OVCHINNIKOV, Semen Ivanovich; PUSHKIN, Pavel Semenovich; GRISHIN, V.I., kand. tekhn. nauk, retsenzent; NOVIKOV, V.S., inzh., retsenzent; PLEMYANNIKOV, M.N., red.; DUKHOVNYY, F.N., red.

[Organization and planning of light industry enterprises] Organizatsiia i planirovanie predpriiatii legkoi promyshlennosti. Moskva, Izd-vo "Legkaia industriia," 1964. 275 p. (MIRA 17:5)

NOVIKOV, V.S.; GOVORUKHIN, V.S.

Geobotanical and geographical observations in the Severka Basin (Moscow Province). Biul. MOIP. Otd.geol. 37 no.3:137-138 My-Je '62. (MIRA 15:10)

(Severka Valley (Moscow Province)—Phytogeography)

NOVIKOV, V.S., dotsent (Kiyev)

Diagnostic significance of the iodine test in lesions of the liver. Vrach. delo no.10:132-134 O '63. (MIRA 17:2)

NOVIKOV, V.S.

Regulatory parameter flows in radio-electronic systems. Izv.vys. ucheb.zav.; radiotekh. 7 no.6:743-746 N-D '64.

(MIRA 18:4)

SHILOV, P.I., polkovnik med. sluzhby; NOVIKOV, V.S., podpolkovnik med. sluzhby; BALAKHINA, M.P.

Rapid method for large-scale examinations of peripheral blood. Voen. med. zhur. no.3:26-29 Mr '58. (MIRA 12:7)

(BLOOD CELLS
count, rapid method for large scale study (Rus))

NOVIKOV, V.S. (Leningrad)

[redacted]

Hemopoiesis in patients with paragonimiasis of the lungs. Terap. arkh. 31 no.5:69-73 My '59. (MIRA 12:7)

(LUNG DISEASES, blood in
hemopoiesis in paragonimiasis (Rus))
(HEMOPOIESIS, in various dis.
paragonimiasis of lungs (Rus))
(PARAGONIMUS, infect.
lungs, eff. on hemopoiesis (Rus))

NOVIKOV, V.S.

Rapid method for determining acetone in urine in diabetes mellitus patients. Lab. delo [7] no.4:25-27 Ap '61. (MIRA 14:3)

1. Kafedra terapii dlya usovershenstvovaniya vrachey No.2 (nach. - prof. G.A.Smagin) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M.Kirova.

(URINE--ANALYSIS AND PATHOLOGY) (ACETONE)
(DIABETES)

NOVIKOV, V.S., polkovnik meditsinskoy sluzhby, dotsent

Clinical classification of chronic gastritis. Voen. med. zhur. no.2: 53-56 '63. (MIRA 17:9)

SHLYKOV, A.A., general-mayor meditsinskoy sluzhby; NOVIKOV, V.S., polkovnik meditsinskoy sluzhby dotsent; DMITRIYEV, B.A., polkovnik meditsinskoy sluzhby, dotsent

Role of chief district specialists and leading specialists of garrison hospitals in the direction of scientific and research work of army physicians. Voen.-med.zhur. no.10:11-14 '64. (MIRA 18:5)

DMITRIYEV, B.A., polkovnik meditsinskoy sluzhby, dotsent; NOVIKOV, V.S., polkovnik meditsinskoy sluzhby, dotsent

Clinical course and prevention of peptic ulcer in young persons. Voen.-med. zhur. no. 1:38-43 Ja '66 (MIRA 19:1)

NOVIKOV, V.S.; TIMOKHIN, N.A.

All-Union Scientific and Technical Conference on the Dissemination of Work Practices in the Field of New Leather Technology. Kozh.-obuv.prom. 2 no.5:37-38 My '60. (MIRA 13:9)
(Leather)

NOVIKOV, V.S.; TIMOKHIN, N.A.

Results of the All-Union Scientific and Technical Conference of light Industry Workers. Kozh.-obuv.prom. 2 no.8:37-38 Ag '60. [redacted] (MIRA 13:9)

(Leather industry) (Shoe industry) (Fur)

NOVIKOV, V.S.; TIMOKHIN, N.A.

New method for flaying cattlehides and pigskins. Kozh.-obuv. prom. 2 no. 11:28-30 N '60. (MIRA 13:12)
(Hides and skins)

NOVIKOV, V.S.

For a high quality of footwear. Kozh.-obuv.prom. 4 no.2:1-5
F '62. (MIRA 15:4)

1. Nachal'nik otdela legkoy i tekstil'noy promyshlennosti Gosudarstvennogo komiteta Soveta Ministrov RSFSR po koordinatsii nauchno-issledovatel'skikh rabot.
(Shoe manufacture)

NOVIKOV, V.S.

Potentials in the manufacture of shoe uppers. Kozh.-obuv.prom. 5 no.1:25-27 Ja '63. (MIRA 16:2)

(Shoe manufacture)

LITVINENKO, A.G.; NOVIKOV, V.S.; PISARENKO, A.P.

Carbon black and rubber mixture batches in sheet form for footwear soles. Kozh.-obuv.prom. 5 no.2:22-25 F '63. (MIRA 16:5)
(Leather, Artificial)

LITNINENKO, A.G.; NOVIKOV, V.S.; PISARENKO, A.P.

Masterbatches of carbon black rubber for shoe soles. Kozh.-obuv. prom. 5 no.5:20-24 My '63. (MIRA 16:5)
(Boots and shoes, Rubber) (Carbon black)

LEVENKO, Petr Ivanovich; KUDRYA, Sergey Denisovich; MUKHANOV, Grigoriy Vasil'yevich; NOVIKOV, V.S., inzh., retsenzent; KNAKHOVSKAYA, L.M., red.

[Specialization of the enterprises of the leather and shoe industry] Spetsializatsiia predpriiatii kozhevenno-obuvnoi promyshlennosti. Moskva, Izd-vo "Legkaia industriia," 1964. 89 p. (MIRA 17:9)

NOVIKOV, V.S.

Mobilize all efforts of the members of the Scientific and Technological Society of the Light Industry for the fulfillment of the seven-year plan ahead of time. Kozh.-obuv. prom. 6 no.2:1-8 F'64. (MIRA 17:5)

OVCHINNIKOV, Semen Ivanovich; GRYZLOVA, T.A., dots., kand. tekhn. nauk, retsenzent; NOVIKOV, V.S., inzh., retsenzent; PLEMYANNIKOV, M.N., red.

[Organization and planning of shoe industry enterprises] Organizatsiia i planirovanie predpriiatii obuvnoi promyshlennosti. Moskva, Legkaia industriia, 1965. 174 p. (MIRA 18:7)

NOVIKOV, V.S.

Speeding-up of the technological progress and tasks for a fundamental improvement of the quality and assortment of footwear. Kozh.-obuv. prom. 7 no.4:8-13 Ap '65. (MIRA 18:6)

1. Nachal'nik Upravleniya kozhevenno-obuvnoy i mekhovoy promyshelnnosti Gosudarstvennygo komiteta po legkoy promyshlennosti pri Gosplane SSSR.

L 40958-65

ACCESSION NR: AP5006596 S/0142/64/007/006/0743/0746

4
B

AUTHOR: Novikov, V. S.

TITLE: Flow of adjustments of parameters in electronic systems

SOURCE: IVUZ. Radiotekhnika, v. 7, no. 6, 1964, 743-746

TOPIC TAGS: electronic system, electronic system adjustment

ABSTRACT: An electronic system or device is characterized by its internal parameters (component data) and output parameters (such as output power, frequency stability, pulse shape, accuracy of navigational-coordinate determination). The output parameters have (a) reversible variations (due to temperature, humidity, etc.) and (b) irreversible variations (due to aging, wear). The deterioration of output parameters — "gradual failure" — is corrected by

... adjustment flow." The latter may be regular if adjustments

Card 1/2

L 40958-65

ACCESSION NR: AP5006596

are made at regular time intervals, or random if this is not the case. The possibility of application of the Palm-Hinchin theorem to the output-adjustment flow is described. Orig. art. has: 2 figures and 6 formulas.

