offered of the part played by steam plants and industrial enterprises in regulating the energy balance of the power system (curves of power deficit in the system). Materials and graphic methods are presented for determining the probable average values of national-economy deficits of energy production by a power system; methods are recommended for approximate evaluation of estimated rule curves for hydro plants and power systems with predominating hydro plants, for both natural and controlled runoff conditions.

V.A.P.

Card 2/2

ZAKHAROV, V.P.

Third All-Union Hydrological Congress. Vest. AN Kazakh. SSR 14 no.3:
95-100 Mr '58. (MIRA 11:5)

1. Chlen-korrespondent AN KazSSR.
(HYDROLOGY--CONGRESSES)

ZAKHAROV, V.P.

Development directions of large-scale hydroelectric power systems
(in irrigated regions). Probl. reg. rech. stoka no.7:212-232 '58.
(MIRA 11:9)

(Soviet Central Asia--Hydroelectric power station)

ZAKHAROV, V.P.

Calculation of streamflow regulation by a series of reservoirs
in a basin with uniform feeding conditions. Izv. AN Kazakh.
SSR. Ser. energ. no.2:11-16 '60. (MIRA 14:3)
(Reservoirs)

ZAKHAROV, V.P.

Methodology for determining the calculational safety margin for the
operation of a hydroelectric power station. Trudy Inst. energ. AN
Kazakh. SSR 2:123-129 '60. (MIRA 15:1)
(Hydroelectric power stations)

S/031/60/000/03/016/024
D035/D003

AUTHOR: Zakharov, V.P., Academician

TITLE: Certain Problems of Taking Into Account the Time Factor
in Technico-Economic Calculations

PERIODICAL: Vestnik Akademii nauk Kazakhskoy SSR, 1960, Nr 3,
pp 82-85 (USSR)

ABSTRACT: In this article the author sums up the result of a seminar on concrete economics conducted at the Institut energetiki AN KazSSR (Institute of Power Engineering of the AS Kazakhskaya SSR). Certain problems of taking into account the time-factor in technico-economic calculations were discussed. The problem was never studied in all its extent, because some aspects of the problem - as the Soviet scientists thought-could have been applied only in capitalist society. The problem was posed anew by Khrush-

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S/031/60/000/03/016/024
D035/D003

Certain Problems of Taking Into Account the Time Factor in Technico-
Economic Calculations

chev in his speech at the inauguration of the Volzh-
skaya GES imeni V.I. Lenina (Volga GES imeni V.I.
Lenin). Solutions of some of problems connected with
the time-factors were proposed by N.S. Kalachev,
V.A. Kiktenko, V.I. Khmyron and A.Zh. Zhulayev, Can-
didates of Technical Sciences and by I.M. Panasenko.
The author welcomes further discussions of these pro-
blems. There are 2 graphs, 1 table and 1 Soviet re-
ference.

ASSOCIATION: AN Kaz SSR (AS Kaz SSR)

Card 2/2

NIKONOVA, Ye.I.; PROKOP'YEV, V.K.; ZAKHAROV, V.P.

Concentration of metal atoms in a d.c. carbon arc. Fiz. sbor. no.4:64-68 '58. (MIRA 12:5)

1. Gosudarstvennyy ordena Lenina opticheskiy institut imeni S.I.Vavilova. (Atoms) (Electric arc)

ZAKHAROV, V.P.; SHISHLOVSKIY, O.A. [Shyshlovs'kyi, O.A.]

Determining the effect of the composition of the test on the
inflow of matter into the plasma of the direct current arc. Visnyk
Kyiv.un.no.2.Ser.fiz.ta khim. no.1:21-25 '59. (MIRA 14:8)
(Electric arc) (Plasma (Ionized gases))

24(7)

SOV/48-23-9-5/57

AUTHORS: Zakharov, V. P., Shishlovskiy, A. A.

TITLE: An Investigation of the Entry of a Substance Into the Arc Plasma. The Case of the Binary Mixtures of Na and Li

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 9, pp 1063-1064 (USSR)

ABSTRACT: In the present paper the concentration of the atoms in a direct-current arc at atmospheric pressure is investigated, and, at the same time, the influence exercised by experimental conditions upon the entry of substances is investigated. The IT-23 interferometer according to Rozhdestvenskiy and an ISP-67 spectrograph were used, and the mixtures of NaCl, Na₂CO₃ and Li₂CO₃ with carbon were investigated by means of this instrument. These mixtures were located in the hole of one of the carbon electrodes. The entry of atoms into the direct current arc was found to be 1.33 times (Na) and 1.41 times greater (Li) respectively than that into the alternating current arc. During the investigation of the reciprocal influencing by the elements on the entry of atoms in the case of a change of the concentration of one of the components, it was found that the content of Na atoms in the discharge gap does not depend on the Li-content in the test sample. There is propor-

