"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

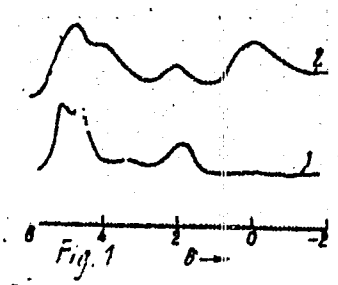
21979

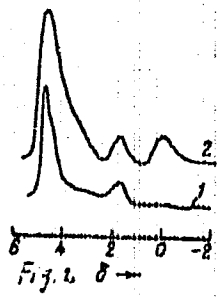
Nuclear magnetic resonance spectra ... S/020/61/137/005/023/026
B101/B203

SUBMITTED: November 10, 1960

Fig. 1. Spectrum of nuclear magnetic resonance of F^{19} nuclei of perfluoro octadiene. Legend: (1) non-irradiated, (2) irradiated.

Fig. 2. Spectrum of nuclear magnetic resonance of F^{19} nuclei of perfluoro dodecadiene. Legend: (1) non-irradiated, (2) irradiated.





Card 4/4

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

TALAYEVA, T.V.; PETRIY, O.P.; ZIMIN, A.V.; KOCHESHKOV, K.A.

Use of dilithium compounds for the synthesis of fluorinated unsaturated compounds. Izv. AN SSSR. Ser. khim. no.8:1402-1405, '65. (MIRA 18:9)

1. Fiziko-khimicheskiy institut im. A.Ya. Karpova.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

L 1342-66 EWT(m)/EPF(c)/EPF(n)-2/EWP(j)/T/EWA(h)/EWA(1) GG/RM

ACCESSION NR: AP5024363 UR/0286/65/000/015/0031/0031

AUTHOR: Zimin, A. V.; Verina, A. D.; Gubanova, A. V.

TITLE: A radiochemical method for producing alkyl dialkylchlorosilanes. Class 12, No. 173229

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 15, 1965, 31

TOPIC TAGS: silane, organosilicon compound, gamma radiation, radiation chemistry

ABSTRACT: This Author's Certificate introduces a radiochemical method for producing alkyl dialkylchlorosilanes by interacting silicon hydrides with unsaturated compounds under γ-radiation. The product yield is increased by conducting the process at a temperature of 60-70°C.

ASSOCIATION: none

SUBMITTED: 02Jan65 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 000 OTHER: 000

Card 1/1

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

TALALAYEVA, T.V.; PETRIY, O.P.; TIMOFEYUK, G.V.; ZIMIN, A.V.; KOCHESHKOV, K.A.

Synthesis of α,α' -difluoro-α,α'-dialkyl ethylenes by means of organolithium compounds. Dokl. AN SSSR 154 no.2:398-400 Ja'64. (MIRA 17:2)

1. Fiziko-khimicheskiy institut im. L.Ya. Karpova.
2. Chlen-korrespondent AN SSSR (for Kocheshkov).

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

KIM KHON SIL; ZIMIN, A.V.; SHARPATY, V.A.

Radiation-chemical synthesis of ethylene glycol and formaldehyde from methanol. Khim.prom. no.7:492-495 Jl '63. (MIRA 16:11)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

PANOV, Ye.M.; SOROKINA, R.S.; ZIMIN, A.V.; KOCHESHKOV, K.A.

Fluorine-containing divinylbenzenes. Dokl.AN SSSR 145 no.5: 1068-1070 '62. (MIRA 15:8)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova. 2. Chlen-korrespondent AN SSSR (for Kocheshkov).
(Styrene polymers) (Fluorine compounds)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, A.V.; VERINA, A.D.; SIDOROVA, L.P.; GUBANOVA, A.V.

Radiation-induced chemical synthesis of organosilicon and silicon fluoroorganic compounds. Dokl.AN SSSR 144 no.3:576-578 My '62. (MIRA 15:5)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova. Predstavleno akademikom V.A.Karginym.
(Silicon organic compounds) (Radiochemistry)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

S/844/62/000/000/065/129
D204/D307

AUTHORS: Zimin, A. V. and Verina, A, D.

TITLE: Radiation-chemical fluorination of CCl_4 and $C_2H_2Cl_4$ with inorganic fluorides

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 382-385

TEXT: The results are given of exploratory fluorination studies under γ irradiation, using KF, CaF_2, ZnF_2, AlF_3 and SbF_3. The volatile products were removed as they were formed. The collected gaseous halogens and Cl in the fluorides were analyzed. The radiolysis of CCl_4 and CCl_4/inorganic fluoride mixtures is discussed, concluding that in vacuum the fluorination proceeds by the interaction of the fluorides with the radicals formed when CCl_4 is irradiated. In the presence of O_2, the best fluorinating agents were ZnF_2 and AlF_3; with KF, CaF_2 and SbF_3 the radiolysis reaction pre-

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

S/844/62/000/000/065/129

Radiation-chemical fluorination ...

dominated over fluorination by a factor of 3. Only SbF_3 activated the O_2 in the zone of irradiation, leading to high yields of Cl_2 and F_2. For other fluorides the total yields of Cl_2 were ~20 - 21 Cl atoms/100 ev, practically independently of the fluoride itself. The fluorination of $C_2H_2Cl_4$ was assessed only by the amount of Cl present in the fluoride. The main radiolysis products were $C_2H_2Cl_5$ and HCl (~6.9 mol HCl/100 ev), which are less chemically reactive than the radiolysis products of CCl_4. Vacuum fluorination of $C_2H_2Cl_4$ at room temperature is not regarded as of practical interest, owing to the low yields (0.5 - 3.7 atoms/100 ev) and instability of the fluorinated products, which on heating char and evolve HCl and HF. The advice of Professor M. A. Proskurnin is acknowledged. There are 2 tables.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-Chemical Institute im. L. Ya. Karpov)

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

S/844/62/000/000/073/129
D214/D307

AUTHORS: Zimin, A. V., Verina, A. D., Khramchenkov, V. A. and ~~Churmanteyev~~, S. V.

TITLE: Radiochemical halogenation of benzene by $C_2F_3Cl_3$ and C_3F_6

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 420-425

TEXT: Radiation-initiated halogenation of C_6H_6 by $C_2F_3Cl_3$ was studied in static and in flowing samples, and that by C_3F_6 in static experiments only. Halogenation products were separated by recondensations and were studied by chemical analysis and their physical properties. Pure $C_2F_3Cl_3$ on exposure to radiation evolved halogens (G_{Cl_2}/G_{F_2} = 4.3) while pure C_3F_6 gave fluorocarbon compounds

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

($C_{14}F_{26}$, $C_{22}F_{38}$, $C_{23}F_{42}$, $C_{39}F_{80}$) formed from $CF_2 = \dot{C}F$ and $\dot{C}F_3$. Halogenated benzenes were the main products only when high proportions of the halogenating agents were used. C_6H_6 proved stable to irradiation and, with $C_2F_3Cl_3$, gave $C_8H_5F_3Cl_2$, $C_8H_5F_2Cl_3$, $C_8H_4F_3Cl_3$ and $C_8H_4F_4Cl_4$. Halogenation was progressive as was shown by varying the exposure time. The primary products are obtained by the interaction of $\dot{C}_2F_2Cl_3$ and $\dot{F}$ (20%) or $\dot{C}_2F_3Cl_2$ and $\dot{C}l$ (80%) with C_6H_6 across the double bond. Halogenation of C_6H_6 by C_3F_6 gave products containing benzene rings and side-chains. Compounds with 1 benzene ring and a 3-C side chain were the primary products while those with side chains of more than 3-C were obtained by the interaction of C_6H_6 with a higher molecular weight fluorocarbon radical. Products with 2 or more benzene rings are secondary. For the understanding of the mechanism more data are required. There are 4 tables.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-Chemical Institute im. L. Ya. Karpov)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

S/844/62/000/000/125/129
D444/D307

5.4600

AUTHOR: Zimin, A. V.

TITLE: A method of irradiation with circulation of the principal substance

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 729-732

TEXT: The static method of studying radiolysis does not give a true picture of the potentialities of a system. These defects are overcome in the method described which enables, on the one hand, very small doses to be used and, on the other, large quantities of the new products to be accumulated outside the irradiated zone. The starting materials are introduced into an evacuated system consisting essentially of an evaporator, condenser and vessel for irradiation. The condenser is shaped and located in such a way that liquids condensing on it move by gravity into the irradiation vessel; the overflow from the latter is then returned to the evaporator. A

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

A method of irradiation ... S/844/62/000/000/125/129
D444/D307

branch tube for evacuation via a trap is provided. The concentration of the new substance formed at the maximum dosage accumulating in the evaporator can be calculated by the second law of D. P. Konovalov for the distillation of a simple two-component system. There are 2 figures and 1 table.

