

VANYUSHIN, N.M., red.; ZDANKOVICH, M.A., red.; KUCHERSKIY, L.V., red.;
LITVINOV, S.V., red.; MUKHIN, I.A., red.; ROZOV, B.V., red.;
SOSHKIN, I.M., red.; PONOMAREVA, V.P., red.; NEUDAKINA, N.G.,
tekhn.red.

[Kizel Coal Basin] Kizelovskii kamennougol'nyi bassein.
Perm', Permskoe knizhnoe izd-vo, 1958. 249 p. (MIRA 12:3)
(Kizel Basin--Coal mines and mining)

SEROV, V.N., kand. med. nauk; SOSHIKINA, N.I.

Later following resection and prosthetic substitution of the
aorta for coarctation. Akush. i gin. no.1:143-144 '65.

(MIRA 18:10)

1. Kafedra akusherstva i ginekologii (zav.- prof. K.N. Zhmakin)
i Moskovskogo ordena Lenina meditsinskogo instituta imeni
Sechenova i roditel'nyy dom pri Gorodskoy klinicheskoy bol'nitse
No.67 (glavnyy vrach P.S. Petrushko), Moskva.

VANINA, L.V., doktor med.nauk; SEROV, V.N., kand.med.nauk; ZAKHARCHENKO, N.N.;
ROZENFEL'D, L.I.; SOSHKINA, N.I.

Outcome of pregnancy and labor in heart defects; based on
data of the maternity home at the 67th Moscow Clinical
Hospital. Sov.med. 28 no.11:55-60 N '65.

(MIRA 18:12)

1. Kafedra akusherstva i ginekologii (zav. - prof. K.N.
Zhmakin) I Moskovskogo ordena Lenina meditsinskogo instituta
imeni I.M.Sechenova i 67-ya Gorodskaya klinicheskaya bol'nitsa
(glavnyy vrach P.S.Petrushko), Moskva.

LYAMPERT, I.M.; GALACH'YANTS, O.P.; AGABABOVA, E.R.; RAL'F, N.M.;
SMIRNOVA, M.N.; YARESHKO, N.T.; BOLOTINA, A.Yu.; SOSHKINA, N.M.

Diagnostic significance of certain immune reactions in rheumatic
fever. Zhur.mikrobiol.epid.i immun. 32 no.3:35-43 Mr '61.

(MIRA 14:6)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei AMN SSSR,
fakul'tetskoy terapevticheskoy kliniki I Moskovskogo ordena Lenina
meditsinskogo instituta imeni Sechenova i revmatologicheskogo
kabineta Leningradskogo rayona Moskvy.

(RHEUMATIC FEVER)

(ANTIHEMOLYSIS)

(HYALURONIDASE)

SUDAKOVA, S.A., kand.med.nauk; SOSHKINA, N.O. (Moskva)

Liver function in the active phase of rheumatic fever. Vrach.delo
no.11:32-35 N '60. (MIRA 13:11)

1. Klinicheskoye otdeleniye (zav. - S.M.Bremener) Instituta
vitaminologii Ministerstva zdravookhraneniya SSSR i I kafedra
terapii (zav. - deystvitel'nyy chlen AMN SSSR, prof. M.S.Vovsi
[decease]) Tsentral'nogo instituta usovershenstvovaniya vrachey.
(RHEUMATIC FEVER)
(LIVER)

SOSHKINA YE D.

Mbr., Paleontological Institute, Acad. Sci., 1946

"Types of Gemination in Silurian and Devonian Rugosa Corals," Dok. AN, 55 No.6, 1947

"On the Taxonomy of the Silurian and Devonian Rugosa Corals," Dok AN, 55, No.8, 1947

SOSHKINA, Ye. D.

"Variations in the Outward Appearances of Devonian and Silurian Type Rugosa Corals" Iz.
Ak. Nauk SSSR, Ser. Biol., "1948. Mbr., Paliontological, Dept. Biol. Sci., Acad.
Sci., -c1948-. Inst./

SOSHEINA, Ye. D.; OBRUCHEV, D.V., redaktor izdaniya; AVDUSINA, Ye.I.,
redaktor izdatel'stva; TEMERLIN, M.L., tekhnicheskiy redaktor.