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SOV/48-23-9-5/57

An Investigation of the Entry of a Substance Into the Arc Plasma. The Case of the Binary Mixtures of Na and Li

tionality of the lithium content between discharge gap and test sample. An increase of the concentration of a component in the test sample causes a monotonic increase of the concentration in the discharge gap. Only within the range of 25-40% Na was a deviation from the above result observed. Because of the different diffusion coefficients of Na and Li in the case of an equal content of elements in the test sample, the concentration of the Na atoms in the discharge gap is higher than that of the Li atoms. Furthermore, the influence exercised by the melting temperature of the mixture upon the entry of Na and Li atoms is investigated, and it is found that, with an increase of the average melting temperature, the entry both of Na and of Li decreases. If bivalent Ca is used instead of monovalent Li in the test sample, the entry of Na is decreased two-fold. There are 3 figures and 2 Soviet references.

Card 2/2

S/058/61/000/012/035/083
A058/A101

AUTHOR: Zakharov, V. P.

TITLE: Anomalous-dispersion method of determination of electrode material entry into discharge space

PERIODICAL: Referativnyy zhurnal, Fizika, no. 12, 1961, 249, abstract 123197 ("Visnyk Kyivs'k.un-tu", no. 3, 1960, ser. fiz. ta khimiyi, no. 1, 58-60, Ukr., Russian summary)

TEXT: There are considered the results of determination of the concentration of normal atoms of electrode material in spectral-excitation sources. A comparison of material entry into spectral-excitation sources of different kinds was carried out. There are given data on the effect of third components, properties of the chemical elements and compounds in which the element is analyzed for analysis on entry of material into a DC arc.

[Abstracter's note: Complete translation]

Card 1/1

3222A

S/139/61/000/004/011/023
E194/E135

26.9310

AUTHOR: Zakharov, V.P.

TITLE: The influence of atmospheric composition and pressure on the entry into an arc discharge of atoms of certain elements from the electrode

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Fizika.
no. 4, 1961. 92-95

TEXT: Several works have shown that radiation of a spark discharge is markedly affected when air is replaced by inert gases or the air pressure is altered. This may be due to changes in the concentration of easily ionised atoms entering the discharge from the electrodes and so it is of interest to study this process. The present work was undertaken to determine the concentration of atoms of Na, Ba, Ca, Sr, entering an arc discharge from the electrodes in atmospheres of argon, helium, and at various air pressures. Samples consisting of mixtures of salts with carbon powder were introduced into a hole in a graphite anode. For the monovalent metals the following salts were used: Na₂CO₃, NaF, NaCl, NaBr, and Li₂CO₃. The investigations were made with a d.c.
Card 1/5

The influence of atmospheric

32221
S/139/61/000/004/011/023
E194/E135

arc at a current of 4 A with the distance between electrodes of 2.5 mm. The spectral lines used were the yellow doublet of sodium and the line 6107 Å of lithium. The following salts of bivalent metals were used: BaCO₃, CaO, and SrCO₃, with a current of 6 A using the resonance lines of barium 5537 Å, calcium 4226 Å and strontium 4607 Å. In all cases the amount of salt in the sample was designed to ensure identical atomic concentration of the elements in the sample. To carry out the measurements a vacuum chamber, in which the arc discharge could be set up, was introduced into one beam of an interferometer whilst the other beam contained an evacuated vessel of the same length. The concentration of atoms of sodium and lithium in the arc was followed over the pressure range from atmospheric to 10-15 mm Hg. Results for barium, calcium and strontium were clear only from pressures of 400 mm Hg and lower; at higher pressures the concentrations could only be assessed approximately. Fig.1 shows the relationship between the concentration of Na and Li atoms in the spark gap as a function of the air pressure, and Fig.2 shows a similar curve for Ba, Ca and Sr. Different sodium salts were also tried and a relationship was observed between the concentration in the arc gap and properties

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32222

The influence of atmospheric

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E194/E135

which characterise the bond strength such as the dissociation energy and the heat of formation. Thus, the salts were, in order of rising bond strength and of increasing concentration, NaBr, NaCl, NaF, and Na₂CO₃. Studies with argon and helium atmosphere were made on carbonates of the elements in a d.c. arc with a current of 6 A. The results are given in Table 2. When the air is replaced by inert gas the visible spectrum becomes less intense and both the atomic and ionic spectral lines are weakened. The effects of using inert gas are similar to those of reducing the air pressure. To explain these results, it will be necessary to determine the temperature and other experimental conditions. There are 2 figures, 2 tables and 9 references: 7 Soviet-bloc and 2 English. The English language references read as follows:
 Ref.4: Backer, Eidelstein and Bailey. JOSA, Vol.46, No.2, 1956.
 Ref.5: Bailey, Backer. JOSA, Vol.46, No.2, 1956.