ASSOCIATION: Fiziko-khimicheski institut im. L. Ya. Karpova (Physico-Chemical Institute im. L. Ya. Karpov)

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

43246
S/844/62/000/000/108/129
D408/D307

AUTHORS: Khramchenko, V. A. and ~~Zimin, A. V.~~

TITLE: The action of Co^{60} γ radiation on perfluorodienes

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiationsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 634-637

TEXT: The authors studied the action of Co^{60} γ radiation on perfluorooctadiene at 60°C and on perfluorododecadiene at 18 - 25°C, under vacuum, in sealed molybdenum glass ampoules. The doses were 0.948×10^{22} and 1.43×10^{22} ev/g respectively. After irradiation the liquid phases were fractionated and the light fractions were identified by cryoscopic determination of their molecular weights and by their molar refractions. Comparison of the ir spectra of the heavy fractions with those of the original materials indicated that the heavy fractions consisted of materials having molecular weights three times as great as those of the original dienes, and each tri-

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

mer molecule contained half as many double bonds as were present in three molecules of the original material. Ir spectra of the trimers also indicated that a double bond was present in the group R_F-CF-CF-R_F', the presence of the group $-CF_3$, and the formation of a cyclic structure. From the results the authors concluded that the following radicals were formed during irradiation: CF_2-CF-$(CF_2)_n$--CF-CF_2, CF_2-CF-CF-$(CF_2)_{n-1}$-CF-CF_2, CF_2-CF-CF-$(CF_2)_{n-1}$-CF-CF_2, and CF_3-CF-$(CF_2)_n$.CF-CF_2; all four radicals probably participate in the formation of the trimers. The authors thank Academician I. L. Knunyants for supplying the materials and Professor B. A. Alekseyev for initiating the present work. There are 2 figures and 2 tables.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-Chemical Institute im. L. Ya. Karpov)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

40183

S/020/62/145/005/014/020
B106/B144

11.2214

AUTHORS: Panov, Ye. M., Sorokina, R. S., Zimin, A. V., and Kocheshkov, K. A., Corresponding Member AS USSR

TITLE: Fluorine-containing divinyl benzenes

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 145, no. 5, 1962, 1068-1070

TEXT: The synthesis of two hitherto unknown divinyl benzenes containing fluorine is described: p-α,β-difluoro-β-chlorovinyl styrene and bis-α,β-difluoro-β-chlorovinyl benzene. In both cases the initial material, p-lithium-α,β-difluoro-β-chlorostyrene, was produced as described earlier (Izv. AN SSSR, OKhN, 1961, 532) by a 20-30 min action of butyl lithium on p-bromo-α,β-difluoro-β-chlorostyrene in absolute ether at -70°C. This new organolithium compound gives all reactions of ordinary aromatic lithium compounds feasible at -70°C. Action of acetaldehyde at -70°C yields p-α,β-difluoro-β- chlorovinyl phenyl methyl carbinol (42% yield, b. p. 107 - 116°C (4 mm), n_D^{20} 1.5455, d_4^{20} 1.2800). This intermediate product is dehydrated in vacuo by heating with potassium bisulfate to 200°C.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

p-α,β-difluoro-β-chlorovinyl styrene (b. p. 66 - 69°C (2 mm), n_D^{20} 1.5650, d_4^{20} 1.2563) forms in 50% yield. Polymerization of this product (benzoyl peroxide as a starter, 2.5 hrs heating over a water bath) gave a solid, transparent product insoluble in organic solvents and swelling slightly in benzene and xylene. To produce bis-α,β-difluoro-β-chlorovinyl benzene, p-lithium-α,β-difluoro -β-chlorostyrene was mixed with trifluoro chloroethylene immediately after its production at -75°C. Data of the reaction product: b. p. 100 - 105°C (5 mm), n_D^{20} 1.5430, d_4^{20} 1.4240. This product polymerizes in the presence of benzoyl peroxide at 100°C at about the same rate as styrene with formation of a solid, transparent polymer which, unlike polystyrene, is not soluble on heating in aromatic hydrocarbons and swells in them only slightly. The polymer is stable on heating in air up to 210°C. The two compounds described exemplify the possible combinations of the groups $-CH=CH_2$, $-CF=CFCl$, $-C(CF_3)=CH_2$, etc. synthesized by the authors in fluorine-containing divinyl benzenes. There is 1 figure.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

Fluorine containing divinyl ... S/020/62/145/005/014/020
B106/B144

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-chemical Institute imeni L. Ya. Karpov)

SUBMITTED: May 11, 1962

Card 3/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

39128

S/020/62/144/003/022/030
B119/B101

5.4600

AUTHORS: Zimin, A. V., Verina, A. D., Sidorova, L. P., and Gubanova, A. V.

TITLE: Radiochemical synthesis of organosilicon and organofluorosilicon compounds

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 3, 1962, 576-578

TEXT: Compounds of the type C_nH_{2n}, $C_nH_{2n-m}F_m$, C_6H_6 and C_6H_5Cl on the one hand, $HSiCl_3$, H_2SiCl_2, CH_3SiHCl_2 and $C_2H_5SiCl_2H$ on the other, were made to react mutually under the action of γ-rays (Co^{60}) at +20°C and +70°C. The resulting reaction products were fractionated by multiple condensation. The individual components were subjected to elementary analysis. Molecular weight, density, refractive index, and molar refraction were determined. A number of known compounds and the new compounds $(C_3HF_6)SiCl_3$ (d^{20} =

Card 1/3

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= 1.6170, n_D^{20} = 1.3610, MR = 39.06, b. p. 84°C/756.5 mm Hg); $(C_3HF_6)_2SiCl_2$ (d^{20} = 1.7202, n_D^{20} = 1.3413, MR = 49.39, b. p. 160°C); $(C_3HF_6)CH_3SiCl_2$ (d^{20} = 1.4610, n_D^{20} = 1.3338, MR = 39.61, b. p. 94°C/749 mm Hg); $(C_3HF_6)C_2H_5SiCl_2$ (d^{20} = 1.4342, n_D^{20} = 1.3710, MR = 44.107, b. p. 110-112°C/ /752 mm Hg), and $C_2HF_4ClSiCl_2$ (d^{20} = 1.5138, n_D^{20} = 1.3645, MR = 34.718) were found. This synthetic method can be applied where the polymerization rate of olefins is lower than their reaction rate with chloro silanes. The radiation chemical yield (G) and the quantitative yield in reaction products depend on the molar quantitative ratio of the initial substances (optimum: 1 olefin molecule per H atom of chloro silane). The change of reaction temperature does not affect the radiation chemical yield of perfluoro (alkyl-dialkyl) chloro silanes (G = 80 - 100 molecules/100 ev) and of aryl chloro silanes (G = 6 - 10 molecules/100 ev). With (alkyl- -dialkyl) chloro silanes, G increases from 8-10 molecules/100 ev at 20°C to 160-210 molecules/100 ev at 70°C. There is 1 table. The most important English-language reference is: A. M. El-Abbady,

Card 2/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

Radiochemical synthesis of... S/020/62/144/003/022/030
B119/B101

L. C. Anderson, J. Am. Chem. Soc. 80, 1737 (1958).

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physicochemical Institute imeni L. Ya. Karpov)

PRESENTED: January 17, 1962, by V. A. Kargin, Academician

SUBMITTED: January 12, 1962

Card 3/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

MODEL', L.M.; ZIMIN, A.Ye.

Permanganate method for determining the catalase activity of bacteria. Lab. delo 5 no.1:7-9 Ja-F '59. (MIRA 12:3)

1. Iz 3-y Moskovskoy gorodskoy tuberkuleznoy bol'nitsy "Zakhar'ino" (glavnyy vrach V.P. Petrik).
(CATALASE) (MYCOBACTERIUM TUBERCULOSIS)
POTASSIUM PERMANGANATE)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, A.Ye.

Building a thermostat-controlled room. Lab.delo 7 no.9:59-60 S '61. (MIRA 14:10)

1. Moskovskaya gorodskaya klinicheskaya tuberkuleznaya bol'nitsa No.3 (glavnyy vrach V.P.Petrik).
(BACTERIOLOGY—APPARATUS AND SUPPLIES)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, A.Ye.

