

32267
S/612/69/000/008/006/016
D218/D304

The use of integral ...

The paper is concluded with a derivation of an approximate formula for the correction coefficient \bar{K} . The following model is employed: Turbulent heat transfer plays a decisive role in turbulent motion everywhere except for the laminar boundary layer near the wall. In the laminar boundary layer, the most important effect in the stress transfer is viscous friction, while the most important effect in the heat transfer is thermal conductivity. It then follows that the thickness of the hydrodynamic boundary layer is different from the thickness of the thermal boundary layer. In the turbulent region, the effect of the physical properties of the medium on the turbulent heat transfer is very small. Subject to various approximations, it is shown that

$$\bar{K} = Pr^{\frac{n+1}{2}} \quad (104)$$

The average value of n is 0.1335. If the numbers vary between 10^4

Card 4/5

X

The use of integral ...

32267
S/612/69/000/008/006/016
D218/D304

and 10^6 , Eq. (53) can be replaced by

$$C_f = \frac{0,187}{Re^{0,2}} \quad (106)$$

and then

$$Nu = 0,0234 \cdot Re^{0,8} \cdot Pr^{0,434} \quad (107)$$

This gives satisfactory agreement with the empirical relation

$$Nu = 0.023 \cdot Re^{0,8} \cdot Pr^{0,43} \quad (108)$$

which was derived by Academician M. A. Mikheev (Ref. 2: Osnovy teploperedachi (Fundamentals of Heat Transfer) (1949)). There are 1 figure and 2 Soviet-bloc references.

Card 5/5

X

KUDRYASHEV, L.I., prof., doktor tekhn.nauk; DEVIATKIN, B.A., dotsent,
kand.tekhn.nauk; BEREZANSKIY, V.Yu., kand.tekhn.nauk;
GOLOVANOV, O.M., kand.tekhn.nauk

Improving boiler rating and steam quality at the boiler plant
of the "Magnezit" works. Sbor. nauch. trud. Kuib. indus. inst.
no.8:231-238 '59. (MIRA 14:7)

(Boilers)

/ DEVIATKIN, K.A.

The GT-17 generator with RRT-25 relay regulator and PG-57 filter. No 7.

Tankist, No 12, 1948.

DEVYATKIN, K. A.

A practical guide on maintenance and the elimination of defects in the electrical equipment of Automobile GAZ-AA. Moskva, Izd-vo Mavkonkhoza RSFSR, 1943. 40 p. (50-53735)

TL215.G2D4

LEVITSKAYA, Ye.D.; KOROVIN, P.Ya.; DUVYATKIN, N.A.; IFTINKA, G.A., red.
izd-va; RUDAKOVA, N.I., tekhn.red.

[Collection of regulations on wages for workers employed in the
construction and building materials industries] Sbornik rukovo-
ditskhich materialov po opiate truda rabotnikov, zaniatykh v
stroitel'stve i promyshlennosti stroitel'nykh materialov. Moskva,
Gos.izd-vo lit-ry po stroit., arkh. i stroit.materialam. 1961.
563 p. (MIRA 15:5)

1. Russia (1917- R.S.F.S.R.) Gosudarstvennyy komitet po delam
stroitel'stva.

(Wages--Construction industry)
(Wages--Building materials industry)

DEVYATKIN, N.G.

Auxiliary machine tool for drilling holes for dowels. Der 1 lesokhim.prom. 3 no.8:21-23 Ag '54. (MIRA 7:8)

1. Shuzerlinskiy mebel'nyy kombinat.
(Drilling and boring machinery)

DEVIATKIN, P.

GINZBURG, Z.; DEVIATKIN, P.

Bus service in Leningrad Province. Avt.transp. 32 no.5:9-10 My '54.

1. Leningradskiy oblastnoy avtotrest.
(Leningrad Province--Motor bus lines) (Motor bus lines--
Leningrad Province)

NESOV, V.D., inzh., red.; DEVYATKIN, S.V., inzh., red.

[Construction specifications and regulations] Stroitel'nye normy i pravila. Moskva, Gosstroizdat. Pt.2. Sec.M. ch.2.
[Production buildings of industrial plants; planning specifications] Proizvodstvennye zdaniya promyshlennykh predpriatii; normy proektirovaniya (SNiP II-M. 2-62). 1963. 44 p.
(MIRA 17:3)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva. 2. Gosstroy SSSR (for Nesov). 3. Tsentral'nyy nauchno-issledovatel'skiy i proyektno-eksperimental'nyy institut promyshlennykh zdaniy i sooruzheniy (for Devyatkin).

DEVYATKIN, S.V., inzh.; NESOV, V.D., inzh.

Standards for designing production buildings of industrial enterprises. Prom. stroi. 41 no.5:43-45 My '64.

(MIRA 18:11)

DEVYATKIN, T.

Toward new achievements in the work of automobile transportation and
road organizations. Avt.transp. 32 no.4:3-4 Ap '54. (MIRA 7:6)
(Transportation, Automotive)

DEVYATKIN, T.

Winners in the All-Union socialist competition. Avt.transp.33
no.9:35 S'55. (MLRA 8:12)
(Transportation, Automotive--Competitions)

DEVYATKIN, T.

Annoying deficiencies of a useful book. Sots. trud 8 no.10:155-157
0 '63. (MIRA 16:12)

ORESHKIN, P. T.; DEVYATKIN, V. A.; POPOV, I. I.

Thermal diffusion currents and the thermoelectromotive force
in industrial refractories at high temperatures. Izv. vys. ucheb.
zav.; Chern. met. 7 no.6:184-190 '64. (MIRA 17:7)

1. Sibirskiy metallurgicheskiy institut.

S/081/63/000/003/003/036
B144/B186

AUTHORS: Nishkov, I. F., Raspopin, S. P., Devyatkin, V. I.

TITLE: Cathodic deposition of zirconium from molten halide salts containing uranium

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 3, 1963, 86, abstract 3B600 (Tr. Ural'skogo politekhn. in-ta, in coll. 121, 1962, 18-23)

TEXT: The cathodic process was studied in the electrolysis of an equimolar KCl - LiCl mixture containing up to 8% by weight of $ZrCl_4$. The tests were conducted at 600 - 700°C in electrolytic cells of refractory glass, using an Mo cathode. The potential φ of the cathode was measured with respect to the Pb reference electrode, the catholyte and the anolyte being separated by an asbestos membrane. With current densities $i < 10^{-2}$ a/cm², no significant polarization is observed, but with higher i densities a polarization becomes evident which increases with decreasing Zr content in the electrolyte and has concentration character. With φ

Card 1/2

Cathodic deposition of zirconium ... S/081/63/000/003/003/036
B144/B186

at 3.2 - 3.3 v, the alkali metal is deposited on the cathode. In the electrolysis of $KCl - LiCl - UF_4 - K_2ZrF_6$ melts, first of all Zr is deposited, and then U. [Abstracter's note: Complete translation.]

Card 2/2

KARPACHEVA, S.M., doktor khimich. nauk; CHEMALIN, N.G., kand. tekhn. nauk;
BYCHKOV, A.Ye., inzh.; ZAKHAROV, Ye.I., inzh.; DEVYATKIN, V.I., inzh.;
ZHDANOV, B.V., inzh.

Study of the operation of a pulsating extraction sieve plate
column. Khim. i neft. mashinostr. no.1:24-27 Ja '65.

(MIRA 18:3)

DEVYATOV, V.I.