ASSOCIATION: Kiyevskiy gosuniversitet imeni T.G. Shevchenko
(Kiyev State University imeni T.G. Shevchenko)

SUBMITTED: May 24 1960 initially, and after revision
October 18, 1960.

Card 31/3

X

22234
S/125/61/000/001/003/016
A161/A133

1.2500 also 1454

26.7310

AUTHOR: Zakharov, V.P.

TITLE: The effect of the arc atmosphere and electrode material on the arc stability

PERIODICAL: Avtomaticheskaya svarka, ¹⁴no. 1. 1961, 24-26

TEXT: Studies have been made in view of more extensive application of gas-shielded welding. The Rozhdestvenskiy "hooks" method was used to determine the absolute concentrations of normal atoms in the arc gap, described in Ref. 1 (Ye.I. Nikonova and V.K. Prokof'yev, in "Optika i Spektroskopiya", vol.1, no.3, 1956) and Ref. 2 (V.P. Zakharov and A.A. Shishlovskiy, in "Izvestiya AN SSSR. Seriya fizicheskaya, vol.XXII, no.9, 1959). The experimental installation consisted of a Rozhdestvenskiy "MT-23" (IT-23) interferometer in combination with an ИСП-67 (ISP-67) spectograph. Na, Li, Sr, Ca and Ba were introduced into the bore in the anode in the form of carbonates mixed with graphite powder. A horizontal carbon arc was chosen for experi- ✓

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3

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A161/A133

X

The effect of the arc atmosphere ...

ments, and the arc current varied between 4 and 25 amp; the gap width was 2.5 mm. The concentration of atoms in the gap was measured with an accuracy of $\pm 15\%$. Measurement results in the 6 amp arc were (concentration in $\text{at/cm}^3 \cdot 10^{-15}$):

	Na	Li	Sr	Ca	Ba
in helium	16	2.1	2.2	0.8	0.3
in argon	10	1.2	0.8	0.4	0.2
in air	11.3	3.7	2.0	1.0	0.1

As can be seen, the highest concentration is in helium, and the lowest in argon. The presence of atoms from electrodes in the arc depended on the arc power, $P = IU$ (where I is the current in amp, and U the arc voltage). The arc power was as a rule highest in helium and lowest in argon. The discharged power in the same media and with equal current depended on the element getting into the arc gap and on the concentration of the easily-ionized component. The dependence determined for Na at 4 amp is shown by the curves. The power stabilized at certain concentrations of the easy-ionized component which is lowest in helium. But the emission spectra were very different in different media, and the weakest in helium (most intense in air). The phenomenon was not explained. The metastable state of atoms pointed out previously (Ref.4) may play a considerable role in it. The arcs burned more

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The effect of the arc atmosphere ...

22234
S/125/61/000/001/003/016
A161/A133

stable in neutral gas, particularly in helium, which may be due to the lower discharge energy because of a high heat release from the arc and less probable fluctuations. The effect of air pressure was investigated, and it was stated that the concentration of alkaline element atoms decreased nearly uniformly with air pressure decrease from atmospheric to 10^{-15} mm Hg, with the only exception for the range 100±10 mm Hg where the quantity of atoms dropped abruptly. Alkali-earth metals behave differently, and the concentration of their atoms at 200 mm Hg was the same as or even higher than at atmospheric pressure. The content of barium, calcium and strontium was always considerably lower than of sodium and lithium. All spectra weakened with dropping pressure. Conclusions: 1) It was proved that the Rozhdenstvenskiy's "hooks method" can be used for the investigation of electric arcs in different media. 2) It was proved by direct measurements that electrode matter getting into the discharge depends on the arc power. 3) The concentration of the easily ionized component at which the arc voltage stabilizes depends on the surrounding medium. There is 1 figure, 3 Soviet-bloc and 1 non-Soviet-bloc references. The reference to English-language publications reads as follows: R. Baker, S. Aldelstein and L. Valle, Physical Basis of Line Enhancement in Argon and Krypton, "Journal of the Optical Society of

Card 3/5 *Kiev State University im. P. A. Shevchenko*

L 08524-67 EWT(1)/EWT(m)/EWP(k)/EWP(t)/ETI IJP(c) JD/HW
ACC NR: AP6034754 (N) SOURCE CODE: UR/0020/66/170/005/1056/1058

AUTHOR: Zakharov, V. P.; Tsvirko, Yu. A.; Chugayev, V. N. 19

ORG: none 16 15 B

TITLE: Recrystallization of thin semiconductor films under the effect of a laser beam

SOURCE: AN SSSR. Doklady, v. 170, no. 5, 1966, 1056-1058

TOPIC TAGS: semiconductor film, amorphous germanium film, germanium film irradiation, laser irradiation, germanium film recrystallization