[Devonian corals Rugosa in the Urals.] Devonskie korally Rugosa
Urala. Moskva, Izd-vo Akad. nauk SSSR, 1949. 159 p. (Akademiia nauk
SSSR. Paleontologicheskii institut. Trudy, vol. 15, no.4). (MLRA 10:7)
(Ural Mountain region--Corals, Fossil)

21560

SOCHINA, Ye. D.

Dizergentsiya i konvergentsiya v evolyutsii verkhnedevonskikh rugoz.
Trudy Paleontol. in - ta (Akad. nauk SSSR), t. XX, 1949, s. 317 - 26.
Bibliogr: s. 326.

SO: Letopis' Zhurnal'nykh Statey, No. 29, Moskva, 1949.

SOSHKINA, Ye.D.

Biostratigraphy of Devonian sediments in the Urals based on rugosa
corals. Biul. MOIP. Otd. geol. 24 no.2:34-62 '49. (MIRA 11:5)
(Ural Mountains--Rugosa, Fossil)

SOSHKINA, Ye.D.

Genogenetic adaptations of certain Devonian Tetracoralla.
Ezhegod.Vses.paleont.ob-va 14:80-90 '53. (MLRA 8:3)
(Corals, Fossil)

SOSHKINA, Ye.D.

Devonian Tetracoralla of the Russian Platform. Trudy Paleont. inst.
52:3-74 '54. (MLRA 7:11)
(Russian Platform--Corals, Fossil) (Corals, Fossil--Russian
Platform)

SOSHKINA, Ye.D.

Development of Tetracoralla of the Silurian in the Stony
Tunguska Valley. Biul.MOIP.Otd.geol. 30 no.1:94 Ja-F '55.
(MIRA 8:5)

(Stony Tunguska Valley--Corals, Fossil)
(Corals, Fossil--Stony Tunguska Valley)

IVANOVA, Ye.A.; SOSHKINA, Ye.D.; ASTROVA, G.G.; IVANOVA, V.A.

Ecology and stratigraphic significance of the Ordovician and
Gotlandian fauna in the lower course of the Stony Tunguska
River. Trudy Paleont. inst. no. 56:93-196 '55. (MLRA 8:12)
(Stony Tunguska River--Paleontology)

СОВЕТСКОЕ, А. А., Engineer

Сам. Тех. 101

Dissertation: "Biothermic Process in Chambers for Rendering Garbage Harmless."

16/5/50

Academy of Communal Economy imeni K. D. Pamfilov

80 Vecheryaya Moskva
Sum 71

STEPURENKO, V.T.; LITVIN, A.K.; SOSHKO, A.I.

Reverse bending test of wire specimens with simultaneous hydrogen
absorption. Vliian.rab.sred.na svois.stali no.1:84-87 '61.
(MIRA 15:5)

(Wire---Testing) (Steel---Hydrogen content)

TETURSKIY, V.A.; SUSHKO, A.I.; TYMNYI, A.N.; KARPENKO, G.V.

Effect of radiation in gaseous media on the mechanical properties of
steel. Vliian. rab. sred na svcis. mat. no.3:48-51 '64.

(MIRA 17:10)

S/137/62/000/009/023/033 ..
A006/A101

AUTHORS: Stepurenko, V. T., Soshko, A. I., Litvin, A. K.

TITLE: A unit for technical bending tests of metals in liquid media

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no..9, 1962, 104, abstract 9I669
(In collection: "Mashiny i pribory dlya ispytaniya metallov",
Kiyev, AN UkrSSR, 1961, 128 - 131)

TEXT: A description is presented of the design of a unit for bending tests of wire specimens under the effect of surface-active and corrosion media (with possible simultaneous application of the potential) in liquid metals and melts. Results are presented which had been obtained from bending tests of electro-polished "St.45" steel wire specimens, 0.85 mm in diameter. The tests were performed in a 26% H₂SO₄ and 3% NaCl solution in distilled water at different D_c and bending speeds. It was established that with greater D_c the number of bends until the failure of the specimen decreases; the most intensive reduction of the steel ductility occurs at D_c < 2 amp/dm²; the hydrogen brittleness increases with reduced bending speed. It is noted that the unit assures stable results of

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S/137/62/000/009/023/033
A006/A101

A unit for technical bending tests of...

investigations in air, various media and during the application of an electrode potential. There are 9 references.