Investigating heat transfer of two versions of cooling systems
for turbine disks. Izv. vys. ucheb. zav.; av. tekhn. 8 no.2:56-
64 '65. (MIRA 18:5)

DEVYATKIN, V.N.

PHASE I BOOK EXPLOITATION

SOV/6481

Akademiya nauk SSSR. Sibirskoye otdeleniye. Institut
merzlotovedeniya.

Teplo- i massoobmen v merzlykh tolshchakh zemnoy kory (Heat and Mass
Transfer in the Frozen Strata of the Earth's Crust) Moscow, Izd-vo
AN SSSR, 1963. 213 p. Errata slip inserted. 1200 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Sibirskoye otdeleniye
Institut merzlotovedeniya.

Resp. Ed.: N.I. Saltykov, Professor, Doctor of Technical Sciences;
Ed.: A.L. Bankvitser; Tech. Ed.: V.G. Laut.

PURPOSE: This book is intended for research workers in permafrost and
geocryology.

COVERAGE: This collection of papers deals with the results of theo-
retical, laboratory, and field research on heat transfer in frozen

Card 1/7

Heat and Mass Transfer (Cont.)

SOV/6481

ground and in ice carried out by the staff of the Heat- and Mass-Transfer Division of the Institute of Permafrost Study, Siberian Branch, AN SSSR. The theory of heat- and mass-transfer in ice, frozen and thawed ground, and rocks is discussed. The problem of heat transfer between engineering structures and frozen ground is investigated. Methods used in these investigations and the instrumentation and equipment designed by the authors are described.

TABLE OF CONTENTS:

Foreword	3
Ivanov, N.S. The Heat Regime of the Upper Layer of the Earth's Crust in the Yakutsk Area	9
Gavrilova, M.K. The Heat Regime of Surface and Near-Surface Rocks According to Calculations and Observations Made at the Suntar-Khayat High-Altitude Mountain Station in 1959	56

Card 2/2

Heat and Mass Transfer (Cont.)

SOV/6481

- Filosofov, G.N. Air Currents in Rock Fissures in the Aldan-Chul'mansk Mining Region 64
- Devyatkin, V.N. Diurnal Temperatures in Boreholes Filled With Various Materials 76
- Korennov, B.I. Thickness Determination of Long-Frozen Rocks by the Radio-Wave Electric-Prospecting Method 80
- Aptikayev, F.F. Some Features of Seismic Wave Propagation in Long-Frozen Rocks 89
- Chistyakov, G.Ye. The Temperature and Ice Regime of Rivers and Certain Watersheds in Yakutsk 92
- Balobayev, V.T. The Thawing of Frozen Rocks Due to Interaction With the Atmosphere 105

Card 3/7

DEVYATKIN, V.N.; UKSHE, Ye.A.

Behavior of iron electrodes in molten chlorides. Zhur.prikl.khim.
35 no.6:1328-1333 Je '62. (MIRA 15:7)

1. Filial Vsesoyuznogo alyuminiyevo-magniyevogo instituta.
(Electrodes, Iron) (Chlorides)

UKSHE, Ye.A.; DEVIATKIN, V.N.

Kinetics of hydrogen electrolytic evolution from fused salts, Elektro-
khimiia 1 no.6:627-632 Je '65. (MIRA 18:7)

1. Institut elektrokhemii AN SSSR.

DEVYATKIN, V.N.; UKSHE, Ye.A.

Solubility of hydrogen chloride in salt solutions. Zhur. prikl. khim.
38 no.7:1612-1614 J1 '65. (MIRA 18:7)

UKSHE, Ye.A.; DEVYATKIN, V.N.

Some regularities of the formation of liquid metal deposit on
a solid cathode. Zhur. prikl. khim. 38 no.5:1153-1156 My '65.
(MIRA 18:11)

1. Bereznikovskiy filial vsesoyuznogo alyuminiyevogo-magniyevogo
instituta.

UKSHE, Ye.A.; DEVYATKIN, V.N.

Dissolution of hydrogen chloride in fused salts. Zhur. fiz.
khim. 39 no.9:2288-2291 S '65. (MIRA 18:10)

1. Vsesoyuznyy alyuminiyevomagniyevyy Institut, Bereznikovskiy
filial.

DEVYATKIN, V. P. and SHKOL'NIK, L. M.

Povyshenie prochnosti shesteren drobestruiunym naklepom. (Vestn. Mash., 1950,
no. 12, p. 7-12)

Includes bibliography.

Increased strength of gears by shot method.

DLC: TN4.V4

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

KISLIK, V.A. ~~DRVYATKIN, Y.P.~~

Investigating the formation of abscesses on seamless rolled and band
railroad wheels. Tren. i izn.mash. no.7:205-222 '53. (MLRA 9:9)
(Wheels)

DEVYATKIN, V.P.

LARIN, T.V.; DEVYATKIN, V.P.; MALOZEMOV, N.A.; GOL'DENTUL, B.A. redaktor,
VERINA, G.P. tekhnicheskii redaktor.

[Increasing the wear resistance of locomotive parts] Povyshenie iznosostoičnosti parovoznykh detalei. Moskva, Gos. transp. zheldor. izd-vo, 1955. 191 p. (Moscow. Vsesoiuznyi nauchno-issledovatel'skii institut zheleznodorozhnogo transporta. Trudy, no.10.)
(Locomotives) (Mechanical wear)

DEVYATKIN, V.P.
LARIN, T.V.; ~~DEVYATKIN, V.P.~~; KRIVOSHEYEV, V.N.; NAUMOV, I.V.;
CHALYKH, Ye.I.; SELIKHOVA, T.A., inzhener, redaktor;
KHITROV, P.A., tekhnicheskii redaktor.

[Seamless rolled wheels for railroad cars] TSel'nokatannyye
zheleznodorozhnye koleasa. Moskva, Gos.trans. zhel-dor.izd-vo.
1956. 187 p. (Moscow. Vsesoiuznyi nauchno-issledovatel'skii
institut zheleznodorozhnogo transporta. Trudy, no.124).

(MLRA 9:11)

(Wheels)

SOV/137-57-1-1334

Translation from: Referativnyy zhurnal. Metallurgiya, 1957, Nr 1, p 183 (USSR)

AUTHORS: Larin, T. V., Davyatkin, V. P.

TITLE: On the Mechanism of the Wear of Railroad-car Wheels (O mekhanizme iznosa zheleznodorozhnykh koles)

PERIODICAL: Treniye i iznos v mashinakh. Nr 11. Moscow, AN SSSR, 1956, pp 238-263

ABSTRACT: The authors investigated the structural changes in the surface layer of working railroad-car wheel tires (T) and the effect of the C content (0.45, 0.55, 0.60, 0.68, and 0.86) on the structural changes in the surface layer of the specimens when they were subjected to friction tests. The steel of a worn T containing 0.73% C and 0.76% Mn has a σ_b of 90 kg/mm². Etching with 4% HNO₃ of samples cut out of various zones of the surface layers of worn T showed white, etch-resistant layers composed of structurefree martensite. The formation of such white layers causes a rapid wear of T. The mechanism of T wear consists of the separation from the rolling surface of particles of plastically deformed metal and of the white layer, which latter appeared as a result of structural

Card 1/2

On the Mechanism of the Wear of Railroad-car Wheels

SOV/137-57-1-1384

transformation caused by friction heat at points of skidding contact. The rate of development of these processes is explained by insufficient resistance of the metal to plastic deformation, hardenability of the T metal, the occurrence of skidding, the skidding velocity, and the magnitude of the specific pressures over the contact surface. In order to increase wear resistance of T it is necessary to produce a stronger layer, which would resist breaking down for the longest possible time, for which purpose the authors recommend use of steels with the lowest possible C content ($< 0.6\%$) and with alloying additives which increase the strength but do not increase hardenability. The σ_b should be 95 kg/mm^2 . The study of structural transformations in the surface layer of laboratory specimens of steels with various C content, friction-tested on a special apparatus, showed that the nature and properties of T structure in the region of hardened layer are the same as on the surface of the specimens.