ABSTRACT: Amorphous germanium²¹ films 300—1500 Å thick produced by vacuum vapor deposition on glass substrate were removed from substrates, placed on aluminum foil^{150-μ} thick, and irradiated with laser-beam pulses which had an energy of 1 joule and a duration of 1 msec. The beam spot on germanium film was about 0.01 mm in diameter. The foil (see Fig. 1) was provided with openings b' and c' through which the germanium film could be observed with an electron microscope. The laser beam burned hole a' in the film and foil. In openings located at a distance of up to 2 mm from a', the germanium film disintegrated completely. However, in openings located at a distance of 2—4 mm (specimen in air) or 2—8 mm (specimen in a vacuum of 0.1 mm Hg) from a',

Card 1/2

UDC: 539.216.22:621.315.522 :548.53:621.375

L 08524-67

ACC NR: AP6034754

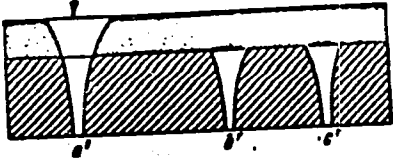


Fig. 1. Laser beam on germanium films

a' - Laser burned hole; b' and c'
 openings; d - germanium film;
 e - aluminum foil; f - laser beam.

a recrystallization of germanium took place. The disintegration and recrystallization took place only in the portion of film facing the openings. No structural changes were observed in the portions adjacent to hole a'. No recrystallization was observed when thin 300 A films were used. Since the lattice heat conductivity of germanium is insufficient to carry within 1 msec an amount of heat which would produce a recrystallization, the phenomenon is presumed to be caused by recombination emission, which also explains why thin films are less affected than the heavy ones. Orig. art. has: 2 figures.

SUB CODE: 20, 11/ SUBM DATE: 12Jan66/ ATD PRESS: 5103

Card 2/2 LS

ZAKHAROV, V.P.; KIM, V.La.

Elementary theory of infinitely bounded distributions. Probl.
gidroenerg. i vod. khoz. no.1:53-72 '63.

Continuous periodicity of a hydrological process as a methodological
basis for water supply calculations. Ibid.:73-100

(MIRA 16:12)

1. Institut energetiki AN KazSSR.

ZAKHAROV, V.P.; KIM, V.Ia.; CHOKIN, Sh.Ch.

Methods for the practical calculation of water supply guaranteed
to hydroelectric power stations. Probl. gidroenerg. i vod.
khoz. no.1:10-52 '63. (MIRA 16:12)

1. Institut energetiki AN KazSSR.

ZAKHAROV, V.P.

VASIL'YEV, A.V., kandidat tekhnicheskikh nauk; ZAKHAROV, V.P., kandidat tekhnicheskikh nauk; UTKIN, O.L., inzhener.

Measurement of forces and moments. Vest.mash,35 no.9:16-21 S '55.
(MLBA 9:1)

1.Nauchno-issledovatel'skiy avtotraktorayy institut.
(Force and energy--Measurement) (Kinematics--Measurement)

ZAKHAROV, V.P.

Regular limit cycles. Uch.zap.Chuv.gos.ped.inst. no.7:3-11 '59.
(MIRA 13:9)

(Differential equations)

ZAKHAROV, V.P.

Peculiarities of carbohydrate metabolism in patients with an excluded stomach following plastic surgery for an artificial esophagus using the method of Rou-Herzen-Yudin. Vrach.delo no.8:819-823 Ag '59.

(MIRA 12:12)

1. Kafedra obshchey khirurgii (zav. - zasluzhennyy deyatel' nauki, prof. M.I. Kolomychenko) i kafedra normal'noy fiziologii (zav. - prof. N.I. Putilin) Kiyevskogo meditsinskogo instituta.

(CARBOHYDRATE METABOLISM) (ESOPHAGOJEJUNOSTOMY)

ZAKHAROV, V.P. (Zaporozhskaya oblast', Melitopol', ul. Pushkina, d.97)

Observations of a traumatic rupture of the pancreas and spleen.
Klin.khir. no.8:75-76 J1 '62. (MIRA 15:11)

1. Khirurgicheskoye otdeleniye (zav. - N.Z.Orlov) Melitopol'skoy
gorodskoy bol'nitsy. Nauchnyy rukovoditel' raboty - zasluzhennyy
deyatel' nauki, prof. M.I.Kolomychenko.
(PANCREAS—RUPTURE) (SPLEEN—RUPTURE)

ZAKHAROV, V.F.