Milk-egg-agar nutrient culture medium for growing tuberculosis mycobacteria. Lab. delo 7 no.10:52-54 O '61. (MIRA 14:10)

1. Moskovskaya gorodskaya klinicheskaya bol'nitsa No.3 (glavnyy vrach V.P.Petrik).
(TUBERCULOSIS) (BACTERIOLOGY--CULTURES AND CULTURE MEDIA)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, A.Ye.

Double resistance to drugs (streptomycin and phthivazid) of Mycobacterium tuberculosis. Probl.tub. no.8:94-97 '61. (MIRA 15:5)

1. Iz Moskovskoy gorodskoy klinicheskoy tuberkuleznoy bol'nitsy No.3 (glavnyy vrach V.P. Petrik, nauchnyy konsul'tant - prof. L.M. Model').

(MYCOBACTERIUM TUBERCULOSIS)
(BACTERIA, EFFECT OF DRUGS ON) (STREPTOMYCIN) (PHTHIVAZIDE)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, A.Ye.

Simplified method for determining streptomycin resistance in Mycobacterium. tuberculosis. Lab.delo 4 no.6:28-30 N-D '58 (MIRA 11:12)

1. Iz 3-y Moskovskoy gorodskoy tuberkuleznoy bol'nitsy "Zakhar'ino" (glavnyy vrach V.P. Petrik, konsul'tant - prof. L.M. Model').
(MYCOBACTERIUM TUBERCULOSIS)
(STREPTOMYCIN)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, B.

Stroitelstvo Malykh Gidroelektrostantzii (Construction of Small Hydro-Electric Stations) (Paper edition)

175 p. 85¢

SO: Four Continent Book List, April 1954

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, Boris

"Imployment and Vocational Training of the Blind in the USSR"

1. Chairman of the Central Ruling Board of the All Russia Society of the Blind

To be presented at the International Congress on Technology and Blindness, New York, 18-22 June 1962.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, B. G.

The construction of small hydro-electric plants. Leningrad, Izd-vo Ministerstva kommunal'nogo khoziaistva RSFSR, 1950. 175 p. (51-38556)

TK1081.Z5

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, BORIS GRIGOR'YEVICH

Epp
.R930

Mekhanizatsiya stroitel'stva sel'skikh elektrostantsiy (The mechanization of construction in rural electric power stations, by) B. G. Zimin I V. A. Arsen'yev. Moskva, Sel'khozgiz, 1955.
146 (1) p. diagrs., tables.
Literatura: p. (147)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, B.G.; KHASHCHINSKIY, V.P., professor, redaktor.

[Construction of rural electric power stations] Stroitel'stvo sel'skikh elektrostantsii. Pod red. V.P.Khashchinskogo. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1952. 93 p. (V pomoshch' sel'skim elektrifikatoram) (MLRA 7:3)

(Electric power plants)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, Boris Grigor'yevich; AKIMEN'YEV, Vasiliy Alekseyevich; CHAPSKIY, O.U., redaktor; VODOLAGINA, S.D., tekhnicheskiy redaktor.

[Mechanization of the construction of rural power stations] Mekhanizatsiia stroitel'stva sel'skikh elektrostantsii. Pod red. V.P. Khashchinskogo, Moskva, Gos. izd-vo selkhoz. lit-ry, 1955. 146 p. (MLRA 8:7)
(Electric power plants)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, B.G.

N/5
735.922
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MONTAZH I EKSPLUATATSIYA MALYKH GIDROELEKTROSTANTSIY (ASSEMBLING AND OPERATION OF SMALL HYDRO-ELECTRIC POWER STATIONS, BY) B. G. ZIMIN I D. O. GINDUS.

175 P. ILLUS., DIAGRS., TABLES.

LITERATURA: P. (174)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, B.G.

Stroitel'stvo sel'skikh elektrostantsii [Building rural electric stations]. Pod red. V.P. Khashchinskogo. Sel'khozgiz, 1952. 96 p.

SO: Monthly List of Russian Accessions, Vol. 6, No.2, May 1953

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, B. G.

Montazh i ekspluatatsiia malykh gidroelektrostantsii [Assembly and operation of small hydro-electric stations] Moskva, Min. kommun. khoz-va RSFSR. [n. d.] 176 p.

SO: Monthly List of Russian Accessions. Vol. 6 No. 7 October 1953

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

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4118. CONSTRUCTION OF SMALL HYDRO-ELECTRIC STATIONS. (STROITELSTVO MALYKH GIDROELEKTROSTANTSY). Zimin, B.G. (Leningrad, Moscow: Ministry of Communal Administration, R.S.F.S.R, 1950, 175pp.; title in Recent Additions, Brit. Museum).

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

KHRULEV, Valentin Mikhaylovich; ZIMIN, B.I., red.; NIKITINA, L.V., red. izd-va; KUZNETSOVA, A.I., tekhn.red.

[Testing plywood] Ispytanie fanery. Moskva, Goslesbumizdat, 1960. 70 p. (MIRA 13:9)

(Plywood--Testing)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

SMIRNOV, Aleksandr Vasil'yevich, kand.tekhn.nauk; ZIMIN, B.I., red.; SARMATSKAYA, G.I., red.izd-va; BACHURINA, A.N., tekhn.red.

[Glued plywood] Kleenaia fanera. Moskva, Goslesbumizdat, 1959. 98 p. (MIRA 12:10)

(Plywood industry)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, B.I., inzhener.

"Veneer worker's reference book." Reviewed by B.I.Zimin. Der.i lesokhim. prom. 3 no.2:30-31 F '54. (MLRA 7:1)
(Veneer and veneering)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

PROCESSES AND PROPERTIES INDEX

CIA

14

Softening hard and saline waters. B. N. Zimin and T. V. Kalinnikova *Vodosnabzhenie i Sanit. Tekh.* 14, No. 10, 57-61(1939); *Wasser u. Abwasser* 40, 6(1942). H. E. Wirth

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

IOFFE, Ya.A.; NIKONOVA, I.I.; CHERTKO, V.F.; NAYDENOV, G.N.; ZIMIN, B.N.; NOCHEVKINA, L.P.; NESTEROV, L.I.; KISTANOV, N.I.; KUDROV, V.M.; PAK, G.V., red.; PONOMAREVA, A.A., tekhn. red.

[Structural changes in the industries of the United States, Great Britain and German Federal Republic in the postwar year]Strukturnye izmeneniia v promyshlennosti SShA, Anglii i FRR v poslevoennye gody. Moskva, Ekonomizdat, 1962. 427 p. (MIRA 15:10)

1. Moscow, Nauchno-issledovatel'skiy ekonomicheskiy institut.
(United States—Industries) (Great Britain—Industries)
(Germany, West—Industries)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

L 8606-66 EWT(d)/FBD/FSS-2/EEC(k)-2/EWA(d)/T-2/EWP(1) IJP(c) BC/WR
ACC NR: AR5014367 SOURCE CODE: UR/0271/65/000/005/B066/B067

SOURCE: Ref. zh. Avtomatika, telemekhanika i vychislitel'naya tekhnika. Svodnyy tom, Abs. 5B474

AUTHOR: Eyngorin, M. Ya.; Gerasimov, O. S.; Zimin, B. N.; Preobrazhenskiy, A. V.

TITLE: Digital program control system

CITED SOURCE: Tr. po vopr. primeneniya elektron. vychisl. mashin v nar. kh-ve. Gor'kiy, 1964, 189-195

TOPIC TAGS: program control, digital program control

TRANSLATION: A digital program control system (DPCS) is considered which is intended for producing the signals ensuring semi-automatic and automatic two-coordinate control of a radiotelescope. From a digital computer which determines, by nonlinear interpolation, the coordinates of intermediate points on the required trajectory, the program of radiotelescope movement is introduced into the DPCS by means of an 11-track 35-mm punch tape, is read by an electromechanical input device, and is fed to a linear interpolator of DPCS. The latter converts (in 64 sec) the parallel binary code of the coordinate increment into a

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L 8606-66

ACC NR: AR5014367

unitary code which is fed — via a switching unit — to an 8-digit reversible counter; a second input of the counter receives, at a maximum frequency of 1 kc, the pulses from a photoelectric feedback sensor which is connected — via a reducer — to a telescope antenna. The error signal (voltage from the reversible-counter triggers) is applied — via conversion-unit inverters and a resistor matrix with output emitter followers — to the antenna servomechanisms. In order to stabilize the servomechanisms, the DPCS supplies rate-of-change of coordinates signals, in addition to the two-coordinate error signals. All DPCS assemblies are synchronized by a crystal 81-92-cps oscillator via a frequency divider (a 21-digit counter). The DPCS ensures tracking at 0—100' per sec with the error signals accurate within 0.4' and with the minimum interval of the error signal 0.2'; the maximum error signal and speed is ±2.5 v. The DPCS is designed with P14 transistors and D2G diodes supplied from stabilized sources of +10 and −10 v; the general supply is 220 v ac, 50 cps; the DPCS has an appearance of a kneehole desk. Circuit diagrams of components and assemblies are presented. Figs. 4.