ASSOCIATION: none

SUBMITTED: 03Jun63 ENCL: 00 SUB CODE: EC

NO REF SOV: 003 OTHER: 000

Card 2/2 mB

CHINENKOV, Yu.V., kand. tekhn. nauk; NOVIKOV, V.S., inzh.

Testing of cylindrical shells for concentrated loads. Prom. stroi. 42 no.3:32-37 '65. (MIRA 18:7)

NOVIKOV, V.S. [Novykov, V.S.] (Kiyev); NOVIKOV, V.S. [Novykov, V.S.] (Kiyev)

Determination of the reliabiltiy of automatic control systems. Avtomatyka 10 no.1:85-88 '65. (MIRA 18:6)

AUTHOR: Biryukov, Ye.I.; Novikov, V.T.; Shimanskaya, N.S.

TITLE: Concerning the Ce^{134}-La^{134}-Ba^{134} decay chain /Report, 14th Annual Conference on Nuclear Physics held in Tbilisi 14-22 Feb 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.29, no.1, 1965, 151-156

TOPIC TAGS: nucleus, energy level, beta decay, positron, gamma spectrum, cerium, lanthanum, barium

ABSTRACT: The Ce^{134}-La^{134}-Ba^{134} decay chain was investigated by observing the positron and γ-ray spectra and γ-γ coincidences. The material was prepared by bombarding tantalum targets with 660 MeV protons and separating the cerium fraction. The spectra were examined 1.5 weeks after bombardment in order to permit short-lived activities to subside. Rapid (1 to 2 minute) chemical separations of La from the equilibrium mixture were performed in order to distinguish between effects of the Ce and the La decays. The ratio of KX to annihilation radiation for the La decay was measured with the separated material by means of a 4 x 4 cm^2 4π CsI scintillator. From the results of this measurement and a similar measurement with the

ACCESSION NR: AP5004538

Ce-La equilibrium mixture it is concluded that the disintegration energy of Ce^{134} is 120 keV. The positron spectrum of the equilibrium mixture was observed with a 2 x 3 cm^2 anthracene crystal. The maximum positron energy was found to be 2.75 MeV. Seven γ-rays with energies from 600 to 2520 keV were observed; of these only the first has been previously reported. These γ rays all fell off in intensity with the Ce half-life and their relative intensities did not change when the La was removed. The γ rays are, accordingly, all attributed to transitions in Ba^{134}. A tentative decay scheme is presented. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 00/--Jan65 ENCL: 00 SUB CODE: NP

NR REF SOV: 006 OTHER: 008

Card 2/2

SHINKAREV, B.M., inzh.; NOVIKOV, V.T., inzh.

Using helicopters in assembling supports for electric power lines. Nov.tekh.mont.i spets.rab.v stroi. 22 no.1:8-10 Ja '60. (MIRA 13:5)

1. Ukrglavprommontazh Ministroya USSR.
(Helicopters) (Electric lines--Poles)

BIRYUKOV, Ye.I.; NOVIKOV, V.T.; SHIMANSKAYA, N.S.

Decay of Pr^{139}. Izv. AN SSSR. Ser. fiz. 27 no.11:1408-1411 N '63. (MIRA 16:11)

MOSKVIN, L. N.; NOVIKOV, V. T.

"Fractionation Chromatography on Fluoroplastic[4]. A Fast Method of Separation of Lanthanum from Cerium."

report submitted for All-Union Conf on Neutron Spectroscopy, Tbilisi, 14-22 Feb 64.

Radiyevyy Institut (Radium Inst)

BIRYUKOV, Ye. I.; NOVIKOV, V. T.; SHIMANSKAYA, N. S.

"Concerning the Decay Chain $_{58}Ce^{134} \rightarrow {}_{57}La^{134} \rightarrow {}_{56}Ba^{134}$."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

Radiyevyy Inst (Radium Inst)

NOVIKOV, V.T.

Broad introduction of a shooting plugging projectile in the testing of oil and gas wells. Neft.khoz. 41 no.10:58-61 O '63. (MIRA 17:4)

NOVIKOV, V.T., kand.tekhn.nauk; KLIMANOVA, Ye.A., kand.tekhn.nauk; MATIAS, L.V., kand.tekhn.nauk

Reactor for making soluable glass. Suggested by V.T.Novikov. Rats. i izobr. predl. v stroi. no.15:8-12 '60. (MIRA 13:9)
(Soluble glass) (Autoclaves)

NOVIKOV, V.T., inzh.; SHINKAREV, B.M., insh.; CHURIKOV, A.A., insh.

Kiln for calcinating diatomite-tripoli heat-insulating products. Suggested by V.T.Novikov, B.M.Shinkarev, A.A.Churikov. Rats. i izobr. predl. v stroi. no.15:12-14 '60. (MIRA 13:9)

1. Ukrglavprommontazh Ministerstva stroitel'stva USSR, Kiyev, ul. Sverdlova.

(Insulation (Heat)) (Kilns)

NOVIKOV, V.T.; SHINKAREVA, B.M.

Cutter for making openings in plain and reinforced concrete and other construction elements. Suggested by V.T.Novikov, B.M.Shinkarev. Rats. i izobr. predl. v stroi. no.15:35-37 '60. (MIRA 13:9)

1. Po materialam Tekhnicheskogo upravleniya Ministerstva stroitel'stva USSR, Kiyev, ul.Sverdlova, 17.
(Gas welding and cutting)

KIRVDA, F.P.; NOVIKOV, V.T.

Device for gas-cutting of frozen ground. Suggested by F.P.Krivda, V.T.Novikov. Rats. i izobr. predl. v stroi. no.15:37-38 '60. (MIRA 13:9)

1. Po materialam Tekhnicheskogo upravleniya Ministerstva stroitel'stva USSR, Kiyev, ul.Sverdlova, 17.
(Gas welding and cutting) (Frozen ground)

NOVIKOV, V.T.; SHINKAREV, B.M.

Device for bending branch pipes by the method of drawing. Suggested by V.T.Novikov, B.M.Shinkarev. Rats. i izobr. predl. v stroi.no.15: 78-79 '60. (MIRA 13:9)

1. Po materialam Ukrglavprommontazh Ministerstva stroitel'stva USSR. (Pipe bending)

NOVIKOV, V.T.; SHINKAREV, B.M.

Pipe-bending machine for making curved outlet pipes. Suggested by V.T.Novikov, B.M.Shinkarev. Rats.i izobr.predl.v stroi. no.16: 42-43 '60. (MIRA 13:9)

1. Po materialam Ministerstva stroitel'stva USSR.
(Pipe bending)

3

ACCESSION NR: AT4014067 S/3072/63/000/000/0124/0135

AUTHOR: Rodionova, G. A.; Finkel'shteyn, Ya. S.; Veyler, S. Ya.; Gurovich, Ye. I.; Novikov, V. T.; Rozenfel'd, N. B.; El'bert, S. M.; Brazilovskiy, V. I.

TITLE: Investigation of technological lubricants based on salt mixtures for hot rolling of pipe

SOURCE: Fiz.-khim. zakonomernosti deystviya smazok pri obrabotke metallov davleniyem. Moscow, Izd-vo AN SSSR, 1963, 124-135

TOPIC TAGS: lubricant, salt mixture, hot rolling, steel pipe, pipe rolling

ABSTRACT: In the hot rolling of pipe on continuous rolling mills with long frames, the lubrication conditions are unusually difficult. Special lubrication is required to provide for the proper processing conditions, especially temperatures, to obtain rolled products and pipe of satisfactory quality. Of the six tested salt-lubricants containing various amounts of K, Li, Mg or Na oxides or chlorides, the best for the hot rolling of pipe in continuous

Card 1/2

ACCESSION NR: AT4014067

rolling mills proved to be a lubricant containing 40% $ZnCl_2$, 30% KCl, 30% NaCl, and 10% MgO, plus 45% water (compared to the weight of salts and oxides). The pipe rolling process using 1Kh18N9T steel and high-carbon steel proved satisfactory with this lubricant. The top loadings in the continuous rolling mills were increased by 4.5% as compared with the graphite-mazut lubricant. Pipe rolled with the above-mentioned lubricant showed no intercrystalline corrosion. The etching time of pipe obtained by this process was half that of pipe rolled with the use of graphite-mazut lubricant. The effect of the concentration of MgO, used as a filling component in the lubricant, on its melting point and crystallization was also determined, as well as the effect of the amount of solvent on the consistency of the lubricant and its ability to protect the metal surface. Orig. art. has: 6 figures and 3 tables.