A. M.

Card 2/2

DEVYATKIN, V.P.

137-58-5-10647

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 254 (USSR)

AUTHORS: Kazarinov, V.M., Larin, T.V., Vukolov, L.A., Devyatkin,
V.P., Tarasenko, A.Ya., Shchetinin, V.K.

TITLE: An Investigation of Materials for Brake Shoes of Improved Frictional Properties (Issledovaniye materialov dlya tormoznykh kolodok s povyshennymi frikttsionnymi svoystvami)

PERIODICAL: Vestn. Vses. n.-i. in-ta zh.-d. transp., 1957, Nr 7, pp 11-17

ABSTRACT: The increase in train speeds poses the problem of finding new materials for brake shoes (B) having high friction properties and resistance to wear. A test was run on B made at 3 plants from cast irons having various (up to 1.2%) P contents (with additions of Fe-P). The coefficient of friction and wear resistance were determined by weight loss at different speeds. The results were analyzed by the correlation process. These laboratory experiments are used to arrive at an iron of optimum composition, subject to verification by extensive service tests. In %, this composition is 2.8-3.2 C, 0.7-1 C combined, 0.7-1 Si, not over 1.2 Mn, 0.7-1 P, and ≤ 0.15 S. An important element of its

Card 1/2

137-58-5-10647

An Investigation of (cont.)

composition is P, which markedly increases the coefficient of friction. C and Si act in the opposite sense, and therefore they are held low. The iron must have a pearlite base. Also presented are data of laboratory and service tests of B made of various compositions (consisting of mineral fillers, powdered metals, and organic binders based on synthetic resins or rubbers).

S. O.

1. Materials--Production
2. Metals--Applications
3. Friction--Determination

Card 2/2

KAZARINOV, V.M., doktor tekhn.nauk; VUKOLOV, L.A., kand.tekhn.nauk; LARIN, T.V.,
kand.tekhn.nauk; DEVIYATKIN, V.P., kand.tekhn.nauk; TARASENKO, A.Ya.,
kand.tekhn.nauk; ~~SHCHETININ, V.K., inzh.~~

Investigating brake shoes made of asbestos friction materials.
Trudy TSNIi MPS no.163:5-37 '58. (MIRA 12:2)
(Railroads--Brakes--Testing)

LARIN, T.V., doktor tekhn. nauk; DEVIATKIN, V.P., kand. tekhn. nauk;
KRIVOSHEYEV, V.P., kand. tekhn. nauk

Using alloyed steel for seamless rolled wheels. Vest. TSNIi MPS
18 no.5:32-35 Ag '59. (MIRA 13:1)
(Car wheels)

Devyatkin, V. P., Tarasenko, A. Ya., and Larin, T. V.

Means for Increasing the Friction Properties and the Wear Resistance of the Cast Iron in the Brake Shoes of Railroad Rolling Stock

Sukhoie i granichnoye treniye. Friksionnyye materialy (Dry and Boundary Friction. Friction Materials) Moscow, Izd-vo AN SSSR, 1960. 302 p.
Errata slip inserted. 3,500 copies printed. (Series: Its: Trudy, v. 2)

Sponsoring Agency: Akademiya nauk SSSR. Institut mashinovedeniya. Resp. Ed.: I. V. Kragel'skiy, Doctor of Technical Sciences, Professor; Ed. of Publishing House: K. I. Grigorash; Tech. Ed.: S. G. Tikhomirova.

The collection published by the Institut mashinovedeniya, AN SSSR (Institute of Science of Machines, Academy of Sciences USSR) contains papers presented at the III Vsesoyuznaya konferentsiya po treniyu i iznosu v mashinakh (Third All-Union Conference on Friction and Wear in Machines, April 9-15, 1958.

LARIN, T.V., doktor tekhn.nauk, prof.; DEVYATKIN, V.P., kand.tekhn.nauk;
CHALYKH, Ye.I., kand.tekhn.nauk

New method of testing seamless rolled wheels on a ram impact machine.
Vest.TSNII MPS 21 no.4:47-49 '62. (MIRA 15:6)
(Wheels--Testing)

LARIN, T.V., doktor tekhn.nauk, prof.; DEVIATKIN, V.P., kand.tekhn.nauk

Reducing the expenditure of cast iron for brake shoes. Vest.
TSNII MPS 22 no.8:36-40 '63. (MIRA 17:2)

LARIN, T.V., prof., doktor tekhn.nauk; DEVIYATKIN, V.P., kand.tekhn.nauk

Causes of the nonuniform wear of wheels in braking with composition
brake shoes. Zhel.dor.transp. 47 no.4:61-64 Ap '65.

(MIRA 18:6)

DEVYATKIN, V.V., gornyy inzhener; KORZHAVIN, A.N., mayor meditsinskoy sluzhby

Using divers for the control of mine flooding. Gor. zhur. no.8:58-
63 Ag '57. (MLRA 10:9)

(Mine rescue work) (Mine water)

DEVYATKIN, V.V., inzh.; MERKULOV, A.I., inzh.

Tower headframes with multirope machines for Severoural'sk bauxite
mines. Gor. zhur. no.9:32-35 S '63. (MIRA 16:10)

1. Gosudarstvennyy institut po proyektirovaniyu predpriyatiy
nikelevoy promyshlennosti.

DEVYATKIN, V.V., inzh.

Elimination of accidents at the No.10 Northern Urals bauxite
mine. Shakht. stroi. 7 no.3:28-29 Mr'63 (MIRA 17:7)

1. Nauchno-issledovatel'skiy i proyektnyy institut "Giprcnikel".

DEVYATOV, V. Ya.

Stomach resection for a subcutaneous traumatic circular isolated rupture.
Vest. khir. 93 no.9:110 S '64. (MIRA 18:4)

1. Iz khirurgicheskoy kliniki stomatologicheskogo fakul'teta (zav. -
prof. L.D.Vasilenko) Tashkentskogo meditsinskogo instituta.

DEVYATKIN, Ye.V.

Tertiary deposits of the Dzhulu-Kul' Basin (eastern Altai). Dokl.
AN SSSR 135 no.6:1457-1460 D '60. (MIRA 13:12)

1. Predstavleno akademikom N.S. Shatskim.
(Dzhulu-Kul' region--Geology, Stratigraphic)

DEVYATKIN, Ye.V.; STAROBOGATOV, Ya.I.

Fauna of fresh-water mollusks in Eopleistocene deposits of the Gornyy Altai. Dokl. AN SSSR 141 no.5:1179-1182 D '61. (MIRA 14:12)

1. Geologicheskii institut AN SSSR i Moskovskiy gosudarstvennyy universitet im.M.V. Lomonosova. Predstavleno akademikom V.N. Sukachevym.
(Chuya Valley--Paleontology, Stratigraphic)

SYCHEVSKAYA, Ye.K.; DEVIATKIN, Ye.V.