SUB CODE: 01, 09

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, B.V.; ZUYKOV, V.I.

Performance indices of three-layered shot drills. Razved. i okh.nedr 31 no.4:28-31 Ap '65. (MIRA 19:1)

1. Gosudarstvennyy geologicheskiy komitet SSSR.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, B.V.

Supporting horizontal mine exploration workings. Razved. i okh. nedr 26 no.9:23-25 S '60. (MIRA 15:7)

1. Altyn-Topkanskaya ekspeditsiya Upravleniya geologii i okhrany nedr pri Sovete Ministrov Tadzhikskoy SSR.
(Mine examination) (Mine timbering)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZHIN, D.

Our information. Stroitel' no.12:27 D '59. (MIRA 13:3)

1. Rukovoditel' laboratorii avtomatizatsii Nauchno-issledovatel'skogo instituta organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu Akademii stroitel'stva i arkhitektury SSSR, Moskva, Dmitrovskoye shosse, 9.
(Automatic control) (Construction industry)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN D.

ZIMIN, D.

Retailing piece goods. Nov.torg.tekh. no.1:20-24 '57. (MLRA 10:7)
(Textile fabrics)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, D.

New show window props. Nov.torg.tekh. no.2:24a-d-27 '57.
(MLRA 10:8)

(Display of merchandise)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

BELYAKOV, F.Ye.; BABIN, B.N.; BAL', V.; BOROVKOV, P.N.; VOYEVODIN, I.N.; GUREVICH, G.M.; GORBUNOVA, P.I.; KONNOV, A.S.; KALANTAROVA, M.V.; KASHIRSKIY, A.Ya.; KAZANCHEYEV, Ye.N.; LEKSUTKIN, A.F.; LETICHEVSKIY, M.A.; LOPATIN, S.Z.; MIRSKIY, V.N.; PODSEVALOV, V.N.; SUBBOTINA, V.P.; TANASIYCHUK, N.P.; FEDOTOV, S.D.; FISENKO, K.N.; EL'KIND, I.G.; BOVIN, S.S.; VASIL'YEV, L.T.; DRINKOV, V.D.; DALECHIN, N.I.; DADAGOV, I.A.; YERMOSHINA, V.I.; ZHUKOV, I.V.; ZIMIN, D.A.; IVANNIKOV, A.Ya.; KOVALEV, M.K.; LUGAKOVSKIY, N.L.; NALEVSKIY, A.F.; SEREZHNIKOV, V.K.; SEMIGLASOV, M.D.; SOKOLOV, A.V.; STEPANOV, V.I.; SAKHARIN, G.S.; SAVENKO, P.A.; SOLODOV, V.P.; UMEROV, Sh.Kh.; CHIKINDAS, G.S.; SHCHERBUKHINA, S.N.; DYNKIN, G.Z.; LYSOV, V.S.; OSHEROVICH, A.N.; ROKITSINSKIY, E.V.; BRASLAVSKIY, M.S.; RUDENKO, I.A.; ZHUKOBORSKIY, M.S.; ZHDANOV, I.Ye.; SUSLIN, V.A.; BRUS, A.Ye.; VOLYNSKIY, S.A.; KLYUYEV, V.A.; ISTRATOV, A.G.; TIKHOMIROV, I.F.; BUTYRIN, Ya.N.; VOLYNSKIY, S.A.; MINEYEV, M.F.; MAL'TSEV, V.I.; VIDETSKIY, A.F., kand.tekhn.nauk, glavnyy red.; DEMIDOV, A.N., red.; KRAVETS, A.L., red.; KLIMOVA, Z.I., tekhn.red.

[Industrial Astrakhan] Promyshlennaia Astrakhan'. Astrakhan', Izd-vo gazety "Volga," 1959. 318 p. (MIRA 12:11)

1. Astrakhan (Province) Ekonomicheskiy administrativnyy rayon. (Astrakhan Province--Economic conditions)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, D.A.; SUCHKOV, A.I., otv. red.

[Physics laboratory manual: Mechanics and molecular physics; a textbook] Fizicheskii praktikum: Mekhanika i molekuliarnaia fizika; uchebnoe posobie. Ivanovo, Ivanovskii tekstil'nyi in-t, 1963. 60 p. (MIRA 17:9)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, D.; URAL'SKIY, Yu.; SOKOLOV, V.; ALEKSEYEV, S.

Preparing for the contest of ultrahigh-frequency radio operators. Radio no.12:46 D '53. (MLRA 6:12)

(Radio, Short-wave)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ALEKSEYEV, Sergey Makarovich; ZIMIN, Dimitriy Borisovich; TROITSKIY, L.V., redaktor; GRIGOR'YEVA, A.I., redaktor; ANDRIANOV, B.I., tekhnicheskiy redaktor.

[Ultra-short wave radio stations for schools] Shkol'naia UKV radiostantsiia. Moskva, Izd-vo DOSAAF, 1956. 70 p. (MLRA 9:6)
(Radio, Shortwave)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ACCESSION NR: AP4026146 S/0108/64/019/003/0025/0033

AUTHOR: Deryugin, L. N. (Active member); Zimin, D. B. (Active member)

TITLE: Switching method of steering array beams

SOURCE: Radiotekhnika, v. 19, no. 3, 1964, 25-33

TOPIC TAGS: radio, radio antenna, beam antenna, beam antenna steering, antenna array, beam antenna switching steering, pencil beam antenna

ABSTRACT: A set of phase shifters is conventionally used for steering the beam of a multielement antenna array. Temperature instability and diversity of the characteristics of (ferrite) phase shifters have been serious drawbacks in operating this type of antenna. L. N. Deryugin's switching method (Author's Certificate no. 662448 of 11Apr60) is claimed to alleviate the difficulties of shaping a pencil-type steerable beam. In this method, a set of switches ("semiconductors, ferrites, etc.") controls, on an on-and-off basis, the currents in the

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ACCESSION NR: AP4026146

individual radiators or feeder-system branches. Within a half-wave section of the array, a set of fixed radiator phases is provided, and the required direction of the beam is achieved through selective switching. By changing the sequence of the on-off positions, scanning can be effected. These types of linear switched antennas are considered: (1) an array formed by a few parallel rows of switched radiators; (2) an array of radiators excited from one waveguide via switching phase shifters, and (3) an array of switched radiators closely placed along one waveguide. A reduction of the antenna directivity, radiation-pattern distortion, and spurious-beam levels inherent to the new method are theoretically evaluated. Orig. art. has: 7 figures, 8 formulas, and 1 table.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi (Scientific and Technical Society of Radio Engineering and Electrocommunication)

SUBMITTED: 30Dec62 DATE ACQ: 16Apr64 ENCL: 00

SUB CODE: EC NO REF SOV: 002 OTHER: 000

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

PROSHLYAKOV, A.I.; ZHELEZNYKH, V.I.; BYCHEVSKIY, B.V.; ZOTOV, V.F.; LYAMIN, N.I.; IVANOV, D.S.; BLAGOSLAVOV, B.V.; BARANOV, N.P. PANKOV, M.A.; OGORODNIKOV, V.A.; FILOMENKO-BORODICH, M.M.; IL'YASEVICH, S.A.; RABINOVICH, I.M.; OLISOV, B.A.; DAVYDOV, S.S.; ZIMIN, D.D.; SHPERK, B.F.; USKOV, V.N.; BUZNIK, P.K.

Boris Aleksandrovich Olivetskii; obituary. Voen.-inzh.zhur. 101 no.12:42 D '57. (MIRA 10:12)
(Olivetskii, Boris Aleksandrovich, 1896-1957)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

NOVIKOV, Grigoriy Fedorovich; KAPKOV, Yuriy Nikolayevich;
IVANOV, N.A., retsenzent; SERDYUKOVA, A.S., retsenzent;
GORBUSHINA, L.V., retsenzent; ZIMIN, D.F., retsenzent;
TAFEYEV, G.P., nauchn. red.; TAYBASHEVA, A.N., ved. red.