ASSOCIATION: none

SUMITTED: 00 DATE ACQ: 19Dec63 ENCL: 00

SUB CODE: MM, IE NO REF SOV: 003 OTHER: 000

Card 2/2

APANOVICH, Yu.G.; LIPSON, E.A.; KHAKHAYEV, B.N.; TARNAVSKIY, A.P.;
NOVIKOV, V.T.; KURUS, I.I.

Accident elimination in the Aralsor super-deep well. Razved. i okh. nedr 30 no.7:48-50 Jl '64. (MIRA 17:12)

1. Aralsorskaya ekspeditsiya sverkhglubokogo bureniya (for Apanovich, Lipson). 2. Trest "Ural'skneftegazrazvedka" (for Khakhayev, Tarnavskiy). 3. Gosudarstvennyy geologicheskiy komitet SSSR (for Novikov). 4. Moskovskiy ordena Trudovogo Krasnogo Znameni institut neftekhimicheskoy i gazovoy promyshlennosti im. akad. Gubkina (for Kurus).

BIRYUKOV, Ye.I.; MARTYNOV, Yu.S.; NOVIKOV, V.T.; SHIMANSKAYA, N.S.

Mean energy of the Pr^{142} β-spectrum. Zhur.eksp.i teor.fiz 46 no.6:2242-2243 Je '64. (MIRA 17:10)

BIRYUKOV, Ye.I.; NOVIKOV, V.T.; SHIMANSKAYA, N.S.

Decay of the chain $_{58}Ce^{134} \xrightarrow{\varepsilon} {}_{57}La^{134} \xrightarrow{\varepsilon, \beta^+} {}_{56}Ba^{134}$. Izv. AN SSSR Ser. fiz. 29 no.1:151-156 Ja '65.

(MIRA 18:2)

L ?364-65 EWT(m)/EPF(?)/EWG(m)/EWP(j)/EWP(t)/EWP(b) Pc-4/Pr-4 IJP(c)
ACCESSION NR: AT5013642 UR/0000/65/000/000/0095/0096 RWH/JD/JG/GS/RM
543.544.6:543.21:546.654+546.655

AUTHOR: Moskvin, L. N.; Novikov, V. T.

TITLE: Partition chromatography on polytetrafluoroethylene. Part 3. Rapid method of separating lanthanum from cerium

SOURCE: AN SSSR. Otdeleniye obshchey i tekhnicheskoy khimii. Radiokhimicheskiye metody opredeleniya mikroelementov (Radiochemical methods for determining trace elements); sbornik statey. Moscow, Izd-vo Nauka, 1965, 95-96

TOPIC TAGS: partition chromatography, polytetrafluoroethylene, rare earth analysis, lanthanum determination, ethylhexylorthophosphate, cerium determination, column chromatography / Fluoroplast-4

ABSTRACT: The proposed method for the rapid and quantitative separation of trace amounts of lanthanum and cerium is based on the different extractabiligy of tri- and tetravelent cations by bis(2-ethylhexyl)...

$(NH_4)_2S_2O_8$ + 0.1 M $AgNO_3$. At this acidity, La has a partition

Card 1/2

L 54464-65

ACCESSION NR: AT5013642

coefficient of less than unity and is eluted in the first fraction. Under these conditions, Ce is oxidized to the tetravalent state and is firmly held on the column. To remove the oxidizing solution, the column was washed with 0.01 N HNO_3, and cerium was eluted with 6 N HCl, which simultaneously reduced it to the tetravalent state. This procedure permitted a rapid and quantitative separation of lanthanum and cerium, and proved particularly useful in the separation of La^{134} (T = 6.5 min) from Ce^{134}, when it was necessary to reduce the time of the separation as much as possible. Orig. art. has: 1 figure.

ASSOCIATION: None

SUBMITTED: 12Dec63 ENCL: 00 SUB CODE: IC, GC

NO REF SOV: 001 OTHER: 002

Card 2/2

L 20406-66 EWT(m)/EWP(j)/T/ETC(m)-6 WW/RM

ACC NR: AP6008402 (A) SOURCE CODE: UR/0374/66/000/001/0067/0073

AUTHOR: Trostyanskaya, Ye. B.; Novikov, V. U.; Kazanskiy, Yu. N. 48 13

ORG: Moscow Aviation Technological Institute (Moskovskiy aviatsionno-tekhnologicheskiy institut)

TITLE: Effect of increased temperatures on the strength of solidified resins and of materials of the same base. 1. Effect of increased temperatures on the strength of solidified phenolformaldehyde resins 15

SOURCE: Mekhanika polimerov, no. 1, 1966, 67-73

TOPIC TAGS: resin, phenolformaldehyde, temperature dependence, tensile strength, compressive strength, thermal effect

ABSTRACT: An investigation of changes in tensile strength and of weight diminution in phenolformaldehyde resins was carried out under high temperature conditions. It was revealed that a spontaneous transition from the first to the second and third structural stages takes place with concomitant increase in the stabilization of strength properties in the process of thermal destruction. In all the resins investigated and for every structural stage, the direct dependence between the relative change of ultimate compression strength and the relative change of weight were established irrespective of the conditions of thermal treatment. The investigation was carried out on standard samples obtained by molding a mixture of hardened resin and powder of the same, but preliminarily hardened, resin. Samples produced in this

Card 1/2 UDC: 678:539.4.019.3

L 20406-66

ACC NR: AP6008402

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way have better physical and mechanical properties in comparison with articles made of molding powders with an inactive filler. The lowest w ght diminution in the process of transition from one stage to another is typical of the phenolic-furfural-formaldehyde resins, and the highest degree of strength retention is typical of the phenolic-aniline-formaldehyde resins. Orig. art. has: 9 figures and 2 tables. [Based on authors' abstract.]

[NT]

SUB CODE: 11,20/ SUBM DATE: 16Feb65/ ORIG REF: 009/ OTH REF: 008/

Card 2/2 BK

NOVIKOV, V. V.

PA 20T101

USSR/Telegraphy Sep 1947
Communications

"Subscriber Telegraphy," V. V. Novikov, Chief of the Laboratory of the Central Telegraph, USSR, 3 pp

"Vestnik Svyazi, Elektro-Svyaz'" Vol VII, No 9 (90)

Discusses methods whereby point to point telegraph might be established in the average home, or in each factory or ministry office so as to expedite communications.

20T101

NOVIKOV, V. V.

The principles of telegraphy and telegraphic equipment; a textbook Moskva, Gos. izd-vo lit-ry po voprosam sviazi i radio, 1948. 430 p. (49-54278)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001237510005-7"

NOVIKOV, Vasiliy Vasil'yevich; PEREGUDOV, A.N., redaktor; BELIKOV, B.S., redaktor; SOROKOVA, R.Ya., tekhnicheskiy redaktor

[Telegraph station supervisor] Stantsionnyi nadsmotrshchik telegrafa. Moskva, Gos.izd-vo lit-ry po voprosam sviazi i radio, 1955. 488 p. (MIRA 9:2)

(Telegraph stations)

NOVIKOV, Vasiliy Vasil'yevich; TSYGIKALO, Arkadiy Iosifovich; NAUMOV, Pavel Alekseyevich; TOMASHEVSKIY, B.A., otv.red.; KOKOSOV, L.V., red.; MARKOCH, K.G., tekhn.red.

[Telegraph] Telegrafiia. Moskva, Gos.izd-vo lit-ry po voprosam sviazi i radio. Pt.2. [Telegraph stations and apparatus] Telegrafnye apparaty i stantsii. 1960. 461 p. (MIRA 13:10)
(Telegraph)

S/054/60/000/02/02/021
B022/B007

AUTHOR: Novikov, V.V.