First finds of fishes in Neogene and lower Quaternary deposits
of the Gornyy Altai. Dokl. AN SSSR 142 no.1:173-176 Ja '62.
(MIRA 14:12)

1. Paleontologicheskii institut AN SSSR i Geologicheskii institut
AN SSSR. Predstavleno akademikom V.N. Sukachevym.
(Altai Mountains—Fishes, Fossil)

DEVYATKIN, Ye.V.

Basic problems of the recent tectonics of the southeastern Altai.
Bul.Kom.chetv.per. no.27:72-85 '62. (MIRA 16:4)
(Altai Mountains--Geology, Structural)

DEVYATKIN, Ye.V.

Eopleistocene of the southeastern Altai. Trudy Kom. chetv.per. 22:32-63
'63. (MIRA 17:2)

DEVYATKIN, Ye.V.; YEFIMTSEV, N.A.; SELIVERSTOV, Yu.P.; CHUMAKOV, I.S.

More about ice accumulations in the Altai. Trudy Kom. chetv.per. 22:
64-75 '63. (MIRA 17:2)

LISKUN, I.G.; DEVYATKIN, Ye.V.

Primary dolomites from the continental Neogene sediments of the Chuya
trough in the Gornyy Altai. Dokl. AN SSSR 158 no.2:359-362 S '64.

(MIRA 17:10)
1. Geologicheskii institut AN SSSR. Predstavleno akademikom D.N.
Nalivkinym.

DEVYATKIN, Yevgeniy Viktorovich; NIKIFOROVA, E.V., otv. red.;
PEYVE, A.V., akademik; glavnyy red.; KUZNETSOVA, K.I., red.;
MENNER, V.V., red.; TIMOFEYEV, P.P., red.

[Cenozoic deposits and recent tectonics in the southeastern
Altai.] Kainozoiskie otlozhenia i neotektonika Iugo-
Vostochnogo Altaia. Moskva, Nauka, 1965. 242 p. (Akademiia
nauk SSSR. Geologicheskii institut. Trudy, no.126)

(MIRA 18:9)

DEVYATKIN, Yu.A., inzh.

Stopping conditions of the forward sliding mechanism of a quarry excavator.
Konstr.krup.mash. no.1:100-114 '62. (MIRA 10:2)
(Excavating machinery—Testing)

KEFELI, V.I.; DEVYATKINA, G.A.; KORENEVA, V.M.; DUBOVAYA, L.P.

Rhythmic nature of the growth process. Fiziol. rast. 11
no. 3:496-505 '64. (MIRA 17:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut fitopatologii.

DEVYATKINA, M.S.

Black rat in the city of Nakhodka. Izv.Irk.gos.nauch.-isal.
protivochum.inst. 19:95-97 '58. (MIRA 13:7)
(Nakhodka--Rats)

OBLEUKHOVA, O.; DEVYATKINA, Ye.; TSINMAN, T.

Improving the quality of transmission oils. Avt.transp.
40 no.12:18-20 D "62. (MIRA 15:12)
(Motor vehicles--Lubrication)

BROESKIY, V., inzh.; DEVIATKINA, Z., inzh.

Stand for checking hydraulic shock absorbers. Avt. transp. 37.
no.12:18-19 D '59. (MIRA 13:3)
(Automobiles--Shock absorbers)

L 45966-66 EWT(1)/EWT(m) SCTB JKT/DD/RD/JI/GD/JKT(CZ)

ACC NR: AT6030697

SOURCE CODE: UR/0000/66/000/000/0081/0084

AUTHOR: Cherkasov, V. K.; Ushakova, G. S.; Piguzova, L. I.; Devyatko, A. V.;
Mokhov, V. G.; Solov'yev, V. I.; Portnova, K. M.; D'yakonov, R. V.; Martynova, R. A.;
Ratts, L. B.

ORG: none

51
B+1

TITLE: The possibility of using the multifunctional properties of zeolites in a physical and chemical air-regeneration system 2

SOURCE: Konferentsiya po kosmicheskoy biologii i meditsine, 1964. Materialy. Moscow, Inst. mediko-biol. problem, 1966, 81-84

TOPIC TAGS: life support system, closed ecological system, space biology

ABSTRACT: A physical-chemical air "regeneration" system which has been proposed for manned spaceflight is shown in Fig. 1. In this system CO₂ is removed from cabin air by adsorption on zeolite. The carbon dioxide then undergoes vacuum desorption from the zeolite and passes through a CO₂ collector to the catalytic reactor, where it is reduced with hydrogen from the electrolyzer to water and methane. The water returns to the electrolyzer and is broken down into oxygen (used for human respiration) and hydrogen. The disadvantages of this method are the difficulties of creating a vacuum on board a spacecraft and the additional electrical energy required to operate the CO₂ collector. Studies have shown that specially treated B-zeolite

Card 1/3

I. 45966-66

ACC NR: AT6030697

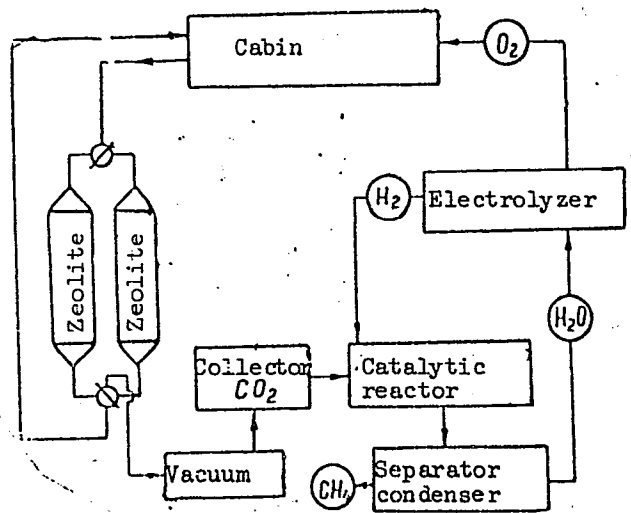


Fig. 1. Schematic diagram of a physical and chemical air "regeneration" system

can be used in such a system for both sorption and catalysis, retaining its properties through a number of cycles. An improved air "regeneration" scheme using B-zeolite is shown in Fig. 2. Cabin air is purified by passing through a B-zeolite
Card 2/3

45966-66
ACC NR: AT6030697

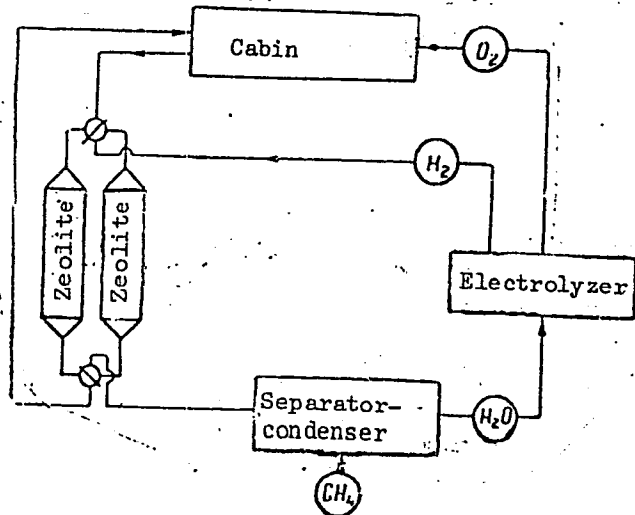


Fig. 2. Schematic diagram of a physical-chemical air "regeneration" system using B-zeolite

adsorber. Hydrogen derived from electrolysis is then passed through zeolite in a second adsorber, simultaneously desorbing CO_2 and reducing it to water and methane. The water is electrolyzed as in the first system. Temperature regulation is very important for the successful operation of this system, since a 7-12C temperature variation alters the gas conversion level by 10-15%. Orig. art. has: 3 figures. [JS]

SUB CODE: 06/22/ SUBM DATE: 14Apr66/ ATD PRESS: 5086
Card 3/3 hs

DEVYATKO, L.I.; BUDIN, V.F.