V. F.

[Abstracter's note: Complete translation]



Card 2/2

TERNY, A.N.; SOBKOV, A.I.; SOKOLOV, Ye.F.

Certain factors having an effect on the friction of rubber. Vliian.
rab. sred na svois. mat. no.2:134-137 '63. (MIRA 17:10)

Effect of normal pressure and the rate of slipping on the anti-
friction properties of rubber packings. Ibid.:138-143

Wear resistance of rubber packings working in couple with metal
surfaces. Ibid.:144-151

ACCESSION NR: AT4023781

S/2723/63/000/002/0138/0143

AUTHOR: Sokolov, Ye. P.; Soshko, A.I.; Ty*nny*y, A.N.

TITLE: Effect of normal pressure and sliding rate on the lubricating properties of rubber packing

SOURCE: AN UkrRSR. Insty*tut mashy*noznavstva i avtomaty*ky*, L'viv. Vliyaniye rabochikh sred na svoystva materialov (Effect of active media on the properties of materials), no. 2, 1963, 138-143

TOPIC TAGS: friction, lubrication, rubber packing, rubber packing pressure, rubber packing sliding

ABSTRACT: The laws of external friction, reflecting the relationship between frictional forces and normal pressures for smooth hard surfaces, are generally used without change for rubber-metal friction pairs. These laws do not take into account the effect of such important factors as the variable sliding rate, the wide range of normal pressures, the type of lubricant, and the properties of the rubber. G.M. Bartenev (DAN SSR, 103, No. 6, 1017, 1955) first showed that a relationship can be derived, depending on many factors (see Fig. 1 of the enclosure), for the friction between rubber and a solid surface. Investigations of the effect of sliding and pressure on friction were performed on the MI friction

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ACCESSION NR: AT4023781

ENCLOSURE: 01

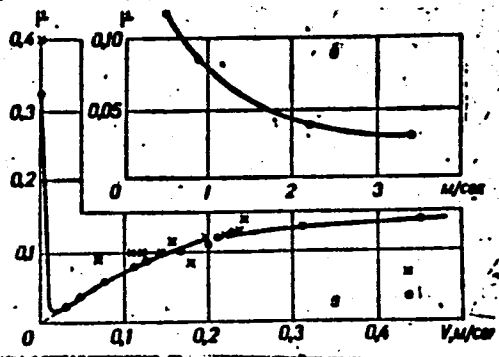


Fig. 1. Dependence of the coefficient of friction on the sliding rate: a - according to the data of Bartenev for a viscous lubricant and a standard pressure of 80mm/m^2 ; b - according to the data of Shannikov during water lubrication.

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SOSHKO, A.I.; TETERSKIY, V.A.; TYNYY, A.N.; KHOMITSKIY, Yu.N.; STEFYUK, T.Yu.

Methods of investigating the effect of ionized gas atmospheres on the
properties of metals. Vliian. rab. sred na svois. mat. no.3:40-47 '64.
(MIRA 17:10)

L 32056-65 EWT(m)/EWP(w)/EPF(c)/EPF(n)-2/EWA(d)/T/EWP(t)/EWP(b) Pr-h/Pu-h
IJP(c) MJW/JD/WB/GG

ACCESSION NR: AT4049939 S/2723/64/000/003/0048/0051

AUTHOR: Teterskiy, V. A.; Soshko, A. I.; Ty*nnny*y, A. N. (Candidate of technical sciences); Karpenko, G. V. (Corresponding member AN UkrSSR)

TITLE: ¹⁹ Effects of radiation in gas media on the mechanical properties of steel

SOURCE: AN UkrSSR. Fiziko-mekhanicheskiy institut. Vliyaniye rabochikh sred na svoystva materialov, no. 3, 1964, 48-51

TOPIC TAGS: radiation corrosion, irradiated gas, steel corrosion, activated gas corrosion, thallium 204, beta radiation, steel mechanical property / steel 08kp