TITLE: The Propagation of a Radio-wave Impulse Over a Flat, Homogeneous Ground. Sommerfeld's Nonsteady Problem

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii, 1960, No. 2, pp. 16-27

TEXT: It was the aim of the present paper to deal with the problem of the propagation of an impulse signal over a flat, homogeneous ground in consideration of the displacement currents. The equations obtained in this paper may be used for all frequencies and for grounds of arbitrary conductivity. For the purpose of solving the task to be performed, the Fourier method and the well-known steady solution, Sommerfeld's approximation formula, was used. The fundamental considerations of the steady problem and the solution of the nonsteady problem are dealt with in the first part of this paper. During the solution of the latter, a rather complex double integral occurs, which is converted into a single integral in part 2. The integration scheme is shown in Fig. 1. In part 3, the

Card 1/2

The Propagation of a Radio-wave Impulse Over a Flat, Homogeneous Ground. Sommerfeld's Non-steady Problem

S/054/60/000/02/02/021
B022/B007

expressions obtained are discussed, in which case the displacement currents are neglected. The solution is then determined quite accurately by the probability integral of the complex argument and by the elementary functions, and agrees with results obtained by other means by J. R. Wait and J. R. Johler. Finally, an approximation formula is derived in a general form in part 4 for the solution of the nonsteady problem mentioned in the title (where the displacement currents are considered) with the aid of the method of the fastest slope for the calculation of the single integral. The integration scheme for $\bar{L}$ is shown in Fig. 2. Fig. 3 shows the curves for the nonsteady and steady part of the field and for the entire radiation field at a distance of 30 km from the transmitting station, in which case it is assumed that the current in the dipole has the form $I(t) = I_a \sin\omega_o t.1\ (t)$. There are 3 figures and 15 references, 5 of which are Soviet.

VB

Card 2/2

NOVIKOV, V.V.

Propagation of a radio impulse over a flat, homogeneous ground surface. Sommerfield's nonstationary problem. Vest.LGU 15 no.10:16-27 '60. (MIRA 13:5)
(Radio waves)

22290

S/109/61/006/005/005/027
D201/D303

6,4700
9,9000 (1103)

AUTHORS: Novikov, V.V., and Makarov, G.I.

TITLE: Propagation of pulse signals over a plane homogeneous earth surface

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 5, 1961, 728 - 737

TEXT: J.R. Wait (Ref. 1: Canad. J. Phys., 1956, 34, 27) and J.R. Johler (Ref. 2: Geofis. pura e appl. 1957, 37, 116) and (Ref. 3: J. Res. Nat. Bur. Standards 1958, 60, 281) in their work on the propagation of non-stationary radio waves, to which increasing attention is being paid lately, have given the theory of propagation of pulse signals over a plane homogeneous earth surface, neglecting the influence of the displacement current. This could be valid only for signals with strong low-frequency components of the spectrum and propagated over the earth with very good or medium conductivity which does not always happen in practice. In the pre-

Card 1/12

sent article the author analyses the problem of a non-stationary propagation of radiowaves, radiated from a vertical electric dipole over a plane homogeneous earth surface and takes into account the displacement currents in the earth. Depending on the dipole current characteristics, the solution reduces to either elementary functions or to the probability integral of a complex argument. The mechanism of non-stationary phenomena in radio-wave propagation is also explained. Let the radiator be a vertical electric dipole, situated at a plane homogeneous earth surface having conductivity σ and the relative specific inductive capacitance ε_m; the dipole is excited by current I(t), I(t) = 0 for $t < 0$. The vertical component of the electric field at the surface of the earth is determined for such dipole (in MKS system of units) by

$$E = -\frac{i\omega\mu dh}{2\pi r} I w\left(\sqrt{ix}\right) e^{-ikr}, \qquad (1)$$

where $\mu = 4\pi \cdot 10^{-7}$ H/m; I - amplitude of current in the dipole;

dh - height of dipole; ρr = ikr/2 (ε'_m + 1) numerical distance; $\varepsilon'_m = \varepsilon_m + i \frac{\sigma}{\omega\varepsilon_0}$ the relative complex specific inductive capacitance of the earth; w(x) is given by

$$w(x) = 1 + 2xe^{-x^2}\int_x^{i\infty} e^{z^2} dz \qquad (2)$$

which is the Sommerfeld attenuation function. If in (1) the expression under the sign of I represents the current spectrum in the dipole:

$$I = I(\omega) = \int_0^{\infty} I(t)\, e^{-i\omega t} dt,$$

then it would represent the spectrum of the vertical component of the electric field, and its integral with respect to the frequency gives the solution for the non-stationary problem for this component.

$$E(t') = \frac{I\mu dh}{4\pi^2 r}\int_{-\infty+i\epsilon}^{\infty+i\epsilon} \omega w(\sqrt{\kappa r})\, I(\omega)\, e^{-i\omega t'} d\omega;\quad t' = t - \frac{r}{c} \qquad (3)$$

In analyzing the frequency characteristics as a function of attenuation, ω is replaced by a dimensionless parameter $\alpha\omega$ where

$$\alpha = \sqrt{\frac{\epsilon r}{2\sigma c}}. \qquad (4)$$

then the numerical distance can be represented as

$$\kappa r = \frac{(\alpha\omega)^2}{1 - i\gamma\alpha\omega}, \qquad \gamma = \frac{\epsilon_m + 1}{\sqrt{60\,\sigma r}}. \qquad (5)$$

When displacement currents are taken into account, γ as defined by Eq. (5) is not zero and for real soils at distances larger than 5 - 10, Km is less than unity. Calculations have shown that for cases when $\gamma < 1$ displacement currents reduce the passband of the propagation track. From the evaluation of integral of Eq. (3) a comparatively simple expression

$$E_1(t') = -\frac{i\mu I_e dk}{2\pi\sqrt{\pi a r}}\int_L u\theta'(u)\, e^{-u^2-2i\theta(u)T}\, du, \qquad (12)$$

can be obtained, the integration path of which is shown in Fig. 2

Fig. 2. The plane of complex variable (u).

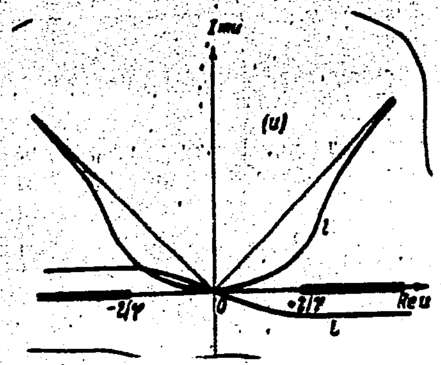

Fig. 2.

S/109/61/006/005/005/027
D201/D303

and in which u is given by

$$u = \sqrt{sr} = \frac{\alpha\omega}{\sqrt{1 - \frac{i\omega}{\xi}}}, \tag{7}$$

and T and $\vartheta(u)$ by

$$T = \frac{t'}{2\alpha}; \quad \vartheta(u) = u\left(\sqrt{1 - \frac{\gamma^2 u^2}{4}} - \frac{i\gamma u}{2}\right), \tag{9}$$

If the dipole is excited by a unit step pulse with either sine or cosine carrier, the stationary part of the field can be derived as

$$\dot{E}_{z\,st}(t') = \frac{i\omega_0\mu I_a\,dh}{2\pi r} w\left(\sqrt{s_0 r}\right) e^{-i\omega_0 t'} \tag{13}$$

and its non-stationary part describing transient processes, as

$$E_{z\,nonstat}(t') = -\frac{i\mu I_a\,dh}{2\pi\sqrt{\pi\alpha r}} \int_L \frac{u\vartheta(u)\,\vartheta'(u)}{\vartheta(u) - \alpha\omega_0} e^{-u^2 - 2i\vartheta(u)T}\,du \tag{14}$$