Comparison of energy losses in the interaction of teeth of various shapes with rock. Izv. vys. ucheb. zav.; neft' i gaz 6 no.8:99-102 '63. (MIRA 17:6)

1. Groznenskiy neftyanoy institut.

DEVYATKO, V. I.

DEVYATKO, V. I. -- "Investigation of Some Problems in Bilateral Approximation in the Numerical Intergration of Differential Equations." Kiev State Pedagogical Inst imeni A. M. Gor'kiy. Chair of Mathematical Analysis. Kiev, 1956
(Dissertation for the Degree of Doctor in Physicomathematical Sciences)

SO: Khizhnaya Letopis', No 9, 1956

L 12745-63

BDS/EWT(d)/FCC(w) AFFTC IJP(G)

S/208/63/003/002/004/014

51

AUTHOR: Devyatko, V. I.TITLE: The bilateral approximation for numerical integration of ordinary differential equations 16

PERIODICAL: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 3, no. 2, 1963, 254-265

TEXT: For the numerical integration of differential equations with Cauchy-type initial conditions Ye. Ya. Remez (Ref. 1: Zap. Prirodniho-Tekhnichnogo Viddilu AN URSR, 1930/31, No. 1, 1-38) developed a method of bilateral approximation allowing a real and rigorous estimate of the permitted error over each step of integration. The present paper presents a more systematic development of the recurrent alternative of the above method for the solution of the differential equation

$$\frac{dy}{dx} = f(x,y), y(x_0) = y_0 \quad (1.1)$$

and its generalization for systems of first order differential equations. The method encloses the exact solution of the differential equation over a finite interval between two approximate numerical solutions. Two formulas are used for

Card 1/2

L 12745-63

S/208/63/003/002/004/014

0

The bilateral approximation

mechanical quadratures of the same order of accuracy $(q-1)$ and with remainders of opposite sign. The method is illustrated by the calculation of the case $dy/dx = 5y/(1+x)$; $x_0 = 0$, $y_0 = 1$. The generalized method applicable to the Cauchy problem for a system of m first order differential equations was tested on the examples $d^2y/dx^2 - y^2 = x$, $y(0) = 1$, $y'(0) = 0$. The article concludes with the convergence proof for the recurrent process for the system of m differential equations, consisting essentially of a determination of the order of magnitude of the final errors. (Certain methods of "stabilization" (Ref. 6; W. Quade, Z. angew. Math. und Mech., 1959, 39, no. 3/4, 117-134) can be used for the possible improvements of the coefficients of estimate of the bilateral method of approximation. There are 2 tables.

SUBMITTED: August 18, 1962

Card 2/2

DEVYATKO, V.I., kand. fiz.-mat. nauk; STABNIKOV, V.N., doktor tekhn.
nauk

Equilibrium equation for the system ethanol-water. Pishch.
prom. no.1:176-178 '65. (MIRA 18:11)

DEVYATKO, V.I.; STABNIKOV, V.N.

Equation of elasticity of the ethyl alcohol vapor. Izv. vys. ucheb. zav.; pishch. tekhn. no.6:117-120 '63.

(MIRA 17:3)

1. Kiyevskiy tekhnologicheskiy institut pishchevoy promyshlennosti, kafedra vysshey matematiki i kafedra protsessov i apparatov.

DEVIATKO, V.I.; STABNIKOV, V.N.

Investigating the experimental data on the equilibrium of
the system ethanol-water under atmospheric pressure. Izv.
vys. ucheb. zav.; pishch. tekh. no.4:120-122 '63.
(MIRA 16:11)

1. Kiyevskiy tekhnologicheskii institut pishchevoy
promyshlennosti, kafedra vysshey matematiki i kafedra
protssosov i apparatov.

DEVYATKO, Yu.N.; LOMONOSOV, V.V.; URIN, M.G.

Excitation of vibration levels in β -decay of nonspherical nuclei.
Izv. AN SSSR. Ser. fiz. 27 no.11:1427-1429 N '63. (MIRA 16:11)

ACCESSION NR: AP4042570

S/0056/64/046/006/2070/2077

AUTHORS: Devyatko, Yu. N.; Lomonosov, V. V.; Urin, M. G.

TITLE: Vibrational-rotational interaction in deformed nuclei

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 6, 1964, 2070-2077

TOPIC TAGS: pair theory, quadrupole moment, vibration spectrum, rotation spectrum, oscillator strength, Hamilton equation

ABSTRACT: The parameters of vibration-rotation interaction in deformed nuclei are calculated by means of a microscopic description, using a model in which pairing and quadrupole-quadrupole interactions between nucleons are taken into account. The Hamiltonian of the vibration-rotation interaction is obtained in the same way as in the theory of molecular spectra, and the parameters of this Hamiltonian are calculated for the "cranking" model with account of the Cooper pair correlations. First order effects with respect to the vibration-

Card 1/2

ACCESSION NR: AP4042570

rotation interaction are considered. The calculations performed in the quasiclassical approximation for particles subject to an oscillator potential are compared with experimental data. In view of the crudeness of the model, only qualitative agreement is obtained between the calculated and experimental values. "The authors wish to thank D. F. Zaretskiy for very valuable discussions." Orig. art. has: 2 tables and 27 formulas.

ASSOCIATION: Moskovskiy inzhenerno-fizicheskiy institut (Moscow Engineering-Physics Institute)

SUBMITTED: 06Aug63

ENCL: 00

SUB CODE: NP

NR REF SOV: 006

OTHER: 011

Card 2/2

DEVYATKO, Yu.N.; LOMONOSOV, V.V.; URIN, M.G.

Vibration-rotational interaction in deformed nuclei. Zhur.eksp.
i teor.fiz 46 no.6:2070-2077 Je '64.

1. Moskovskiy inzhenerno-fizicheskiy institut.

(MIRA 17-10)

DEVYATKOV, Aleksandr Fedorovich; VOLOTSKIY, N.P.; PISKUNOV, S.A.; SHATS,
Ye.L.; KRYUKOV, V.L., red.; BALLOD, A.I., tekhn.red.; GOR'KOVA,
Z.D., tekhn.red.

[Repair of electric machines and transformers] Remont elektricheskikh mashin i transformatorov. Moskva, Gos.izd-vo sel'khoz. lit-ry, 1960. 270 p. (MIRA 13:11)
(Electric machinery--Maintenance and repair)

BASOV, N. G.; BOGDANKEVICH, O. V.; DEVYATOV, A. G.

"Excitation of the semiconducting quantum oscillator by a beam of fast electrons."

paper presented at the Symp on Radiative Recombination in Semiconductors (Intl Conf on Semiconductor Physics], Paris, 27-28 Jul 64.

ACCESSION NR: AP4039650

S/0181/64/006/006/1657/1663

AUTHOR: Davyatkov, A. G.; Kogan, Sh. M.; Lifshits, T. M.;
Oleynikov, A. Ya.