²⁷ ABSTRACT: Most radiation, such as alpha, beta and gamma rays, does not have a direct effect on metal; only neutrons can significantly affect the strength and life of mechanical components. However, there is an indirect effect of radiation on the mechanical properties of metals, due to interaction with the environment. Irradiation of aqueous media may produce long- and short-lived products leading to metal corrosion and decreased strength. Both long-lived compounds of the hydrogen peroxide type and short-lived free-radical type compounds are encountered. In the present study, hydrogen and air were irradiated and tested for their effect on

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L 32056-65

ACCESSION NR: AT4049939

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¹⁸ steel strength and ¹⁸ corrosion. Thallium 204 was used as the source of beta rays at an intensity of 600 microcuries and an energy of 0.765 Mev. The apparatus consisted of a high pressure bomb containing the source, medium and test samples. The results, reported for steel 08kp, show that the tensile and shear strength of the material were unaffected by the ionized gases. However, the length of the plasticity plateau was decreased significantly (by 25 - 37%). Relative elongation was unchanged in ionized air, but decreased about 6% in ionized hydrogen. Orig. art. has: 2 tables and 2 figures. ₂₇

ASSOCIATION: None

SUBMITTED: 20Jun63

ENGL: 00

SUB CODE: MM, NP

NO REF SOV: 004

OTHER: 000

Card 2/2

L 01118-66 EWT(m)/EWP(w)/EPT(c)/EWA(d)/T/EWP(t)/EWP(b) JD/WB

ACCESSION NR: AP5019656

UR/0369/65/001/003/0312/0316

AUTHOR: Tynnyy, A. N.; Soshko, A. I.

22
20
6

TITLE: Mechanism of fracture of brittle materials exposed to surface-active media

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 1, no. 3, 1965, 312-316

TOPIC TAGS: fracture mechanism, brittle material, organic glass, surface active medium, tensile stress, fracture stress, crack type defect, crack formation, surface energy, free diffusion, macroscopic crack, crack propagation, surface diffusion

ABSTRACT: The authors present the results of an investigation of the effect of certain surface-active media (water, alcohol) on the strength characteristics and mechanism of fracture of organic glass. The effect of a vacuum (10^{-6} mm Hg), air, water, and ethyl alcohol on the strength characteristics of organic glass in the presence of momentary tensile stresses was investigated on using a tensile testing machine with attachment assuring the performance of tests in liquid media. It was found that in the presence of surface-active media (water, alcohol) the fracture stress is 20 and 40% lower, respectively, than in the presence of a vacuum or air,

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L 01118-66

ACCESSION NR: AP5019656

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and the surface of the organic glass specimens is covered by a much smaller number of cracks. The small number of cracks forming on the surface of the specimen is a characteristic sign of the selective nature of the action of the surface-active medium on the development of the crack-type defect, whether this defect may have been rooted or has arisen in the process of deformation of the specimen. On the basis of these findings the mechanism of fracture in the presence of surface-active media may be qualitatively described as follows: the tensile stresses acting on the specimen reduce the interatomic bonds in the crack apex. The surface-active medium, which, through the mechanism of free diffusion, enters the crack apex, reduces the surface energy (by virtue of the action of the process of physical adsorption). The decrease in the free surface energy under the action of the surface-active medium is the greater the more surface-active the medium is. Together, these two factors intensify crack development. As the stress exerted is increased, one of the cracks (or several cracks combining into one) develops into a macroscopic crack which grows at a fixed rate until an instant when the level of the stress acting on the apex of the crack becomes adequate for its growth. This process, depending on the ratio between the rate of crack propagation and the rate of the surface diffusion of the medium, is of an intermittent rather than continuous nature. Orig. art. has: 5 figures.

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L 01118-66

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ACCESSION NR: AP5019656

ASSOCIATION: Fiziko-mekhanicheskiy institut AN UkrSSR, L'vov (Physicomechanical
Institute, AN UkrSSR) 55

SUBMITTED: 06Mar65

ENCL: 00

SUB CODE: MT

NO REF SOV: 012

OTHER: 001

Card 3/3

SOSHKO, A.I.; TYNNYY, A.N.; GUDIMOV, M.M.