Introducing into (12) and (14) change of variable $p = \gamma u/2$,

$$E_1(t') = -\frac{\mu I_a dh}{2\pi r}\frac{4i\zeta^2\alpha}{\sqrt{\pi}}\int_L pu'(p)\exp\left[-2\frac{\zeta}{\beta}f(p)\right]dp, \tag{15}$$

and

$$E_{2\,\text{ncon.}}(t') = -\frac{\mu I_a dh}{2\pi r}\frac{4i\zeta^2\alpha}{\sqrt{\pi}}\int_L \frac{pu(p)u'(p)}{u(p)-a}\exp\left[-2\frac{\zeta}{\beta}f(p)\right]dp, \tag{16}$$

are obtained, where

$$u(p) = p(\sqrt{1-p^2}-ip);\quad f(p) = p^2 + i\tau u(p);\quad a = \frac{\omega_0}{2\zeta};$$
$$\tau = \beta t';\quad \beta = \frac{(\varepsilon_m+1)c}{r}. \tag{17}$$

By applying the method of stationary phase Eqs. (15) and (16) become

$$E_1(t') = -\frac{\mu I_a dh}{2\pi r}\zeta F(\tau)\exp\left[-\frac{\zeta}{\beta}f(\tau)\right]\left\{\tau + \frac{\beta}{\zeta}u(\tau)\right\}, \tag{18}$$

and

$$E_{z\,\text{non stat.}}(t') = -\frac{\mu I_0 dl}{2\pi r} F(\tau) \exp\left[-\frac{\zeta}{\beta} f(t)\right] \Big\{ \zeta\tau + \beta u(\tau) + i\omega_0 \varphi(\tau) \Big[1 + \psi(\omega_0, \zeta, \tau)\, 2 z_0 e^{-z_0^2} \int_{z_0}^{i\infty} e^{z^2} dz \Big] \Big\}, \tag{19}$$

where

$$F(\tau) = \frac{2}{(1+2\tau)(1+\sqrt{1+2\tau})}, \quad u(\tau) = \frac{1+\sqrt{1+2\tau}}{2\sqrt{1+2\tau}}, \tag{20}$$

$$f(\tau) = \frac{\tau^2}{1+\tau+\sqrt{1+2\tau}}, \quad \varphi(\tau) = \frac{1}{2}[1+2\tau+\sqrt{1+2\tau}],$$

$$\psi(\omega_0, \zeta, \tau) = \left[1 + i\frac{\zeta}{\omega_0}\frac{\tau}{\varphi(\tau)}\right]^{-1}, \quad z_0^2 = s_0 r + i\omega_0 t' - \frac{\zeta}{\beta} f(\tau).$$

the condition of applicability of (18) and (19) being

$$2\frac{\zeta}{\beta} \gg 1. \tag{21}$$

If in (18) and (19) convection currents are neglected, the two equations are identical to those obtained by J.R. Wait (Ref. 1: Op. cit.). In order to analyze the radiation field given by Eq. (18) produced by the dipole excited by a unit step function, this equation is rewritten as

$$E_1(t') = -\frac{\mu I_a dh}{2\pi r \alpha} A(\gamma, T),$$

$A(\gamma, T) = F(\gamma T) \{T + \frac{1}{2} \gamma u(\gamma T)\} \exp [-\chi(\gamma T) T^2]$, where functions $F(\gamma T)$ and $u(\gamma T)$ are determined by formulae (20) γ and T are given by Eqs. (5) and (9) and

$$\chi(x) = \frac{2}{1 + x + \sqrt{1 + 2x}}.$$

If the dipole is excited with a HF sinusoidal or cosinusoidal step input pulse, by means of applying dimensionless variables of

$$\tau_1 = \omega_0 t', \quad \varkappa = \frac{(\varepsilon_m + 1)\varepsilon_0\omega_0}{\sigma}, \quad \rho = \alpha^2\omega_0^2.$$

$$E_z(t') = -\frac{i\omega_0\mu I_a dh}{2\pi r}|w(\sqrt{s_0 r})|V(\rho, \varkappa, \tau_1),$$
$$V(\rho, \varkappa, \tau_1) = -e^{i\varphi_{com} - i\tau_1} + W(\rho, \varkappa, \tau_1), \qquad (22)$$

is obtained. In it $w(\sqrt{s_0 r})$ is the Sommerfeld attenuation function. φ_{com} - its argument; and

$$W(\rho, \varkappa, \tau_1) = \frac{F(x)}{|w(\sqrt{s_0 r})|}\exp\left[-\chi(x)\frac{\tau_1^2}{4\rho}\right]\left\{-i\left[\frac{\tau_1}{2\rho} + \frac{\varkappa}{2\rho}u(x)\right] + \right.$$
$$\left. + \varphi(x)\left[1 + \psi(\rho, \varkappa, \tau_1)\, 2z_0 e^{-z_0^2}\int_{z_0}^{i\infty} e^{z^2} dz\right]\right\}; \qquad (23)$$

$$x = \frac{\varkappa}{2\rho}\tau_1; \quad s_0 r = \frac{\rho}{1 - i\varkappa}; \quad \psi(\rho, \varkappa, \tau_1) = \left[1 + i\frac{\tau_1}{2\rho}K(x)\right]^{-1};$$

$$K(x) = \frac{2}{\sqrt{1+2x}(1+\sqrt{1+2x})}; \quad z_0^2 = s_0 r + i\tau_1 - \chi(x)\frac{\tau_1^2}{4\rho}. \qquad (23)$$

is valid for the non-stationary part of the field for the condition

$$\frac{\nu^2}{4\rho} \ll 1$$

of the function W (Eq. 23) describes the non-stationary part of the radiation field, the real part of the function V (Eq. 22) - the total field when the dipole is excited by a current of the shape of

$$I(t) = I_a \sin \omega_0 t \cdot 1(t). \qquad (24)$$

Functions ImW and ImV describe the non-stationary part and the complete field respectively when the current in the dipole has the shape given by

$$I(t) = I_a \cos \omega_0 t \cdot 1(t).$$

Propagation of pulse ... S/109/61/006/005/005/027
D201/D303

Graphs show that displacement currents introduce an attenuation of the amplitude of the non-stationary part of the field and that the amplitude of transients depends on the current spectrum in the dipole. From graph of ReV it is seen that transients may introduce considerable distortion in the propagated signal. It is stated in conclusion that the problem of propagation of pulse signals over the surface of the earth is also of practical interest, in that it gives the picture of signal distortion and that the results obtained could be used to solve the problem of the inverse diffraction problem and that from measurements of the delay time of the maximum of the signal, having other data available, one could determine the conductivity of the propagation path. There are 6 figures and 5 references: 2 Soviet-bloc, and 3 non-Soviet-bloc. The references to the English-language publications read as follows: J.R. Wait, Canad. J. Phys. 1956, 34, 27; J.R. Johler, J. Res. Nat. Bur. Standards. 1958, 60, 28)

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im A.A. Zhdanova, Kafedra Radiofiziki (Leningrad State University im A.A. Zhdanov, Department of Radiophysics)

SUBMITTED: March 24, 1961

NOVIKOV, V.V.

Review of papers on the propagation of pulse electromagnetic signals in conducting media over the earth's surface. Probl. dif.i raspr. voln 2:7-38 '62. (MIRA 16:4)
(Electromagnetic waves) (Dipole moments)

GYUNNINEN, E.M.; MAKAROV, G.I.; NOVIKOV, V.V.; RYBACHEK, S.T.

Propagation of an electromagnetic pulse over the earth's surface. Probl.dif.i raspr. voln 2:132-143 '62. (MIRA 16:4)
(Electromagnetic waves) (Dipole moments)

VORONTSOV-VEL'YAMINOV, P.N.; NOVIKOV, V.V.

Propagation of an electromagnetic pulse over a plane nonuniform track. Probl.dif.i raspr. voln. 2:158-165 '62. (MIRA 16:4)
(Electromagnetic waves)

NAYDIS, V.A., kand.tekhn.nauk; LEBEDEV, A.M., inzh.; NOVIKOV, V.V., inzh.