Distribution of capital investments and production costs between
the constituents of complex objects. Izv. AN Kazakh. SSR. Ser.
energ. no.1:118-121 '61. (MIRA 14:12)

1. Rukovoditel' seminarov po konkretnoy ekonomike Instituta
energetiki AN KazSSR.

(Kazakhstan--Power engineering--Accounting)
(Kazakhstan--Capital investments)

ZAKHAROV, V.P., doktor tekhn.nauk, akademik

Some problems of calculations of the efficiency of capital investments in complex hydraulic engineering construction. Gidr.stroi. 32 no.7:35-37 JI '62. (MIRA 15:7)

1. Akademiya nauk Kazakhskey SSR.
(Capital investments) (Hydraulic structures)

ZAKHAROV, V.P.

Development of hydraulic engineering during the last forty
years. Trudy Inst.energ.AN Kazakh.SSR 3:26-33 '61.

(MIRA 14:12)

(Kazakhstan--Hydraulic engineering)

40151

S/058/62/000/007/032/068
A061/A101

24.6710

AUTHORS: Zakharov, V. P., Shishlovs'kiy, O. A.

TITLE: Supply of material into the discharge gap of d-c and a-c arcs

PERIODICAL: Referativnyy zhurnal, Fizika, no. 7, 1962, 14, abstract 7G118
("Visnyk Kyivs'k. un-tu", 1958, no. 1, ser. fiz. ta khimii, no. 1,
129 - 131, Ukrainian; Russian summary)

TEXT: Atomic concentrations were measured in a-c and d-c arcs burning at atmospheric pressure between carbon electrodes. The elements concerned (Na and Li in concentrations of 8.5 and 21%, respectively) were introduced into one of the electrodes in the form of a mixture of salts of these elements with graphite. The atomic concentration in the discharge gas was determined by the method of "Rozhdestvenskiy's hooks", obtained on Rozhdestvenskiy's IT-23 (IT-23) interferometer crossed with the ИСП-67 (ISP-67) spectrograph. A comparison of the supply of material into a-c and d-c arcs leads to the conclusion that the input is proportional to the power of current consumed by the arc.

F. Ortenberg

[Abstracter's note: Complete translation]

Card 1/1

L 13108-63 EFF(c)/EWT(l)/EWG(k)/ENP(q)/EWT(m)/RDS/EEC(b)-2/ES(w)-2 AFFTC/ASD/
ESD-3/AFWL/SSD Fz-l/Pl-l/Po-l/Fab-l AT/JD
ACCESSION NR: AP3003423 S/0051/63/015/001/0129/0129

AUTHOR: Garashchuk, V.P.; Zakharov, V.P. 83

TITLE: Entry of lithium and strontium into the plasma[?] of a dc arc in a helium²⁷ atmosphere at high pressures

SOURCE: Optika i spektroskopiya, v.15, no.1, 1963, 129

TOPIC TAGS: arc spectrum analysis, dc arc, Sr, Li

ABSTRACT: It has been reported by A.G.Zhiglinskiy, A.N.Zaydel' and E.A.Karklina (Optika i spektroskopiya, 10, 697, 1961) that in a dc arc burning in a CO₂ atmosphere the lines of some elements increase in intensity, while those of others do not as the pressure of the CO₂ is increased to 10 atm. Accordingly, the authors used the Rozhdestvenskiy method of "hooks" to measure the concentration of Li atoms and Sr atoms and ions in a dc arc in helium as a function of pressure up to 8.5 atm for Li and 6 atm for Sr. (Above these pressures and in measurements in a CO₂ atmosphere the interference lines are smeared out and determinations become impossible.) The results are presented in a figure; Li atom concentration increases linearly with He pressure; the Sr atom and ion concentrations increase more slowly and tend to saturation. The results are explained by decrease of diffusion from the arc gap with rising inert gas pressure.

Card 1/1

ZAKHAROV, V.P., doktro tekhn.nauk (Alma-Ata); MOZHEVITINOV, A.L., prof. (Leningrad);
GRANSKIY, I.N., kand.tekhn.nauk (Tashkent); TROITSKIY, A.V., inzh.
(Tashkent)

Methodology for determining the economic efficiency of hydroelectric
power stations. Elektrichestvo no.3:91-93 Mr '63. (MIRA 16:4)
(Hydroelectric power stations)

ZAKHAROV, Y.P.

Plan for development of the power systems of Northern Kazakhstan.

Report to be submitted for the Conference on Electrification of Siberia,
Development and unification of its power systems, 7-9 Dec 61

L 18842-65 EPA(w)-2/EWT(l)/EWT(m)/EWA(m)-2 Pt-10/Pab-10 AFETR/AEDC(a)/
 SSD(c)/BSD/SSD/AFWL/ESD(gs)/ESD(t)/IJP(c)
 ACCESSION NR: AP4049033 S/0057/64/034/011/1986/1991

AUTHOR: Zakharov, V.S.; Rabinovich, M.S.