[Radioactive methods of prospecting] Radioaktivnye metody razvedki. Leningrad, Nedra, 1965. 758 p. (MIRA 19:1)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

KOTLYAROV, Stepan Ivanovich; ZIMIN, Dmitriy Kondrat'yevich; FROLOV, Nikolay Afanas'yevich; ASSONOV, V.A., redaktor; KATSAUROV, I.N., redaktor; SHUSHKOVSKAYA, Ye.L., redaktor; ALADOVA, Ye.I., tekhnicheskiy redaktor.

[Problems in mining engineering, opening and supporting mine workings] Zadachnik po gornym rabotam, prevedeniiu i krepleniiu gornykh vyrabotok. Moskva, Ugletekhizdat, 1955.261 p. (MLRA 9:5)
(Mining engineering)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

KOTLYAROV, Stepan Ivanovich; ZIMIN, Dmitrich Kondrat'yevich; FROLOV, Nikolay Afanas'yevich; CHERNECOVA, E.N., red. izd-va; OVSEYENKO, V.G., tekhn. red.

[Problems on the mining operations of drifting and timbering] Zadachnik po gornym rabotam, provedeniiu i krepleniiu gornykh vyrabotok. Izd.2., perer. i dop. Moskva, Gosgortekhizdat, 1962. 311 p. (MIRA 15:9)
(Mining engineering) (Mine timbering)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

KAZARINOV, V.M., kand.tekhn.nauk; ZIMIN, D.M., insh.

English self-propelled jig cranes. Mekh.stroi. 17 no.3: 29-32 Mr '60. (MIRA 13:6)
(Great Britain—Cranes, derricks, etc.)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

Zimin, Dmitriy Romanovich

ZIMIN, Dmitriy Romanovich, inzh.; VERZHBINSKAYA, I.I., inzh., red.; GVIRTS, V.L., tekhn.red.

[Using rotating cutting tools for high-speed machining of trapezoidal screw threads on parts made of 1X18N9 stainless steel; practices of the Lepse Armature Plant in Leningrad] Skorostnoe narezanie trapetsiodal'noi rez'by vrashchaiushchimisia reztsami na detaliakh iz nerzhaveiushchei stali 1X18N9; iz opyta leningradskogo armaturnogo zavoda imeni Lepse. Leningrad, 1956. 7 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Informatsionno-tekhnicheskii listok, no.7. Mekhanicheskaia obrabotka metallov) (MIRA 11:1)

(Screw cutting)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, E. P., YANTOVSKIY, E. I. (Khar'kov)

"Electrically Conducting Gas Flow in a Channel with a Drifting (Moving) Magnetic Field."

report presented at the First All-Union Congress on Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb 1960.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

24546

S/179/61/000/002/013/017
E081/E141

26.1410

AUTHOR: Zimin, E.P. (Khar'kov)

TITLE: Influence of a magnetic field on the flow of an electrically conducting gas in a plane tube in the presence of heat exchange through the walls

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1961, No.2, pp. 117-119

TEXT: The problem discussed is the flow of a viscous compressible electrically conducting gas through a channel formed by two infinite parallel plates separated by a distance 2b. A homogeneous magnetic field H_0 is applied normal to the plates. Heat is exchanged through the walls of the channel to the surrounding medium with constant intensity q. For flow in which the magnetic Reynolds number $R_m = 2\mu_e \sigma W b \ll 1$, the magnetic field H is constant, and the quasi one-dimensional equation of flow can be written:

$$\frac{dW}{dx} \quad \frac{1}{m}\frac{dp}{dx} = -W\left(\frac{\xi}{2b} + \frac{\mu_e^2 \sigma H_0^2}{m}\right) \qquad (3)$$

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

24546

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Influence of a magnetic field on the ..E081/E141

where the mass flow $m = \rho W = \text{const}$; p is the pressure; ζ is the resistance coefficient, μ_e is the magnetic permeability; σ is the electrical conductivity of the gas. Assuming ζ, μ_e, σ and R are constant, and neglecting frictional forces and viscous dissipation, the flow of heat is introduced to give a differential equation which is solved for the special cases (1) $W^2/a^2 \gg 1$, where a is the critical sound velocity, and (2) the heat flow is small. Acknowledgement is expressed to A.I. Borisenko for his interest in the work and discussion of the results.

There is 1 Soviet reference.

ASSOCIATION: Khar'kovskiy aviatsionnyy institut (Khar'kov Aviation Institute)

SUBMITTED: October 13, 1960

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

29073
S/179/61/000/004/017/019
E032/E514

26.1150

AUTHORS: Zimin, E.P. and Yantovskiy, Ye.I. (Khar'kov)

TITLE: The flow of an electrically conducting gas in a channel with a travelling magnetic field

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1961, No.4, pp.170-172

TEXT: The authors discuss the steady state flow of a perfect gas with a finite electrical conductivity in a circular channel with a radial periodic magnetic field. The field is assumed to be moving relative to the walls of the channel in the longitudinal direction. These calculations are of interest in connection with the possible replacement of the bladed turbine by a device in which the thermal energy released during the combustion process is partly transformed into mechanical energy or directly into electrical energy. It is stated that the possible types of flow have been discussed qualitatively by E. Resler and W. Sears (Ref.1: Prospects for magnetoaerodynamics. Correction and Addition, JAS/S, 1959, No.5, 318). A quantitative analysis is

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attempted by the present authors but the results are said to be inconclusive. The calculations do not, however, exclude the possibility of magneto-gasdynamic generators. It is pointed out that a more detailed theory is required, for example, the present authors neglect the release of heat due to combustion in the energy equation and the dependence of the electrical conductivity on the temperature (all the gas parameters are assumed to be constant). There are 3 figures and 3 references: 1 Soviet and 2 non-Soviet. The English-language references read as follows: Ref.1 (quoted in text); Ref.3: E. Resler and W. Sears, Magneto-Gasdynamic Channel Flow. Z.angev.Math.und Phys. 1958, v.IXb, Fasc.5/6, 509-518.

SUBMITTED: April 21, 1960

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B108/B102

26.5100

AUTHOR: Zimin, E. P.

TITLE: Heat exchange in a liquid flow through a pipe with discrete heat sources

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 4, no. 10, 1961, 127-128

TEXT: The author assumes an incompressible liquid to flow through a pipe of constant cross section. The walls contain discrete heat sources of an intensity q each. The inner surface of the tube is adiabatically insulated. The heat-balance condition for wall and liquid gives the following system of equations in one-dimensional approximation:

$$\lambda_2 f_2 \frac{d^2T_2}{dx^2} + qf_2 + \alpha S(T_1 - T_2) = 0 \qquad (1)$$

$$\lambda_1 f_1 \frac{d^2T_1}{dx^2} - c\rho w f_1 \frac{dT_1}{dx} - \alpha S(T_1 - T_2) = 0 \qquad (2).$$

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T_1, c, w, and λ_1 are temperature, specific heat, velocity, and heat conductivity of the coolant, respectively. λ_2 and T_2 are the heat conductivity and the temperature of the pipe wall, respectively. α denotes the coefficient of heat exchange, f_1 - the inside surface area of the pipe, f_2 - the cross sectional area of the pipe body, S - the inner width of the pipe. The solution is obtained in the form $T_1 = T_1(x)$ and $T_2 = T_2(x)$, under the assumption that all the other parameters are constant. T_2 is determined from Eq. (2) and substituted into Eq. (1). This leads to a fourth-order differential equation:

$$T_1^{(4)} - \frac{c\rho w}{\lambda_1} T_1''' - \frac{\alpha S}{\lambda_1 f_1}\left(1 + \frac{\lambda_1 f_1}{\lambda_2 f_2}\right) T_1'' + \frac{c\rho w \alpha S}{\lambda_2 f_2 \lambda_1} T_1' = \frac{q\alpha S}{\lambda_2 f_1 \lambda_1}. \quad (3)$$

The dimensionless quantities $\xi = x/l$, $\theta_1 = T_1/T_0$, $\theta_2 = T_2/T_0$, $N = l^2\alpha S/\lambda_1 f_1$,

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$Re = \rho wl/\mu$, $Pr = \mu c/\lambda_1$, $Q = ql^2/T_0\lambda_2$, $M = \lambda_1 f_1/\lambda_2 f_2$ are introduced; l is a characteristic length, T_0 - the temperature of the liquid at the inlet. In these new variables, Eq. (3) reads as follows:

$\theta_1^{(4)} - PrRe\theta_1''' - N(1 + M)\theta_1'' + MPrReN\theta_1' = NQ$ (4), and, after on integration, as $\theta_1''' - PrRe\theta_1'' - N(1 + M)\theta_1' + MPrReN\theta_1 = N\int Qd\xi + A_4$ (5). The characteristic equation of a one-dimensional equation may be written in the form $k^3 + 3pk + 2q = 0$ (6) (Ref. 1: Sushkevich A. K. Osnovy vysshey algebry. ONTI, 1937), where

$k = r - PrRe/3$, $p = -\frac{1}{3}N(1 + M) - \frac{1}{9}Pr^2Re^2$, $q = -\left[\frac{Pr^3Re^3}{27} + \frac{1}{6}PrReN(1-2M)\right]$.