Regulated d.c. drives with transistor rectifiers. Elektrichestvo no.11:83-87 N '62. (MIRA 15:11)

1. Eksperimental'nyy nauchno-issledovatel'skiy institut metallorezhushchikh stankov.
(Electric motors, Direct current)

NOVIKOV, Vasiliy Vasil'yevich; ZUBOVSKIY, Leonid Isaakovich; PRAMMEK, German Fritsevich; KOGAN, Valentina Solomonovna; KLYKOV, Semen Ivanovich; NAUMOV, Pavel Alekseyevich; YEMEL'YANOV, Gennadiy Alekseyevich; VORONIN, Nikolay Isidorovich; SERGEYCHUK, K.Ya., red.; GRIGOR'YEV, B.S., red.; FORTUSHENKO, A.D., red.; NOVIKOV, V.V., otv. red.; SMOLYAN, G.L., red.; MARKOCH, K.G., tekhn. red.

[Manual on electric communications; telegraphy] Inzhenerno-tekhnicheskii spravochnik po elektrosviazi; telegrafiia. [By] V.V.Novikov i dr. Moskva, Sviaz'izdat, 1963. 654 p. (MIRA 16:5)

(Telecommunication--Handbooks, manuals, etc.)
(Telegraph--Handbooks, manuals, etc.)

NOVIKOV, V.V.; ROSHAL', B.Ye.

Transistor saw-toothed voltage slave oscillator with improved characteristics. Izv.vys.ucheb.zav.; prib. 6 no.4:162-166 '63. (MIRA 16:8)

(Oscillators, Transistors)

ACCESSION NR: AT4043149 S/2754/64/000/003/0005/0191

AUTHOR: Gyunninen, E. M., Makarov, V.I., Novikov, V.V., Ry*bachek, S. T.

TITLE: Propagation of electromagnetic impulses and of their harmonic components above the surface of the earth

SOURCE: Leningrad. Universitet. Problemy* difraktsii i rasprostraneniya voln, no. 3, 1964. Rasprostraneniye radiovoln (Radio wave propagation), no. 3, 5-191

TOPIC TAGS: radio wave, radio wave propagation, electromagnetic propagation, surface wave propagation, ionosphere, path attenuation

ABSTRACT: The article presents the results of computations of surface wave propagation path properties in the form of graphs and tables with emphasis on the spectral characteristics of the path. The variation in the conductivity and dielectric constant of the earth with frequency is neglected. The multipath character of ionospheric reflections is also neglected by assuming proper gating function at the receiver. In the theoretical section, formulas for the field of a vertical electric dipole, radiating CW energy above a homogeneous or multi-layer flat or spherical earth, are introduced, using the surface impedance approach. Refraction is taken into account by introducing the equivalent radius of the earth. The path

ACCESSION NR: AT4043149

attenuation function V(x, y, q) for a spherical earth introduced by V. A. Fok (AN SSSR, 1946) is used. It is argued that the availability of tables of the attenuation function for a large number of frequencies enables one to compute the attenuation for an arbitrary signal modulation. After the singularities of the field at the imaginary axis of the complex frequency plane have been separated, a numerical integration method is proposed for evaluation of "transient" spectral components. Three specific examples are worked out in detail: unit step dipole current and sine and cosine dipole current modulated by a unit step function. The first set of curves gives the amplitude and phase as a function of range of the plane earth attenuation function W and spherical earth attenuation function V for ranges from 0-600 km, frequenciesfrom 2kc-10mc, earth dielectric constants of 5, 10, 20 and 80 with corresponding conductivities of 10^{-4}, 10^{-3}, 10^{-2} and 1 $(\text{ohm}\cdot\text{m})^{-1}$. From these curves, a set of curves is generated which gives a plot of range as a function of frequency for constant percentage difference in amplitude and phase of W and V. This set of curves defines the conditions under which a spherical earth model must be used to achieve a prescribed accuracy. For the same set of surface conditions and frequencies the far field values of V (amplitude and phase) are then plotted for ranges up to 10,000 km. The next group of curves illustrates the frequency variation of the parameters t_1, t_s, t_2 and q of Fok's

Card 2/4

ACCESSION NR: AT4043149

representation of the attenuation function V(x, y, q) as well as the convergence of the series expansion which was used in computation. Two sets of curves of W for transmitter elevations from 0-60 km are given for frequencies of 10-kc and 100 kc and ϵ_m=10 and σ = 10^{-3} (ohm·m)$^{-1}$. Finally, plots of electric field components as functions of time for sine and cosine signals modulated by a step function are given. Tables 1-4 give the values of v, arg V, Re V and Im V for ranges from 10-10,000 km and frequencies from 2 kc - 10 mc for the following combinations of the dielectric constant ϵ_m and conductivity σ: ϵ_m = 80 and σ = 1 (ohm·m)$^{-1}$, ϵ_m = 20 and σ = 10^{-2}, ϵ_m=10 and σ = 10^{-3}, ϵ_m = 5, σ 10^{-4}. Tables 5-8 give the values of the parameter t_s as Re t_s, Im t_s, $|t_s|$ and arg t_s for values of s from 1-10 and for frequencies from 2 kc-10 mc for the same combinations of ϵ_m and σ. Finally, table 9 gives the value of the field for modulated signal for time t from 10^{-3} - 35 μsec and for ϵ_m 20, σ 10^{-2} and ϵ_m = 10 and σ = 10^{-3} for a plane earth and for an earth of 2 layers, one of which is 50 meters thick. The range parameter extends from 10 to 800 km. Orig. art. has: 96 equations, 92 figures and 9 tables.

ASSOCIATION: Leningradskiy universitet (Leningrad University)

Card 3/4

Novikov, V.V.

5054* Properties of Industrial Forgings of Steel 20KhM. Svoistva promyshlennykh pokovok iz stali 20 KhM. (Russian.) N. I. Belan, V. V. Novikov, and V. M. Kanfor. *Metallovedenie i obrabotka metallov*, 1955, no. 5, Nov., p. 33-41.

Alloy-steel forgings, with cross-sections up to 145 mm., have practically no variation in creep limit, strength, or hardness throughout the piece. Graphs, tables, diagrams, 5 ref.

Novikov, V. V.

137-58-2-4171

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 272 (USSR)

AUTHORS: Snitko, M.N., Belan, N.I., Novikov, V.V.

TITLE: The High-temperature-resistant Cast Steel 20KhML (Litaya teploustoychivaya stal' 20KhML)

PERIODICAL: V sb.: Prochnost' metallov. Moscow, AN SSSR, 1956, pp 110-111

ABSTRACT: Data are given on the properties of two industrial heats (from a basic electric furnace) of the cast Cr-Mo steel 20KhML. Described are the composition, mechanical properties before and after heat treatment, coefficient of linear expansion, mechanical properties at high temperatures (up to 650°C), and the results of creep and long-term strength tests made at 470, 510, and 550°. Steel 20KhML, having a 5-6 point grain size, does not readily graphitize. Its nominal creep limit (at a deformation rate of $1 \cdot 10^{-5}$ percent per hour) is 16.2 kg/mm^2 at 470°, 6.6 kg/mm^2 at 510°, and 2.9 kg/mm^2 at 550°. Its long-term rupture strength (with rupture at the end of 100,000 hours) is 26 kg/mm^2 at 470°, 14 kg/mm^2 at 510°, and 6 kg/mm^2 at 550°. After heat treatment steel 20KhML does

Card 1/2

137-58-2-4171

The High-temperature-resistant Cast Steel 20KhML

not tend toward heat embrittlement (in the 450-550° range) whether or not subjected to stress, though the a_k value does decline at subfreezing temperatures. When normalized, this steel has a slight tendency toward tempering brittleness, which is especially evident at -20 and -50°, when a tempering at 400 and 600° has been followed by a slow cooling.

A.S.

1. Steel--Structural analysis 2. Steel--Mechanical properties

Card 2/2

81528
SOV/137-59-5-10946

18.1150

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 5, p 216 (USSR)

AUTHORS: Babayeva, Ye.V., Novikov, V.V.