TITLE: Conductivity of n-type indium antimonide at low temperatures

SOURCE: Fizika tverdogo tela, v. 6, no. 6, 1964, 1657-1663

TOPIC TAGS: n type indium antimonide, volt ampere characteristic
nonlinearity, field dependent conductivity, temperature dependent
conductivity, nonlinear temperature dependence

ABSTRACT: The nonlinearity of n-type InSb volt-ampera characteristics at low temperatures and its dependence on field, temperature, and concentration are discussed. Measurements were made at about 1.5—15K on specimens with dimensions of 10 x 1.5 x 1 mm and electron concentrations of 1.8×10^{13} to $1.5 \times 10^{15} \text{ cm}^{-3}$ in a field range of 0.02 to 0.3 v/cm. The results of the investigation have shown that:
1) conductivity σ increases with temperature, while nonlinearity

Card 1/3

ACCESSION NR: AP4039650

considerably decreases both with an increase in carrier concentration and with an increase in specimen temperature; 2) in all cases, the dependence of σ on lattice temperature T_0 is markedly weaker than $T^{3/2}$; 3) at low temperatures specimens with high electron concentrations showed a saturation of $\sigma(T_0)$, which is apparently caused by the degeneration of the electron gas; 4) at a donor concentration of 10^{14} cm^{-3} and a carrier concentration of $1 \times 10^{14} \text{ cm}^{-3}$, the coefficient of nonlinearity $\beta(E)$, where E is the field intensity, first increases as the field increases, reaches a maximum, and then decreases. In the region of the low fields, β increases with an increase in lattice temperature, and decreases in the region of the maximum and of higher fields, so that at high T_0 , function $\beta(E)$ declines monotonically with the field. The authors explain the field and temperature dependences of σ and β by the fact that electron pulse dispersion occurs on the charged impurity, while energy dispersion occurs on the deformed and piezoelectric potential of acoustic phonons. Orig. art. has: 6 figures and 7 formulas.

Card 2/3

ACCESSION NR: AP4039650

ASSOCIATION: Institut radiotekhniki i elektroniki AN SSSR, Moscow
(Institute of Radio Engineering and Electronics, AN SSSR)

SUBMITTED: 16Dec63

DATE ACQ: 19Jun64

ENCL: 00

SUB CODE: EM.DF

NO REF SOV: 003

OTHER: 004

Card 3/3

13952-65 Ex(j)/EWA(k)/EED/ESP(l)/ESP(m)/ESG(k)-2/EEG(t)/T/EWP(v)/EWP(k)/
 EIC(b)-2/EWP(b)/EWA(m)/EWA(n) Pa-h/Pn-h/Pf-h/Peo/Pi-h/Pl-h ASIX(d)/SSD/
 AFWL/ASD(a)-5/ESD/AFETR/AFMD(t)/EARM(a)/RAEM(c)/ESD(c)/ESI(gs)/ESD(t)/IJP(c)
 ACCESSION NR: AP4017929 JD/JG S/0056/64/047/004/1588/1590

AUTHOR: Basov, N. G.; Bogdankevich, O. V. Devyatkov, A. G.

TITLE: An electron-beam pumped cadmium sulfide laser

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47,
 no. 4, 1964, 1588-1590

TOPIC TAGS: laser, semiconductor laser, cadmium sulfide recombina-
 tion radiation, coherent light

ABSTRACT: The present paper is an expanded version of an earlier
 article (Basov, N. G., O. V. Bogdankevich, A. G. Devyatkov. Excitation
 of a semiconductor laser by a fast electron beam. AN SSSR. Doklady,
 v. 155, no. 4, 1964, 783) which reported successful development of
 the first electron-beam pumped semiconductor laser. The following
 additional data were provided in this paper: The 2 x 1.5 mm² faces
 of the 3-mm long sample were made parallel and carefully polished.
 The duration of the electron beam pulse from an electron gun was 2.5 μ
 and not 2 ns as was reported in the earlier paper. The electron beam
 was accelerated to energies on the order of 200 keV in a cylindrical

Card 1/4

L 13952-65

ACCESSION NR: AP4047929

cavity with an E_{010} standing wave. The current density could be varied from 0 to 1 amp/cm² in the experiments. The recombination radiation spectrum consisted of a number of wide bands with transition energies smaller than the width of the forbidden band. Three narrow lines at wavelengths of 5035, 4966 and 4891 Å were observed at high current densities. The intensity variation of the emission line at 4966 Å with the current density is shown in Fig. 1 of the Enclosure and a simultaneous narrowing of the spectral line from 35 to 7 Å is shown in Fig. 2. Orig. art. has: 2 figures.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR
(Physics Institute, Academy of Sciences SSSR)

SUBMITTED: 08Feb64

ENCL: 02

SUB CODE: EC, NP

NO REF SCV: 003

OTHER: 002

ATD PRESS: 3135

Card 2/4

ACCESSION NR. AP4030780

S/0020/64/155/004/0783/0783

AUTHOR: Basov, N. G. (Corresponding Member, AN SSSR); Bogdankevich, O. V.; Deyyatkov, A. G.

TITLE: Excitation of a semiconductor laser by a fast electron beam

SOURCE: AN SSSR. Doklady", v. 155, no. 4, 1964, 783

TOPIC TAGS: laser, semiconductor laser, junction laser, electron beam laser, cadmium sulfide laser

ABSTRACT: This article reports the first successful results of experiments in which stimulated emission of radiation was achieved from CdS monocrystals in pulsed operation by means of an electron beam. Intense radiation in the green part of the spectrum ($\lambda=4966\text{\AA}$) was observed during irradiation of CdS monocrystal, placed in a helium cryostat, by a beam of ~ 200 Kev electrons. The intensity of fluorescence increased sharply with current density. A three-fold increase of the current density above the threshold resulted in a two-order increase in the intensity of radiation and a simultaneous

Card 1/2

ACCESSION NR. AP4030780

narrowing of the emission line from 35 to 7 Å. The threshold current was observed to depend strongly on the quality of the crystals used. The duration of the current pulses was 2 μsec and the repetition frequency was several tens of cps. At small current densities, the duration of emission after the end of the pulse was 2 μsec. At the maximum current densities, the light pulse was synchronous with the pulse.

ASSOCIATION: none

SUBMITTED: 12Feb64

DATE ACQ: 30Apr64

ENCL: 00

SUB CODE: PH

NO REF SOV: 002

OTHER: 000

Card 2/2

L 21412-66 FWP(e)/FWT(m)/ETC(f)/EWK(m)/EWP(t) LJP(c) JD/JG/AT/WH
ACC NR: AP6009664 SOURCE CODE: UR/0181/66/008/003/0802/0804

AUTHOR: Basov, N. G.; Bogdankevich, O. V.; Devyatkov, A. G.