TITLE: Strong focusing in helical magnetic fields 21

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.11, 1964, 1986-1991

TOPIC TAGS: helical magnetic field, strong focusing accelerator, betatron, synchro-
 tron, electron accelerator 11
 B

ABSTRACT: The motion of a charged particle in a doubly helical toroidal magnetic field superimposed on a synchrotron field is discussed with the purpose of assessing the advantages of such fields for particle accelerators. Specifically, the magnetic fields discussed have the form

$$\left. \begin{aligned} H_z &= H_z^0 \left\{ 1 - \frac{nz}{R} + N\epsilon \left[\frac{x}{R} \sin 2N\theta + \frac{x}{R} \cos 2N\theta \right] \right\}, \\ H_r &= -H_z^0 \left\{ \frac{nz}{R} - N\epsilon \left[\frac{x}{R} \cos 2N\theta - \frac{x}{R} \sin 2N\theta \right] \right\}. \end{aligned} \right\}$$

where r, θ, z are cylindrical coordinates, R is the radius of the orbit, $x = r - R$, N is an integer, and n and ϵ are constants. The equations of motion are formulated

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L 18842-65

ACCESSION NR: AP4049038

and the solution is obtained for the case that the index n of the synchrotron field is $1/2$. It is found that strong focusing can be effected by large but easily attainable helical fields. The effect of a static "longitudinal" (actually azimuthal) field is calculated. It is found that the longitudinal field can either increase or decrease the focusing effect, but that any improvement is insufficient to justify the expense involved in producing the field. Synchrotron oscillations are discussed and their critical energy, frequency and phase volume are calculated. The phase oscillations are similar to those of ordinary strong focusing synchrotrons and should present no special difficulties. Resonance phenomena, including second order non-linear resonances, are briefly discussed, and it is concluded that operation of the accelerator far from resonance can be easily assured. It is concluded that the use of helical fields can considerably improve the focusing, simplify the design and increase the intensity of small iron-free betatrons and electron synchrotrons. Orig.art.has: 44 formulas.

ASSOCIATION: none

SUBMITTED: 20Jan64

ENCL: 00

SUB CODE: NP, EM

NR REF SOV: 004

OTHER: 000

2/2

L 18843-65 EWT(1)/EWT(m)/EPA(w)-2/EWA(m)-2 Pab-10/Pt-10 AFWL/AEBC(a)/SSD(c)/AFSTR/SSD/BSO/ESD(gs)/ESD(t)/IJP(c)

S/0057/64/034/011/1992/1997

ACCESSION NR: AP4049039

AUTHOR: Zakharov, V.S.

TITLE: Cyclic accelerators with triply helical magnetic fields ²¹

B

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.11, 1964, 1992-1997

TOPIC TAGS: helical magnetic field, strong focusing accelerator, betatron, synchrotron, electron accelerator

ABSTRACT: The motion of a charged particle in a triply helical toroidal magnetic field superimposed on a synchrotron type guiding field is discussed with the purpose of assessing the advantages of such fields for particle accelerators. The helical field is derived from the scalar potential

$$\psi_3 = -\frac{k_3 R}{N} I_3 \left(3N \frac{r}{R} \right) \sin 3(\varphi - N\theta),$$

where r, θ, z are cylindrical coordinates, R is the radius of the equilibrium orbit, ρ is the distance from the orbit, $\varphi = \sin^{-1}(z/\rho)$, and N is an integer. Only the first term is retained in the expansion of the imaginary argument Bessel function I_3 . The equations of motion are formulated with quadratic terms retained, and solu-

L 18843-65

ACCESSION NR: AP4049039

tions are derived for the case when the index $n = R\delta H/H\delta r$ of the guide field is $1/2$. Particular solutions are first obtained in the form of Fourier series involving a parameter, and these are generalized by second order perturbation theory. The betatron and synchrotron oscillations are discussed and their frequencies and phase volumes are calculated. For strong helical fields the phase volume of the betatron oscillations is much greater, and that of the synchrotron oscillations is much less, than in the case of the doubly helical field discussed in the previous paper (V.S. Zakharov and M.S. Rabinovich, ZhTF 34, 1986, 1964; see Abstract AP4049038); and the phase volume of the betatron oscillations considerably exceeds the usual value for weak focusing accelerators. It is concluded that triply helical magnetic field strong-focusing can be very advantageously employed in electron accelerators, particularly in betatrons. The method is especially valuable in iron-free designs, and it can also be employed in linear accelerators. "In conclusion, the author expresses his deep gratitude to M.S. Rabinovich for repeated consultations and valuable remarks." Orig.art.has: 31 formulas.