TITLE: Cast Heat Resistant Kh25N12TL Steel for Gas Turbines

PERIODICAL: Tr. Nevsk. mashinostroit. z-da, 1958, Nr 4, pp 23 - 39

ABSTRACT: Information is given on results of investigations carried out on three groups of commercial Kh25N12TL steel smelts. The experiments consisted in investigations into the microstructure and mechanical properties (σ_b, σ_s, δ, ψ, a_k) at 20°, 600°, 650° and 700°C, prior to and after aging, extended up to 10,000 hrs at 600°, 650° and 700°C, intercrystalline corrosion tests (prior to and after aging), welding tests, determination of σ_{ext} at 600°, 650° and 700°C and σ_{sm} at 600° and 650°C. The steel was smelted in basic 3 and 10 ton electric furnaces. The composition of the steel was (in %): for the first group (3 smelts) C 0.15 - 0.18, Cr 23.0 - 25.0, Ni 11.5 - 13.7, Ti 0.1 - 0.3; for the second group (12 smelts): C 0.13 - 0.20, Cr 22.5 - 26.0, Ni 12.0 - 13.0, Ti 0.06 - 0.11, N 0.11 - 0.24;

Card 1/2

18.1150
18.7100

81526
SOV/137-59-5-10913

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 5, p 210-211 (USSR)

AUTHORS: Snitko, M.N., Belan, N.I., Novikov, V.V.

TITLE: Steel for Cast Parts of Steam Turbines

PERIODICAL: Tr. Nevsk. mashinostr., z-da, 1958, Nr 4, pp 59 - 77

ABSTRACT: The authors carried out investigations of 20KhML steel with respect to the macro- and microstructure, mechanical properties (σ_b, σ_s, δ, ψ, a_k) at 20° - 650°C (after heat treatment), the coefficient of linear expansion at 100° - 600°C, a_k at +20 to -100°C after tempering with slow and rapid cooling, after holding at 450° - 550°C for 100 - 5,000 hours and after creep tests; σ_{sm} and σ_{ex} at 470°, 510° and 550°C were also investigated. The 20KhML steel was cast into cross-shaped specimens up to 750 mm, with wall thickness of 30 - 70 mm. Heat treatment of the specimens consisted in normalization from 890° - 910°C; tempering at 640° - 660°C, cooling to 300°C in a furnace and then in air. It was established that cast 20KhML

Card 1/2

81526

Steel for Cast Parts of Steam Turbines SOV/137-59-5-10913

steel after normalization and tempering 1) had high σ_b, σ_s, δ, ψ and a_k, which were maintained at a sufficiently high level up to 550°C; 2) was not prone to graphitization in holding up to 6,000 hrs at 450° - 550°C; 3) was not prone to heat brittleness at 450° - 550°C in stressed or non-stressed state; 4) reduced considerably a_k at -100°C; 5) had only slight proneness to temper brittleness at 400° and 600°C; 6) had, at temperatures of 470°, 510° and 550°C, values of σ_{sm} - 16.2, 6.6, 2.9 kg/mm^2 (1.10^{-5}%/hr) and σ_{ex} 26.0, 14.2, 6.0 kg/mm^2 (100,000 hrs), respectively.

T.F.

Card 2/2

81527
SOV/137-59-5-10941

18.1150

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 5, p 215 (USSR)

AUTHORS: Belan, N.I., Novikov, V.V., Kanfor, V.M.

TITLE: Forged 20KhM Heat-Resistant Steel

PERIODICAL: Tr. Nevsk. machinostroit. z-da, 1958, Nr 4, pp 119 - 132

ABSTRACT: The authors investigated mechanical properties (σ_b, δ, ψ, a_k) at 20°C and 320° - 570°C and after holding at such temperatures up to 3,000 hrs; σ_{sm} and σ_{ext} at 420° - 520°C of radial and tangential forged specimens of 1.5 and 3 ton 20KhM steel ingots containing (in %): C 0.21, Cr 0.89, Mo 0.41, smelted in a basic electric arc furnace. It was established that forgings of up to 145 mm cross-section had practically the same mechanical properties in all the zones. Mechanical properties and the microstructure of forgings do not change after holding up to 3030 hrs at 420° - 520°C in unloaded and loaded state. At 420°, 470° and

Card 1/2

Forged 20KhM Heat-Resistant Steel

81527

SOV/137-59-5-10941

520°C (respectively) σ_{sm} (1.10^{-5}% hr) is 29.0; 13.5 - 15.0; 4.4 - 6.2; σ_{ext} (100,000 hrs) is 38; 36 - 30; 12 - 14 kg/mm^2. There are 5 bibliographical titles.

T.F.

Card 2/2

NOVIKOV, V. V.

Novikov, V. V.

"The Tracheobronchial Tree in Pulmonary Tuberculosis as Shown by Roentgenology (Roentgenological-Pathological-Anatomical and Clinical-Roentgenological Investigation)." Min Health USSR. Leningrad Pediatrics Medical Inst. Leningrad, 1955. (Dissertation for the Degree of Candidate in Medical Science)

So: Knizhnaya letopis', No. 27, 2 July 1955

Novikov, V. V.

NOVIKOV, V.V.

Improving the process for the production of acetic acid. Gidroliz. i lesokhim. prom. 10 no.6:20-22 '57. (MIRA 10:12)

1. Veliko-Bychkovskiy lesokhimicheskiy zavod.
(Acetic acid)

NOVIKOV, V.V.

NOVIKOV V.V., professor; SKRIPKAR', L.N., inzhener

Photoelectric measurement of the integral coefficient of parabolic mirror reflection. Svetotekhnika 1 no.5:21-22 O'55. (MLRA 8:12)

1. Gosudarstvennyy opticheskiy institut
(Photoelectric measurements)

NOVIKOV, V.V., professor; MATVEYEV, V.M., inzhener; BARMICHEV, R.M.

Lighting tests on retroreflectors. Svetotekh :ka 3 no.2:19-21 F '57.
(MIRA 10:3)

1. Gosudarstvennyy opticheskiy institut.
(Reflectors)

NOVIKOV, V.V.; SPERANSKAYA, N.I.

New methods for the colorimetry of multiple-reflecting systems.
Opt.-mekh. prom. 25 no. 2:37 F '58. (MIRA 11:7)
(Colorimetry)

NOVIKOV, V.V., prof.; BERSENEV, Ye.I., inzh.; SKRIPKAR', L.N.

Calculating the scattering for belt lenses. Svetotekhnika 5 no.2: 17-23 F '59. (MIRA 12:1)

1. Gosudarstvennyy opticheskiy institut.
(Lenses) (Light--Scattering)

NOVIKOV, V.V.

Electron tubes with mechanically controlled electrodes for measuring centrifugal accelerations and impact overloads. Sbor.st.LITMO no.47:6-13 '59. (MIRA 16:10)

ANTONOVICH, Sergey Aleksandrovich, kand.tekhn.nauk; NOVIKOV, Viktor Vasil'yevich, inzh.; RENSKIY, Nikolay Mikhaylovich, inzh.; FOMKINSKIY, Leonid Ivanovich, inzh.; SHIMKO, Konstantin Nikolayevich, kand.tekhn.nauk. Prinimal uchastiye SHANTSER, A.I., inzh. AL'BANOV, V.M., inzh., nauchnyy red.; LAKHANIN, V.V., prof., doktor tekhn.nauk, retsenzent; KULIKOVSKIY, P.P., kand.tekhn.nauk, retsenzent [deceased]; STEPANYUK, Ye.I., kand.tekhn.nauk, retsenzent; PAVLOV, A.V., inzh., retsenzent; PETROV, M.D., inzh., retsenzent; ROMANOV, P.A., inzh., retsenzent; SOBOLEV, P.I., inzh., retsenzent; VITASHKINA, S.A., red.izd-va; YERMAKOVA, T.T., tekhn.red.; VOLCHOK, K.M., tekhn.red.

[Handbook for marine heat engineers] Spravochnik sudovogo teplotekhnika. Sost. S.A.Antonovich i dr. Leningrad, Izd-vo "Rechnoi transport," Leningr.otd-nie, 1960. 679 p. (MIRA 14:3)
(Marine engineering) (Heat engineering)

S/754/62/000/001/001/006

AUTHOR: Makarov, G. I., Novikov, V. V.