In practice, in most cases the discriminant of Eq. (6) is $D = q^2 + p^3 < 0$. This means that Eq. (6) has three different real kernels:

$r_1 = -2t\cos\gamma/3 + PrRe/3$, $r_2 = 2t\cos(60^\circ - \gamma/3) + PrRe/3$,

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$r_3 = 2\,t\cos(60^\circ + \varphi/3) + PrRe/3$. Therein, $t = \left[\frac{1}{3}N(1+M) + \frac{1}{9}Pr^2Re^2\right]^{1/2}$ and $\varphi = \arccos q/t^3$. The one-dimensional equation has the following solution: $\theta_1 = A_1\exp(r_1\xi) + A_2\exp(r_2\xi) + A_3\exp(r_3\xi)$. When $Q = const$, the general solution of Eq. (5) will have the form

$$\theta_1 = A_1\exp(r_1\xi) + A_2\exp(r_2\xi) + A_3\exp(r_3\xi) + \xi Q/MPrRe + A_4.$$

The function θ_2 is determined by the following relation:

$$\theta_2 = A_1\left(1 + \frac{Pr\,Re}{N}r_1 - \frac{r_1^2}{N}\right)e^{r_1\xi} + A_2\left(1 + \frac{Pr\,Re}{N}r_2 - \frac{r_2^2}{N}\right)e^{r_2\xi} + A_3\left(1 + \frac{Pr\,Re}{N}r_3 - \frac{r_3^2}{N}\right)e^{r_3\xi} + \frac{Q}{M\,PrRe}\xi + \frac{Q}{NM} + A_4. \quad (A).$$

The following data may be used as boundary conditions: $\theta_1(0) = 1$,

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Heat exchange in a liquid flow ...

$\theta_1'(\xi_{exit}) = 0$, $\theta_2'(0) = \theta_2'(\xi_{exit}) = 0$. [Abstracter's note: Essentially complete translation.] There is 1 Soviet reference.

ASSOCIATION: Energeticheskiy institut im. G. M. Krzhizhanovskogo, g. Moskva (Power Engineering Institute imeni G. M. Krzhizhanovskiy, Moscow)

SUBMITTED: February 17, 1961

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B108/B102

26.5200

AUTHORS: Borisenko, A. I., Zimin, E. P., Yakovlev, A. I.

TITLE: Flow of a liquid and heat exchange in the gap between two rotating coaxial cylinders with initially axial motion of the liquid

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 4, no. 10, 1961, 129-133

TEXT: Thermal calculations for certain kinds of electromotors require knowledge of the velocity and temperature fields between stator and rotor. Therefore, the authors studied the laminar flow of a liquid between two coaxial cylinders axis-z with the radii r_1 and r_2 ($r_2 > r_1$). Density ρ, specific heat c_p, viscosity μ, and heat conductivity λ of the liquid are assumed to be constant. Steady flow and heat transfer are described by the equations $\rho(\vec{W}\nabla)\vec{W} = -\nabla p + \mu\Delta\vec{W}$ (1), $\rho c_p \vec{W}\nabla T = \lambda\Delta T + \mu D$ (2), $\mathrm{div}\vec{W} = 0$ (3), where μD is the function of viscous dissipation. The conditions $d/d\varphi = 0$ and $W_r = 0$ are postulated. Consequently, $W_z = W_z(r)$. Under

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these conditions one may write $p = \varphi(r) + \Pi z$, where $\Pi = -\frac{dp}{dz} = \text{const}$, so that $\frac{\partial p}{\partial r} = \frac{d\varphi}{dr}$ and $W_\varphi = W_\varphi(r)$. Eqs. (1) - (3) assume the form

$$\rho \frac{W_\varphi^2}{r} = \varphi', \tag{8}$$

$$\Pi + \mu\left(W_z'' + \frac{1}{r} W_z'\right) = 0, \tag{9}$$

$$W_\varphi'' + \frac{1}{r} W_\varphi' - \frac{W_\varphi}{r^2} = 0. \tag{10}$$

The primes indicate differentiation with respect to r. The solutions to these equations are $W_z = C_1 \ln r - \frac{\Pi}{4\mu} r^2 + C_2$ (11), $W_\varphi = C_3 r + C_4/r$ (13), and $\varphi(r) = \varphi^*(r) + C_5$, where $\varphi^*(r) = \frac{C_3^2}{2} r^2 + 2C_3C_4 \ln r - C_4^2/2r^2$. The constants C_i may be determined from boundary conditions. Assuming that

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$z = 0$ and $p = p_1$ at the inlet and $z = L$, $p = p_2$ at the outlet of the flow channel, one obtains $\pi = -(p_1 - p_2)/L$. The calculations show that the velocity distribution is independent of the temperature distribution. The energy balance equation (2) assumes the form

$$\rho c_p W_z \frac{\partial T}{\partial z} = \lambda \left(\frac{\partial^2 T}{\partial r^2} + \frac{1}{r} \frac{\partial T}{\partial r} + \frac{\partial^2 T}{\partial z^2} \right) + \mu \left(\frac{dW_\varphi}{dr} - \frac{W_\varphi}{r} \right)^2 + \mu \left(\frac{dW_z}{dr} \right)^2. \quad (15)$$

For this equation, a solution of the form $T = Az + \theta(r)$ (16) may be found. Elementary calculations show that

$$\theta = -\frac{\Pi(\Pi + \rho A C_4)}{64 \mu \lambda} r^4 + \frac{1}{4} \left(C_2 + \frac{C_1 \Pi}{\lambda} - \frac{\rho A C_1 C_4}{2\lambda} \right) r^2 - \frac{\mu C_4^2}{\lambda r^2} - \frac{\mu C_1}{2\lambda} (\ln r)^2 + \frac{\rho A C_1 C_4}{4\lambda} r^2 \left(\ln r - \frac{1}{r} \right) + D_1 \ln r + D_2. \quad (17)$$

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The constants D_1 and D_2 can be determined from boundary conditions. For numerical calculations, either the temperature gradient on the cylinders or the specific fluxes q_1 and q_2 on the walls of the cylinders may be given. The following relation is found for A:

$$A = \frac{\partial T_m}{\partial z} = \frac{2(q_1 r_1 + q_2 r_2)/(r_1 + r_2) + \int_{r_1}^{r_2} (\mu D)\, dr}{\rho c_p \int_{r_1}^{r_2} W_z\, dr}. \qquad (19),$$

where T_m is the mean temperature of the liquid. There are 3 Soviet references.

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10.2000
26.1410

S/040/61/025/002/021/022
D201/D302

AUTHOR: Zimin, E.P. (Khar'kov)

TITLE: The flow of a viscous electric-conducting gas in a transverse magnetic field with heat exchange

PERIODICAL: Prikladnaya matematika i mekhanika, v. 25, no. 2, 1961, 381 - 382

TEXT: The plane flow of a conducting gas between parallel plates, normal to which there is a uniform magnetic field of intensity H_0 is described in S.A. Regirer (Ref. 2: O teplovom effecte pri technii elektroprovodnoy zhidkosti mazhdu parallel'nymi stenkami, PMM, 1959, t. XXIII, vyp. 5). The flow of a fluid between infinite non-conducting plates $z = \pm b$ is considered, where σ = (electric) conductance, ρ = density, c_p = specific heat, and the coefficients of viscosity and thermal conductivity are μ and λ. Then with H_0 as defined above, and assuming that the fluid cannot permeate the

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plates, and with the axes chosen so that the component of velocity in the y-direction is zero, (W = velocity) the system may be described by

$$W_x = W(z), \quad W_y = 0, \quad W_z = 0,$$
$$H_x = H_x(z), \quad H_y = 0, \quad H_z = H_0, \quad p = p(x, z), \quad T = T(x, z) \qquad (1)$$