ORG: Physics Institute im. P. N. Lebedev, AN SSSR, Moscow (Fizicheskiy institut AN SSSR)

TITLE: Recombination radiation of α -SiC excited by electrons

SOURCE: Fizika tverdogo tela, v. 8, no. 3, 1966, 802-804

TOPIC TAGS: silicon carbide, recombination radiation, semiconductor

ABSTRACT: The recombination radiation of 1 x 2 x 3 mm samples of α -SiC with polished sides excited by a beam of 200-keV electrons was investigated at a temperature of 60K. The electron beam was either perpendicular to the large face of the sample or at a 45° angle to it. The beam's penetration depth was determined to be ~120 μ . The emission spectra of three of the samples are shown in Fig. 1. A detailed spectrum observed in the region between 4700—4850 Å is shown in Fig. 2. The energy difference between the lines in the 4700—4850 Å region, indicating some kind of

L 21412-66

ACC NR: AP6009664

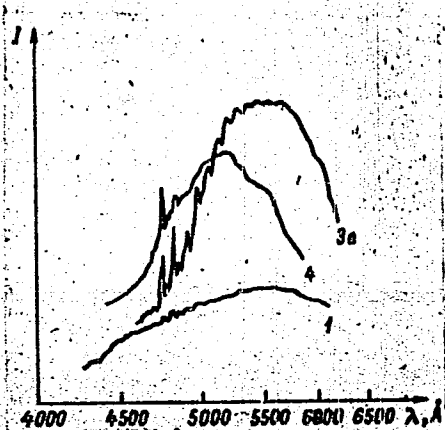


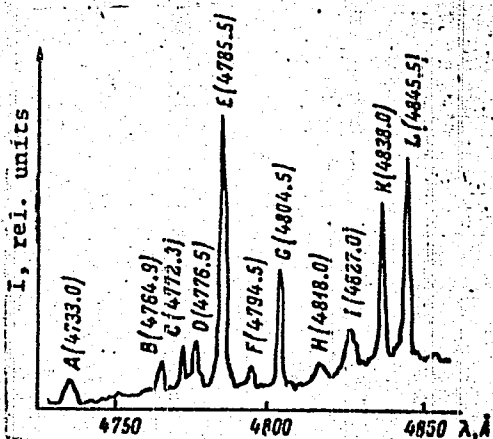
Fig. 1. Emission spectra of α -SiC at 60K and at a current density $j = 140 \text{ ma/cm}^2$.

The numbers indicate samples: 1 - bluish-greenish industrial-type crystal; 3a - colorless compensated p-type crystal doped with about 10^{17} impurity atoms per cm^3 ; 4 - purest sample with an impurity concentration of $7 \times 10^{16}/\text{cm}^2$.

Cord 214

L 21412-66

ACC NR: AP6009614



D-F	0.0049	F-I	0.0174
E-F	0.0049	G-K	0.0178
H-I	0.0048	A-G	0.0390
A-B	0.0175	H-K	0.0393
C-G	0.0174	C-L	0.0392
E-H	0.0175		

Table 1. Energy difference between emission lines (ev)

Fig. 2. The emission spectrum of sample No. 4 in the spectral region 4700—4850 Å. (T = 60K, j = 140 ma/cm²)

Card 3/4

L 21412-66

ACC NR: AP6009664

connection between the lines, is tabulated in Table 1. No stimulated emission was observed in the experiments. Orig. art. has: 3 figures and 1 table. [CS]

SUB CODE: 20/ SUBM DATE: 26Jul65/ ORIG REF: 003/ OTH REF: 003/ ATD PRESS: 4221

Card 4/4

UUR

L 39758-66 EWT(1)/EWT(m)/EEC(k)-2/FBD/T/EWP(k)/EWA(h)/EWP(t) IJP(c) WG/

ACC NR: AP6015476 SOURCE CODE: UR/0181/66/008/005/1536/1538
JD/GD-2

AUTHOR: Basov, N. G.; Bogdankevich, O. V.; Devyatkov, A. G.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences SSSR, Moscow
(Fizicheskiy institut AN SSSR)

TITLE: Certain characteristics of emission generated in CdS by electron excitation

SOURCE: Fizika tverdogo tela, v. 8, no. 5, 1966, 1536-1538²⁷

TOPIC TAGS: laser, semiconductor laser, cadmium sulfide, coherent emission

ABSTRACT: The present paper is an extension of an earlier work (N. G. Basov, et al. Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47, no. 4(10), 1964, 1588) in which laser action was reported in CdS excited by a beam of electrons. The

0.5 x 0.85 x 1.5 mm sample was prepared by polishing. The Fabry-Perot cavity was formed by the 0.85 x 1.5 mm faces. The beam of 50-kev electrons was incident on the 0.5 x 1.5 mm face of the crystal cooled to the liquid nitrogen temperature. The pulse duration and the repetition frequency were ~ 2 μ sec and 50 cps, respectively. Fig. 1 shows the emission spectrum of CdS at different current densities (j). At $j = 100$ mamp/cm² recombination radiation with a half-width ~ 70 Å peaked at 4960 Å. Although line narrowing was observed at $j = 1.5$ amp/cm², the oscillation threshold was at 5 amp/cm⁻². The divergence at the threshold was 13° in the plane of the beam and 9° in the plane

Card 1/2

L 39758-66

ACC NR: AP6015476

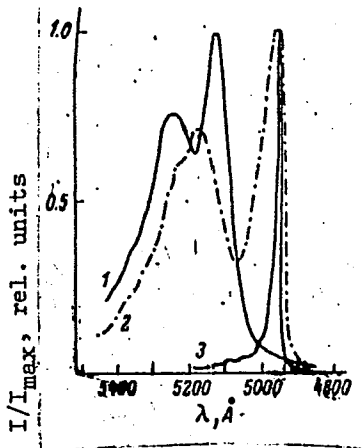


Fig. 1. The emission spectrum of CdS at different current densities

j in amp/cm²: 1 - 0.18; 2 - 0.52; 3 - 8.5.
($T = 80K$).

perpendicular to it. The quantum efficiency, defined as the ratio of the radiated power to the power of the electron beam, exceeded 1%. Orig. art. has: 4 figures.

[CS]

SUB CODE: 20/ SUBM DATE: 15Nov65/ ORIG REF: 001/ ATD PRESS: 4259
Card 2/2/5

DEVYATKOV, A.N., inzh

The new GPS-70 loader. Stroi. i dor. mash. 7 no.7:14-16 JI '62.

(MIRA 15:7)

(Conveying machinery)

LYADUKHIN, I.A.; NIKOLAYEV, A.F.; TARASOV, S.M.; DEVYATKOV, A.N.; VARKHOTOV,
K.P.; ZLOTNIK, M.I.; YEVDOKIMOV, V.I.; LYSYAKOV, A.G.; GERSHTEYN,
A.K.; KISS, N.L.; MEL'NIK, V.I.; BEYZERMAN, R.M.; SMIRNOV, I.M.;
NIKUL'SHIN, K.Ye.

From the pages of Soviet magazines. Mekh. stroi. 19 no.9:31
S '62. (MIRA 15:9)

(Bibliography--Construction equipment)

DEVYATKOV, Aleksandr Nikitovich; NOVIKOV, Vladimir Vasil'yevich;
GEDEVANOV, A.K., inzh., retsenzent;

[The GPS-70 loading machine] Pogruzochnaia mashina GPS-70.
Moskva, Izd-vo "Nedra," 1964. 66 p. (MIRA 17:5)

ALABYAN, K.S. [deceased]; BLOKHIN, P.N.; BOTVINKO, M.Ye.; DEVIATEKOV, G.V.; DMITRIYEV, A.D.; VERSHOV, P.N.; ZAYTSEV, A.G.; KIBIREV, S.P.; KOSTYUKOVSKIY, M.G.; KUZNETSOV, B.T.; L'VOV, G.N.; MOGIL'NIYY, A.I.; ORLOV, G.M., OVSYAN-
NIKOV, K.L.; PROMYSLOV, V.F.; SMIRNOV, N.N.; SKACHKOV, I.A.; SOLOF-
NENKO, N.A.; SUSNIKOV, A.A.; CHAGIN, D.A.; KUCHERENKO, V.A., obshchiy
red.; GRISHMANOV, I.A., obshchiy red.; SVETLICHNIYY, V.I., obshchiy
red.; RUBANENKO, B.R., obshchiy red.; BARSKOV, I.M., red.; UDOD,
V.Ya., red.izd-va; YUDINA, L.A., red.izd-va; GOLOVKINA, A.A., tekhn.
red.