ASSOCIATION: none

SUBMITTED: 10Feb64

SUB CODE: NP, EM

2/2

NR REF SOV: 004

ENCL: 00

OTHER: 000

L 52022-65 EPA(w)-2/EWT(m)/EWP(1) Pt-7/Pab-10 IJP(c)

ACCESSION NR: AP5012057

UR/0057/65/035/005/0910/0913

AUTHOR: Zakharov, V.S.; Rabinovich, M.S.

37
36

TITLE: Strong-focusing properties of a system of opposing magnetic fields

B

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 5, 1965, 910-91

TOPIC TAGS: particle accelerator, strong focusing accelerator, synchrotron, betatron, longitudinal magnetic field

19

ABSTRACT: The authors discuss the strong-focusing properties of a longitudinal magnetic field of alternating direction. The magnetic fields discussed are those described by a scalar potential of the form

$$\Phi = \sum_{n=0}^{\infty} \frac{k_{n+1}}{r} I_0[(2n+1)\alpha\rho] \sin[(2n+1)\alpha R\theta],$$

where r, θ, z are cylindrical coordinates, R is the radius of the equilibrium orbit, $\alpha = 2\pi/L$ where $L/2$ is the distance between successive windings in which the currents are in opposite directions, ρ is the distance from the equilibrium orbit, I_0 is the Bessel function of an imaginary argument, and the k are constants. Only the first

Card 1/2

L 52022-65

ACCESSION NR: AP5012057

term of this expansion is employed in the calculations. A suitable guiding field with components in the z and r directions is superimposed, and calculations are also performed for the corrugated field obtained by superimposing a constant longitudinal (azimuthal) field. The frequencies of the betatron and synchrotron oscillations are calculated and the corresponding phase volumes are estimated. It is found that the alternating and corrugated fields exert considerably stronger focusing action than a simple longitudinal field. Because of the simplicity of design, this type of focusing should find application to moderate energy synchrotrons and betatrons, particularly to iron-free accelerators and plasma betatrons. Orig. art. has: 21 formulas.

ASSOCIATION: Moskovskiy gosudarstvennyy pedagogicheskiy institut im. V.I.Lenina (Moscow State Pedagogical Institute)

SUBMITTED: 26Jun64

ENCL: 00

SUB CODE: NP, EM

NR REF SOV: 004

OTHER: 000

Card 2/2-7/8

ZAKHAROV, V.S.; VASIL'YEV, Yu.V.; KONKIN, A.A.

Rheological properties of plasticized acetyl cellulose.
Khim. volok. no.4:49-51 '65. (MIRA 18:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sintaticheskikh volokon, g. Kalinin (for Zakharov, Vasil'yev). 2. Moskovskiy tekstil'nyy institut (for Konkina).

ZAKHAROV, V. S.

CHEREDKOV, V. N., NIKANCROV, V. A. AND ZAKHAROV, V. S.: Surgery and orthopedics. Translation from the Fourth revised and supplemented edition. Kiev. Agricultural Publishing House, Ukrainian SSR. 1952. 500 pages with illustrations. Price 11 rubles, 85 kopeks, bound. 10,000 copies. (Textbooks for veterinary technical schools). In Ukrainian.

SO: Veterinariya; 30; (1); January 1953; Uncl. TABCON

RODIONOV, V.I.; ZAKHAROV, V.S.; REYSH, A.K.

[Coal mine equipment] ~~Oborudovanie~~ Oborudovanie ugol'nykh kar'erov. Moskva, Ugletekhnizdat,
1952. 175 p. (MLRA 6:8)
(Coal mine equipment)

ALABIN, V.I., inzh.; ZAKHAROV, V.S., inzh.; SHVYRYAYEV, G.I., inzh.

Press for making door panels. Suggested by V.I.Alabin, V.S.
Zakharov, G.I., Shvyryayev. Rats.i izobr.predl.v stroi. no.13:
110-111 '59. (MIRA 13:6)

1. Balashikhinskiy kombinat proizvodstvennykh predpriyatiy
Glavmosoblstroya, g.Balashikha, Moskovskoy oblasti, Rabochiy
poselok.

(Doors)

(Wood, Compressed)

TRUNIN, Yu.M.; ZAKHAROV, V.S.

Use of phosphorescent screens in making contact prints. Geod.
1 kart. no.7:45-47 J1 '61. (MIRA 14:7)
(Photomechanical processes)

ZAKHAROV, V.S.; ZELENTOV, I.G.; PAKSHVER, A.B.