(1) is satisfied by the system of equations

$$\frac{\partial}{\partial x}\left(p + \mu_e \frac{H^2}{2}\right) = \mu \frac{d^2W}{dz^2} + \mu_e H_0 \frac{dH_x}{dz} \qquad \left(\alpha = \frac{\lambda}{\rho c_p}\right)$$
$$\frac{\partial}{\partial z}\left(p + \mu_e \frac{H^2}{2}\right) = 0, \qquad H_0 \frac{dW}{dz} + \frac{1}{\mu_e \sigma} \frac{d^2 H_x}{dz^2} = 0 \qquad (2)$$
$$W \frac{\partial T}{\partial x} = \alpha\left(\frac{\partial^2 T}{\partial x^2} + \frac{\partial^2 T}{\partial z^2}\right) + \frac{1}{\rho c_p \sigma}\left(\frac{dH_x}{dz}\right)^2 + \frac{\mu}{\rho c_p}\left(\frac{dW}{dz}\right)^2$$

where α is the coefficient of thermal conductivity. The first three equations give for W and H_x,

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The flow of a viscous electric- ...

$$W = \frac{PN}{\mu_e^2 \sigma H_0^2} \frac{\operatorname{ch} N - \operatorname{ch}(Nz/b)}{\operatorname{sh} N}, \quad H_x = \frac{Pb}{\mu_e H_0}\left[\frac{\operatorname{sh}(Nz/b)}{\operatorname{sh} N} - \frac{z}{b}\right]$$

$$P = -\partial p/\partial x = \text{const}, \quad N = \mu_e H_0 b \sqrt{\sigma/\mu}$$

where N is Hartman's number and b is the semi-diameter of the channel. Since the heat source is independent of x, the temperature profile is the same for all sections of the channel and hence the temperature $T = \tau x + \theta(z)$ is given by

$$T = \tau x + \tau \frac{Pb^4}{2\alpha\mu N \operatorname{sh} N}\left[\left(\frac{z}{b}\right)^2 \operatorname{ch} N - \frac{2}{N^2}\operatorname{ch}\left(N\frac{z}{b}\right) - \frac{N^2-2}{N^2}\operatorname{ch} N\right] - \frac{P^2 b^4}{\alpha\rho c_p \mu N^2}$$

$$\left\{\frac{1}{4\operatorname{sh}^2 N}\left[\frac{1}{2}\operatorname{ch}\left(2N\frac{z}{b}\right) - \frac{1}{2}\operatorname{ch} 2N + N^2\left(\frac{z^2}{b^2}-1\right)\right] - \frac{2\operatorname{ch}(Nz/b)}{N\operatorname{sh} N} + \right.$$

$$\left. + \frac{2\operatorname{ch} N}{N\operatorname{sh} N} + \frac{1}{2}\left(\frac{z^2}{b^2}-1\right)\right\} - \frac{P^2 b^4 N^2}{4\alpha\rho c_p \mu \operatorname{sh}^2 N}\left[\frac{1}{2}\operatorname{ch}\left(2N\frac{z}{b}\right) - \frac{1}{2}\operatorname{ch} 2N + \left(\frac{z^2}{b^2}-1\right)(N\operatorname{ch} N - \operatorname{sh} N)\right]$$

$$\theta = -\frac{1}{\rho c_p b W^0}\left[q + \frac{P^2 b^3}{\mu}\left(\frac{\operatorname{sh} 2N}{2N\operatorname{sh}^2 N} - \frac{1}{N^2}\right)\right]$$

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The flow of a viscous electric- ... S/040/61/025/002/021/022
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There are 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: R. R. Siegel, Appl. Mech., 1958, vol. 25, no. 3.

ASSOCIATION: Khar'kovskiy aviyatsionnyy institut (Khar'kov Aviation Institute)

SUBMITTED: August 10, 1960

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, YE. P.; POPOV, V. A.

" Research on the electrical conductivity of combustion products with potassium seeding. "

paper presented at the Symposium on Magnetoplasmadynamic Electrical Power Generation, UK, 6-7 Sep 62

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, YE. P.; POPOV, V. A.

" Determining the optimum composition of gaseous mixtures in the presence of seeding. "

paper presented at the Symposium on Magnetoplasmadynamic Electrical Power Generation, UK, 6-7 Sep 62

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, E. P. (Moskva)

Effect of Archimedean forces on liquid flow and heat transfer in a channel formed by vertical rotating coaxial cylinders in the case of axial motion of the liquid. IMTF no.2:123-125 Mr-Ap '62. (MIRA 16:1)

(Hydrodynamics) (Heat—Convection)

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17

AUTHOR: Zimin, E. P. and Popov, V. A. (Moscow)

TITLE: Determination of the optimum composition of gaseous mixtures in the presence of a readily ionizable addition

PERIODICAL: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 3, 1962, 10–14

TEXT: The authors investigate the conductivity of a gaseous mixture, composed of a "diluter" of high ionization potential and "addition" of low ionization potential, as a function of their concentrations n_1 and n_2 and their collision cross-sections Q_1 and Q_2, and establish the composition of the mixture corresponding to maximum conductivity. The practical interest of the study lies in the possibility it offers to increase the conductivity of the gas without heating it. For low degrees of ionization of the addition, the formula obtained reduces to the Rosa condition of maximum conductivity of the mixture

$$n_2/n_1 = Q_1/Q_2$$

The following conclusions are arrived at: a) by diluting the steam of readily ionizable metals with inert gases we can obtained mixtures of conductivity, for given temperature and pressure, higher than the conductivity of pure metal steam; b) the conductivity of such a mixture is not much higher than that of the pure metal steam but the realized economy of metal can be considerable; c) there are pressure and temperature limits to the

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Determination of...

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applicability of such a diluting, The authors thank L. N. Khitrin for his comments. There are 6 figures. The most important English-language references read as follows: S. Chapman, T. Cowling, Mathematical theory of non-homogeneous gases, Russian edition IIL 1960; S. C. Lin, E. L. Resler, A. Kantrowitz, "Electrical Conductivity of Highly Ionized Argon Produced by Shock Waves", J. Appl. Phys., 1955, vol. 26, p. 95; R. Rosa, "Physical Principles of Magnetohydrodynamic Power Generation", The Physics of Fluids, 1961, vol. 4, no. 2, pp. 182–194

PRESENTED: February 20, 1962

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E031/E335

26.2331

17

AUTHOR: Zimin, E.P. (Moscow)

TITLE: The flow of an electrically conducting fluid in the magnetic field of a linear current

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, no. 3, 1962, 15 - 18

TEXT: An exact solution is found for the system of equations describing the temperature and velocity fields of electrically and thermally conducting viscous fluid between coaxial cylinders whose axis coincides with that of a linear current. Taking into account the forces due to the interaction of the currents in the fluid with the magnetic field and the Joule effect, we obtain:

$$\rho(\underline{w})\underline{w}\nabla\underline{w} = -\nabla p + \nu\rho\Delta\underline{w} + \mu\underline{j} \times \underline{H}$$

$$\rho c\underline{w}\nabla T = \lambda\Delta T + \nu\rho D + j^2/\sigma \qquad (1)$$

$$\operatorname{div}\underline{w} = 0$$

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where ν, σ, μ, c and λ are the kinematic viscosity, the conductivity, the magnetic permeability, the heat-capacity and the heat-conductivity of the fluid, respectively,
j is the current density, and
D is a function of the viscous dissipation.

It is assumed that the magnetic Reynolds number is very much less than unity, so that:

$$\underline{H} = (0,\ i/2\pi r,\ 0) \quad \text{for} \quad r_o < r .$$

To the system (1) must be added:

$$\underline{j} = \sigma\,(\underline{E} + \mu \underline{u} \times \underline{H}) \qquad (2)$$

where:

$$\underline{E} = (E,\ 0,\ 0) \quad \text{and} \quad E = E(r) .$$

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It is assumed that the cylinders are long and the behaviour far from their ends is studied. The mean velocity of the fluid over the cross-section of the channel is determined. If $F \neq 0$ ($F = V/\mu\nu H_o$ and V is the voltage across the resistance of unit surface of the outer cylinder), then the pressure along the channel falls due to the effect of the magnetic viscosity. Having determined the velocity field, the temperature field can be found by solving the equation of energy balance, for which it is assumed that:

$$T(z, r) = Bz + \theta(r) .$$

The exact solution obtained corresponds to the case when there is a uniform heat flow in the cylinders.

SUBMITTED: October 31, 1961

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B152/B102

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11.7200

AUTHORS: Zimin, E. P., Popov, V. A.