TITLE: Propagation of electromagnetic wave above a surface with arbitrary surface impedance

PERIODICAL: Leningrad. Universitet. Problemy difraktsii i rasprostraneniya voln. no 1. 1962. Rasprostraneniye radiovoln. 96-115.

TEXT: The propagation of radiowaves above an earth having a layered structure is considered, with a particular aim at determining the field at distances not exceeding 100—150 km from the antenna. Problems of this type are of great practical significance in connection with radio navigation and geological prospecting. In view of the mathematical difficulties involved in a rigorous solution of such problems, it becomes necessary to use the concept of surface impedance as an approximation for the boundary conditions. The author derives power-law and asymptotic expansions for an approximate solution of the problem, and in addition determines the errors resulting from the use of the surface-impedance method. Certain data on the structure of the electromagnetic field above a plane surface having a definite

Card 1/5

surface impedance are also given.

The author reduces Maxwell's equations for the field quantities to a scalar wave equation for the vector potential

$$\vec{A} = A\vec{e}_z,$$

$$\frac{\partial^2 A}{\partial z^2} + \frac{\partial^2 A}{\partial r^2} + \frac{1}{r}\frac{\partial A}{\partial r} + k^2 A = -j, \tag{9}$$

and obtains ultimately the equation in the form $A = I_1 + I_2$, where

$$I_2 = -\pi k \delta H_0^{(1)}\left(kr\sqrt{1-\delta^2}\right). \tag{29}$$

and

$$I_1 = \frac{2e^{ikr}}{r}\left\{1 + \sum_{m=0}^{\infty}\frac{\delta^{2(m+1)}}{(2m+1)!!}Q_{m+1}(kr)\right\}. \tag{35}$$

or

$$I_1 = \frac{2e^{ikr}}{r} \sum_{m=0}^{\infty} y_m (2s_1 r)\, \delta^{2m}, \tag{37}$$

with

$$Q_{m+1}(x) = x^{m+1} \sqrt{\frac{\pi x}{2}} H^{(1)}_{m+\frac{1}{2}}(x)\, e^{-ix}, \tag{36}$$

$$s_1 = \frac{ik\delta^2}{2}; \tag{38}$$

$$y_0(x) = 1 + \sum_{k=1}^{\infty} \frac{(-)^k x^k}{(2k-1)!!} = 1 - 2\sqrt{\frac{x}{2}}\, e^{-\frac{x}{2}} \int_0^{\sqrt{\frac{x}{2}}} e^{z^2} dz; \tag{39}$$

$$y_m(x) = \frac{1}{2^m m!} \sum_{k=1}^{\infty} \frac{(-)^k k(k+1)\dots(k+2m-1)}{(2k+2m-1)!!} x^k \tag{40}$$

The expansions (35) and (37) are power series which may converge slowly, in which case the asymptotic expressions

$$A \sim -\frac{2e^{ikr}}{r} \sum_{n=1}^{\infty} \frac{n!\, i^n P_n\left(\frac{1}{\delta}\right)}{(2\kappa_1 r)^n}, \tag{49}$$

and

$$A = -2\pi k^2 \delta H_0^{(1)}\left(kr\sqrt{1-\delta^2}\right) - 2k\delta \int_{kr}^{\infty} e^{i\mu} d\frac{1}{\sqrt{\mu^2 - k^2 r^2 (1-\delta^2)}}. \tag{51}$$

are more suitable.

From the potential it is easy to determine the vertical component of the electric vector

E_z, namely

$$E_z = i\omega\mu \frac{2e^{ikr}}{r} W(r), \tag{63}$$

where

$$W(r) = (1 - \delta^2) A \frac{re^{-ikr}}{2} - \frac{1}{ikr} + \frac{1}{(ikr)^2}. \tag{64}$$

The approximate expression for E_z has the form

$$E_z = i\omega\mu \frac{2e^{ikr}}{r} \left\{ (1 - \delta^2) w(r) - \frac{1}{ikr} + \frac{1}{(ikr)^2} \right\}. \tag{65}$$

which can be readily evaluated with the aid of tables of the probability integral.

There are six figures and twenty references. The latest English-language references are: J. R. Wait, J. Res. NBS, 59 December 1957; J. R. Wait, IRE Trans. AP-1, 1953, 9 and AP-2, 1954, 144; J. R. Wait, Geophysics, 18, April 1953, 416; P. C. Clemmow, Phil. Trans. Roy. Soc. June 1953, 1-55.

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AUTHOR: Novikov, V. V.

TITLE: On the accuracy of approximate formulas in the problem of the propagation of pulsed signals over a flat homogeneous surface

PERIODICAL: Leningrad. Universitet. Problemy difraktsii i rasprostraneniya voln. no. 1. 1962. Rasprostraneniye radiovoln. 156-163

TEXT: Approximate and exact formulas are compared for the case of propagation of pulsed signals over a flat interface between two dielectric media. In most propagation problems the exact formulas are very cumbersome and provide no clues as to the behavior of the electromagnetic field. The particular problem treated here is characterized by solutions that are simple in both rigorous and approximate form, and also deals with the most unfavorable case, since the presence of conductivity in the medium reduces the low-frequency error. The exact response to a step signal is obtained by standard transform techniques, and the result is resolved into a ground wave, usually neglected, and a wave through the upper medium. By making standard assumptions and using asymptotic expansions

Card 1/2

for the Hankel function in the rigorous solution, an approximate expression is obtained accurate to $\sqrt{\varepsilon_m' + 1}$ (ε_m' is the relative dielectric constant of the lower medium) for low frequencies and to the square of this value at high frequencies. It is also demonstrated that a similar approximate formula for the field potential has an accuracy of approximately the same order. The most important English-language references are: J. R. Wait, Canad. j. Phys. 34, 27, 1956 and J. R. Johler, Geofisica pura e appl. 37, 116, 1957 and J. res. NBS 60, 281, 1958.

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AUTHOR: Novikov, V. V.

TITLE: Propagation of radiowaves over a stratified path

PERIODICAL: Leningrad. Universitet. Problemy difraktsii i rasprostraneniya voln. no 1. 1962. Rasprostraneniye radiovoln. 116-132

TEXT: The aim of this paper is to compare the rigorous solution of the problem, which is usually too cumbersome an expression to be of practical use, with approximate solutions in which the propagation of the radiowaves is determined only in the half space above the path, and the influence of the path is taken into account by means of approximate boundary conditions or (which is the same) by introducing a surface impedance. Since the difficulty with the latter approach lies in the uncertainty concerning the errors due to the simplification of the problem, it was deemed desirable to make this comparison and to estimate the limits of applicability of the method of surface impedance for a double-layer path. Although this estimate is quite crude, the author claims this to be the first published treatment of the subject.

A rigorous expression for the field of a vertical antenna located above a double -layer path

Card 1/3

is derived in the form (the expression is for the vector potential A in polar coordinates)

$$A_{отр} = \frac{I_0 h_A}{4\pi} \int_0^{\infty} R(\lambda) J_0(\lambda r) e^{-\sqrt{\lambda^2 - k_1^2}(z+h)} \frac{\lambda d\lambda}{\sqrt{\lambda^2 - k_1^2}} = \frac{I_0 h_A}{8\pi} \int_{-\infty}^{+\infty} R(\lambda) H_0^{(1)}(\lambda r) e^{-\sqrt{\lambda^2 - k_1^2}(z+h)} \frac{\lambda d\lambda}{\sqrt{\lambda^2 - k_1^2}}, \quad (6)$$

where

$$R(\lambda) = \frac{R_{12}(\lambda) + R_{23}(\lambda) e^{-2\sqrt{\lambda^2 - k_2^2}l}}{1 + R_{12}(\lambda) R_{23}(\lambda) e^{-2\sqrt{\lambda^2 - k_2^2}l}}, \quad (7)$$

is the Fresnel reflection coefficient of a plane vertically polarized wave incident on the surface at an angle $\alpha = \sin^{-1} \lambda/k_1$. To this expression for the reflected wave one has to add the incident wave

$$A_{пад} = \frac{I_0 h_A}{4\pi} \cdot \frac{e^{ik_1 R_1}}{R_1}, \quad (3)$$

Card 2/3