Studying the formation process of viscose cord fiber. Khim.volok.
no.5:34-35 '59. (MIRA 13:4)

1. Kalininskiy filial Vsesoyuznogo nauchno-issledovatel'skogo
instituta iskusstvennogo volokna (VNIIV).
(Rayon)

S/183/60/000/003/010/016/XX
B004/B067

AUTHORS: Zakharov, V. S., Zelentsov, I. G., and Pakshver, A. B.
TITLE: Diffusion of the Components of the Precipitating Bath Into
the Viscose Fiber During Spinning
PERIODICAL: Khimicheskiye volokna, 1960, No. 3, pp. 28-30

TEXT: The authors deal with the dependence of the spinning process of viscose fiber (coagulation, decomposition of the xanthogenate, desulfurization, etc.) on the rate of diffusion of the acid, the salts, and other components of the precipitating bath into the fiber. They attempted to find conditions under which a fiber of homogeneous structure is obtained. In this case, the difference between the rate of diffusion of the components of the precipitating bath and the saponification rate of the xanthogenate should be a minimum. The authors studied the effect of the composition of the precipitating bath on the diffusion rate under practical conditions. In order to interrupt the formation process rapidly, the fiber spun in an experimental apparatus was passed through a neutralizing bicarbonate salt solution which was at a distance of 15, 30, 45, 60, or 90 cm

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Diffusion of the Components of the Precipitating Bath Into the Viscose Fiber During Spinning

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from the spinneret. The fiber was wound onto the godet wheel with a speed of 39 m/min. The thread diameter was 0.018 mm. Proceeding from the equations $M_t/M_\infty = K\sqrt{\tau}$ (M_t = amount of the substance diffused into the fiber, M_∞ = the same for the case of equilibrium, K = coefficient, τ = duration of diffusion in sec.) and $K = (4/r)\sqrt{D/\pi}$ (D = diffusion coefficient, r = radius of the fiber), D was experimentally determined. The following was found in dependence on the composition of the bath and its temperature:

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Diffusion of the Components of the Precipitating Bath Into the Viscose Fiber During Spinning

S/183/60/000/003/010/016/KK
B004/B067

bath g/l t, °C D.10⁻⁷

H ₂ SO ₄	ZnSO ₄	Na ₂ SO ₄		
138	33	350	50	0.5
138	33	350	59	0.61
138	33	350	66	0.92
138	33	350	72	1.0
116	28	296	60	0.67
148	28	296	60	1.1
160	28	296	60	1.3
200	28	296	60	1.24
135	20	231	55	1.15
135	35	231	55	0.86
135	58	231	55	0.67
135	78	231	55	0.7
138	33	350	66	0.86
138	60	350	66	0.67
138	80	350	66	0.6
135	80	235-240	45	0.43
135	80	235-240	56	0.7
135	80	235-240	64	1.0
135	80	235-240	71	1.5

Results: 1) The rate of formation of the viscose fiber depends on the concentration of the H⁺, Zn²⁺, and SO₄²⁻ ions in the precipitating bath, as well as on its temperature and the rate of diffusion of ions. 2) With rising temperature of the precipitating bath, the diffusion of ions into the fiber increases only to a certain value. A further increase in temperature does not accelerate diffusion. 3) Rising concentration of Zn²⁺ ions (up to 80 g/l of ZnSO₄) delays the decomposition of the xanthogenate. With ZnSO₄ concentrations above 80 g/l, however,

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Diffusion of the Components of the Precipitating Bath Into the Viscose Fiber During Spinning S/183/60/000/003/010/016/XX B004/B067

the diffusion of H^+ ions is no longer influenced by $ZnSO_4$. 4) Rising concentration of H_2SO_4 accelerates the processes, but delays the ion diffusion into the fiber, since an external layer is formed on the fiber. Hence, with rising H_2SO_4 concentration, D increases to a maximum value, and then decreases again. The authors mention Ye. M. Mogilevskiy, D. N. Arkhangel'skiy and V. A. Kargin. There are 6 figures, 1 table, and 6 references: 5 Soviet and 1 German.

ASSOCIATION: Kalininskiy filial VNIIV (Kalinin Branch of the All-Union Scientific Research Institute of Synthetic Fibers)

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ZAKHAROV, V.S.; ZELENTSOV, I.G.; PAKSHVER, A.B.

Structural changes in viscose fiber in the process of spinning.
Khim.volok. no. 6:30-32 '60. (MIRA 13:12)

1. Kalininskiy filial Vsesoyuznogo nauchno-issledovatel'skogo
instituta iskusstvennogo volokna.
(Rayon spinning)

ZAKHAROV, V. V.

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(Field crops) (Windbreaks, shelterbelts, etc.)

ZAKHAROV, V.V.

Adhesive forces between bark and wood at low temperatures. Der.
prom. 12 no.9:10 S '63. (MIRA 16:10)

1. Tsentral'nyy nauchno-issledovatel'skiy institut mekhanizatsii i
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ZAKHAROV, V. V.

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ZENIN, A.S.; ZENIN, B.A.; ZAKHAROV, V.V.

Results of the treatment of lupus tuberculosis with vitamin D₂
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Zenin. 2. Kuybyshev.