TITLE: Microwave investigation of the electrical conductivity of a flame

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 5, no. 3, 1962, 66-71

TEXT: A microwave method for studying the electrical conductivity of a flame is described and results of experiments with a methane-air flame to which some potassium is added are given. The experiments were carried out with a plane burner designed by Spalding that furnishes a plane flame. Electron concentration and the frequency of electron collision with other particles can be determined independently from one another. The microwave method immediately yields the electron component of conductivity. Two oppositely placed nets of platinum wires that were heat insulated by quartz capillaries were used as microwave guides. An aqueous solution of K_2CO_3 was added to the hot mixture. The theory of damping of electromagnetic waves in a homogeneous conducting medium is dealt with. If a

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plane wave propagates in the z direction (perpendicular to the wave front) and if ionization is weak the polarization vector of the electrons is:

$$\mathbf{P} = n_e e^2 \frac{-\omega + i\nu}{\omega m(\omega^2 + \nu^2)} \mathbf{E}.$$

P for the ions can be determined analogously, ω - circular frequency of the field, ν - collision frequency of the electron with neutral molecules. The dielectric constant of a medium consisting of s kinds of quasi-elastic molecules, q kinds of solid molecules and free electrons of the density n_e is

$$\varepsilon_c = \varepsilon_0 + 4\pi n \left(\sum_{i=1}^{s} \delta_i \gamma_i' + \frac{1}{3kT} \sum_{j=1}^{q} M_j^2 \gamma_j'' \right) - 4\pi \frac{n_e e^2}{m(\omega^2 + \nu^2)}, \qquad (6),$$

where $\gamma_i' = n_i'/n$; $\gamma_j'' = n_j''/n$. n is the specific concentration and M is the electric moment of the solid molecules. The conductivity is $\sigma_0 = \sigma(1 + \omega^2/\nu^2)$ where $\sigma = n_e e^2 \nu/m(\omega^2 + \nu^2)$. Solid molecules are in the

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methane-air flame H_2O and CO. The mean polarizability of air molecules in $\delta = 1.7 \cdot 10^{-24}$. ε can be calculated from $\varepsilon_c = 1 + \Delta\varepsilon_1 + \Delta\varepsilon_2$, where $\Delta\varepsilon_1 = 0.156\ p/T$; $\Delta\varepsilon_2 = 780\ p_{H_2O}/T^2$. The attenuation factor of the electric field strength is

$$\beta = \left\{ \frac{\mu\omega^2}{2c^2} \left[-\varepsilon_c + \sqrt{\varepsilon_c^2 + \left(4\pi \frac{\sigma}{\omega}\right)^2} \right] \right\}^{1/2}. \qquad (5)$$

and the power of the waves is $N = N_0 \exp(-2\beta z)$. In the flame $\mu \approx 1$, and if $\hat{\beta}$ is given in decibels the conductivity of the medium is $\sigma_0 = 6.16 \cdot 10^{-4} (1 + \omega^2/\nu^2)\hat{\beta}/z$ mohm/cm. There are 4 figures and 7 non-Soviet references. The four most recent references to English-language publications read as follows: Rosa R. The Physics of Fluids, 4, no. 2, 182, 1961; Way S., Hunstad R. L. Combustion and Flame, 4, no. 4, 1960; Botha J. P., Spalding D. B. Proceedings of the Royal Society, A225, 71-96, 1954; Saha M. N. Phil. Mag., 40, 472, 1920.

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Microwave investigation of ...

S/170/62/005/003/006/012
B152/B102

ASSOCIATION: Energeticheskiy institut AN SSSR imeni G. M. Krzhizhanovskogo, g. Moskva (Institute of Power Engineering AS USSR imeni G. M. Krzhizhanovskiy, Moscow)

SUBMITTED: July 14, 1961

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41327

S/057/62/032/009/010/014
B117/B186

AUTHORS: Zimin, E. P., and Popov, V. A.

TITLE: Experimental investigation into the conductivity of combustion products of methane - oxygen mixtures with alkali metal additives

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 9, 1962, 1099 - 1101

TEXT: The electrical conductivity of combustion products from a methane-oxygen flame to which K_2CO_3 had been added under standard pressure (760 mm Hg), was studied with a view to using the chemical reactions in the flame as a source of power and in order to determine the conductivity of potassium vapor diluted with combustion products. The partial pressure p_g of the potassium was varied within the range 10^{-7} to 10^{-4} atm. The electrical conductivity was determined from the attenuation of radio waves (~9000 Mc/sec) passing through the flame, and the temperature was measured by the doublet method (Na). The maximum temperature of the combustion products was 2400°K. When the temperature was increased in the

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range under consideration (1600 - 2400°K), the experimental values of conductivity deviated from theoretical data (Fig. 1), but the theoretical dependence of conductivity on partial pressure of the additive remained valid. This shows that conventional methods (M. N. Saha. Phys. Mag., 40, 472, 1920; Chapman, T. Cowling. Matematicheskaya teoriya neodnorodnykh gazov (Mathematical theory of inhomogeneous gases), IL, 1960) cannot be used for calculating conductivity of ionized products. The deviations may be due either to a relatively random value of Q ($Q = 10^{-15}$ cm^2, having been chosen and considered constant for the given temperature range) or to the mechanism of the vanishing of electrons. There are 1 figure and 1 table.

ASSOCIATION: Energeticheskiy institut im. G. M. Krzhizhanovskogo, Moskva (Power Engineering Institute imeni G. M. Krzhizhanovskiy Moscow)

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Fig. Temperature dependence of conductivity.
Legend: (I) calculated values; (II) experimental values.

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L 9927-63 EWT(1)/FCC(w)/BDS--AFFTC/ASD/ESD-3--IJP(c)
ACCESSION NR: AP3002827 S/0207/63/000/003/0162/0164

AUTHOR: Zimin, E. P.; Popov, V. A. (Moscow) 56

TITLE: Effect of a magnetic field on the optimum composition of an electroconductive gaseous mixture

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 3, 1963, 162-164

TOPIC TAGS: electroconductivity of a gas, Cs seeding, seeding-vapor concentration

ABSTRACT: The effect of a magnetic field on the electroconductivity of a gas [illegible]

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L 99[illegible]-63
ACCESSION NR: [illegible]

appears when the pressure is reduced. Above a certain critical field strength the optimum value of relative concentration of the seeding vapor becomes equal to unity, and the problem of finding the optimum composition becomes meaningless. [illegible]

ASSOCIATION: none

SUBMITTED: 05Mar63 DATE ACQ: 16Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 002 OTHER: 000

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

AUTHOR: Zimin, E. P.

Operating conditions in a magnetohydrodynamic channel

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ZIMIN, E.P. (Moskva)

Flow of an electrically conductive fluid in a plane hydrodynamic channel. PMTF no. 6:108-112 N-D '63. (MIRA 17:7)

1. Energeticheskiy institut imeni G.M.Krzhizhanovskogo.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, E.P.; POPOV, V.A.

Experimental study of the electric conductivity of combustion products containing potassium. Zhur. tekh. fiz. 34 no. 3: 523-526 Mr '64. (MIRA 17:5)

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

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ZIMIN, E.P. (Moskva)

Heat transfer in liquid flow along a plane tube in the presence of weak radiation from the outer surfaces. PMTF no.1:124-125 Ja-F '64. (MIRA 17:4)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ZIMIN, E.P. (Moskva); POPOV, V.A. (Moskva)

Effect of a magnetic field on the optimum composition of a conducting gaseous mixture. PMTF no.3:162-164 My-Je '63. (MIRA 16:9)
(Magnetic fields) (Gases--Electric properties)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210009-6

ACCESSION NR: AP3014930 S/0207/63/000/005/0142/0143

AUTHORS: Zimin, E. P. (Moscow); Popov, V. A. (Moscow)

TITLE: Determination of the mean cross section of electron collisions with neutral atoms of a weakly ionized gas mixture

SOURCE: Zhurnal prikl. mekhaniki i tekhn. fiziki, no. 5, 1963, 142-143

TOPIC TAGS: electron collision, collision cross section, neutral gas atoms, weakly ionized gas mixture

ABSTRACT: An experiment has been conducted to determine the mean collision cross section of electrons with atoms in the temperature range 1900-2300K. The method consists of measuring radio wave attenuation in the combustion products of methane-oxygen mixture with the addition of various concentrations of K_2CO_3 as seeding material. The formula used to calculate the coefficient of attenuation γ is given by

$$\frac{1}{\gamma}=\frac{1}{a}\frac{\omega^2}{\nu}+\frac{\nu}{a} \qquad (a=n_e/2.16)$$

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