[Building practices in foreign countries; Northern Europe and German
Federal Republic] Opyt stroitel'stva za rubezhom; v stranakh Se-
vernoi Evropy i FRG. Po materialam otchetov delegatsii sovetskikh
spetsialistov-stroitelei. Moskva, Gos.izd-vo lit-ry po stroit.,
arkhit. i stroit.materialam, 1959. 598 p. (MIRA 12:12)

1. Predsedatel' Gosstroya SSSR (for Kucherenko). 2. Zamestitel'
predsedatelya Gosstroya SSSR (for Svetlichnyy).
(Europe, Western--Building)

06509

SOV/141-58-4-25/26

AUTHORS: Kostiyenko, A.I., Devyatkov, M.N. and Lebed', A.A.

TITLE: Electronic Detection at Ultrahigh Frequencies
(Elektronnoye detektirovaniye na sverkhvysokikh chastotakh)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1958, Nr 4, pp 168-170 (USSR)

ABSTRACT: The work reported deals with the possibility of the detection of ultrahigh frequency signals by means of reflex klystrons. An experimental investigation was carried out on glass tubes types K-11 and K-26, operating at wavelengths to $\lambda = 10$ cm and $\lambda = 3$ cm. The detection was achieved by separating the grids of the klystron resonators and by applying to them various positive potentials. This arrangement permitted the obtaining of various potential distributions in the interaction space and in the reflector space of the klystrons. The experimental system employed is illustrated in Fig 1, while its potential distributions are shown in Fig 2. The detector curves are shown in Fig 3 and 4. Fig 3 illustrates the detector current ΔI_0 and the reflector

Card 1/2

06509

SOV/141-58-4-25/26

Electronic Detection at Ultrahigh Frequencies

current I_0 as a function of the voltage applied to the accelerating grid. Fig 4 shows similar curves plotted as a function of U_T which represents the difference between the accelerating potential and that of the second resonator grid. From the curves it is seen that a detector sensitivity of the order of 1 μ /W was obtained with the K-11 tube; this figure is the same as that of a good crystal detector. There are 4 figures and 1 English reference.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet
(Moscow State University)

SUBMITTED: 25th November 1957

Card 2/2

SOV/109- -4-3-19/38

AUTHORS: Kostiyenko A.I., Devyatkov M.N., and Lebed' A.A.

TITLE: Use of the Virtual Cathodes for the Detection at Ultra-High Frequencies (Ob ispol'zovanii virtual'nykh katodov dlya detektirovaniya na sverkhvysokikh chastotakh)

PERIODICAL: Radiotekhnika i Elektronika, 1959, Vol 4, Nr 3, pp 482-488 (USSR)

ABSTRACT: The problem was investigated experimentally. The circuit employed is shown in Fig 1; a constant potential U_1 was applied to the accelerating grid and to the first grid of the interaction gap; a potential U_2 was applied to the second grid of the interaction gap, and a potential U_0 was injected into the interaction gap. By adjusting potentials U_1 and U_2 , two virtual cathodes can be formed inside the tube, as is illustrated in Fig 2. The experiments were carried out at wavelengths of 10 - 3 cm. At the 10 cm wave the UHF power was fed to the klystron by means of a cavity resonator as shown in Fig 3a. At the 3 cm wave the UHF power was fed by means of a rectangular waveguide; this is shown in Fig 3b. The measured results are shown graphically in Figs 4 - 8. Fig 4 represents the dependence of the

Card 1/3

SOV/109- -4-3-19/38

Use of the Virtual Cathodes for the Detection at Ultra-High
Frequencies

reflector current I_0 on the reflector voltage U_0 for $U_0 > 0$. The figure illustrates also the increase of the reflector current ΔI_0 due to the ultrahigh frequency signal. The dependence of I_0 and ΔI_0 on the potential of the accelerating grid is illustrated in Fig 8. From the above experiments it is concluded that the use of the virtual cathodes for the purpose of the detection is quite feasible. The best results are obtained when the virtual cathode effect is very small. The detection mechanism at the 3 cm wave is almost identical with that at the 10 cm wave. The authors express their gratitude to S.D. Gvozdover for valuable advice and his interest in this work. Acknowledgement is also made to M.A. Drozdova and V.G. Titov for their help in carrying

Card 2/3

SOV/109--43-1957
Use of the Virtual Cathodes for the Detection at Ultrahigh
Frequencies

out the experiments.

There are 8 figures and 2 Soviet references.

ASSOCIATION: Fizicheskiy Fakul'tet Moskovskogo Gosudarstvennogo
Universiteta imeni M.V. Lomonosova
(Physics Department of Moscow State University
imeni M.V. Lomonosov)

SUBMITTED: September 6, 1957

Card 3/3

30208

S/109/62/007/005/009/021
D266/D307

9.4230

AUTHORS: Devyatkov, M.N., Kostiyenko, A.I., and Myasoyedov, Ye. Ya.

TITLE: Travelling wave tubes as UHF detectors and mixers

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 5, 1962,
838 - 843

TEXT: The purpose of the paper is to investigate experimentally the detector and mixer properties of ordinary low power travelling wave tubes in the 10 cm and 3 cm range. The input signal (and the local oscillator signal in case of mixing) is fed into the travelling wave tube and the detected signal (or i-f signal) is taken from the collector circuit. The voltages on the different electrodes are the same as in amplifier operation except that of the collector which is considerably depressed. The collector current in the absence of input signal depends very strongly on collector voltage. The collector current in the presence of signal is altered. The current difference, ΔI_k , and its ratio to input power, $\Delta I_k/P_c$, are plotted

Card 1/2

Travelling wave tubes as UHF ...

S/109/62/007/005/009/021
D266/D307

against input power. For small input power ($P_c < 5\mu W$) the detector characteristics are near to quadratic. The minimum detectable signal was found to be about 10^{-10} watt which is of the same order as that obtainable by a TWT-crystal combination. In mixer operation the chosen i-f frequency was 40 Mc. The dependence of conversion gain and i-f power on input power is plotted, showing about 17 db conversion gain in low level operation. I-f power plotted against local oscillator power shows a maximum around $P_{10} \approx 50 - 70$ microwatts. The limit sensitivity of the travelling wave tube mixer was found to be worse than that of the TWT-crystal by 5 to 10 db. The bandwidth of the mixer was not determined but in each case it exceeded 10 %. Some experiments were also performed by feeding back the higher frequency to the input of the travelling wave tube. The limiting sensitivity improved in this case by approximately 3 db. There are 6 figures.

ASSOCIATION: Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta im. M.V. Lomonosova, Kafedra radiotekhniki (Physics Faculty of Moscow State University im. M.V. Lomonosov, Department of Radio Engineering)

SUBMITTED: June 8, 1961
Card 2/2

DEVYATKOV, G. D.

ca

3

Radiation from a helium discharge tube with glowing cathode. E. D. Devyatkov and N. D. Devyatkov. *J. Tech. Phys. (U. S. S. R.)* 4, 1835-6 (1934). — Data are given on the amt. of radiation of various wave lengths from 4000 to 11,000 Å. in the cathode region and in the pos. column and its dependence on the current strength from 3 to 8 amp. F. H. Rathmann

ASB. 51.4 METALLURGICAL LITERATURE CLASSIFICATION