Durability and fracture mechanism of polymethyl methacrylate
under the effect of working media. Fiz.-khim. mekh. mat. 1
no.5:507-511 '65. (MIRA 19:1)

1. Fiziko-mekhanicheskiy institut AN UkrSSR, L'vov. Submitted
April 20, 1965.

(A) L 13017-66 EWT(m)/EWP(w)/EWP(j)/T LJP(c)/RPL WW/EM/RM

ACC NR: AP5028364 SOURCE CODE: UR/0369/65/001/005/0512/0515

AUTHOR: Soshko, A.I.; Tynnyy, A.N.

ORG: Physics-engineering Institute, AN UkrSSR, L'vov (Fiziko-mekhanicheskiy institut AN UkrSSR)

TITLE: The effect of residual stresses on the nature of the failure of amorphous vitreous polymers in liquid media

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 1, no. 5, 1965, 512-515

TOPIC TAGS: amorphous polymer, polymer structure, solid mechanical property, polystyrene, mechanical stress, internal stress, compressive stress

ABSTRACT: The present article investigated the following: 1) the effect of the technology of the preparation of polystyrene and polymethylmethacrylate on the magnitude and nature of the residual stresses in these materials, and 2) the effect of residual stresses in the process of failure of PS and PMMC subjected simultaneously to load and to working media. The tests showed that residual compression stresses appear in the surface layers of the PS specimens, and tension stresses inside the specimens. In all cases (about 100 specimens were tested) the internal cracks propagate uniformly along the working part of the specimen, and with further application of the load brittle failure occurs (the tests were made at room temperature). Data on the

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52
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L-13017-66

ACC NR: AP5028364

mechanical properties of the PMMC specimens show that the strength characteristics of specimens treated by special methods remain practically constant when tested in the air and in a medium. This may be attributed to the fact that the residual stresses of compression obtained on the surfaces of the specimens as a result of the heat treatment prevent the formation of cracks. Orig. art. has: 2 figures and 1 table.

SUB CODE: 11 / SUBM DATE: 10Apr65 / ORIG REF: 007

Card

ga
2/2

SOSHIKO, A.I.; TYMNYI, A.N.

Influence of residual stresses on the character of the fracture of amorphous, vitreous polymers under the effect of liquid media. Fiz.-khem. mekh. mat. 1 no.5:512-515 '65.

Effect of media on the fracture energy of polymethyl methacrylate. Ibid.:522-526 (MIRA 19:1)

1. Fiziko-mekhanicheskiy institut AN UkrSSR, L'vov. Submitted April 10, 1965.

BOSHNEV, V., polkovnik

Observe the statist; rights of communists. Komm. Vooruzh. Sil 5
no.24:27-31 D '64. (MIRA 18:2)

SOSHNIK, I.Ye., inzh.

Shaft furance for burning lime with mazut fuel. Stroi. mat.
8 no.12:18-19 D '62. (MIRA 16:1)
(Limekilns) (Mazut)

KUSHCH, P.Ya., mayor meditsinskoy sluzhby; SOSHNIK, Ye.M., mayor meditsinskoy sluzhby

Physicians' kit. Voen.-med. zhur. no.5:89 My '61. (MIRA 14:8)
(PHYSICIANS—EQUIPMENT AND SUPPLIES)

ACC NR: AP6035917 (A) SOURCE CODE: UR/0413/66/000/020/0163/0163

INVENTOR: Bogdanov, S. A.; Kaloyev, A. V.; Makeyev, A. D.; Shipilevskiy, G. B.;
 Ponomarev, V. I.; Simonov, L. P.; ~~Soshnikov, A. A.~~; Kalinovskiy, N. F.; Vaynshteyn,
 L. A.; Pann, L. A.; Kudel'skiy, V. A.; Skrypnik, I. A.

ORG: none

TITLE: Device for automatic control of a wheeled vehicle. Class 45, No. 187433
 [announced by the State Union Scientific Research Tractor Institute (Gosudarstvennyy
 soyuznyy nauchno-issledovatel'skiy traktorny institut); Khar'kov Tractor Plant
 (Khar'kovski. traktorny zavod)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 20, 1966, 163

TOPIC TAGS: agricultural machinery, ~~automatic control~~, automatic control ^{equipment},
 tractor, *motor vehicle*

ABSTRACT: An Author Certificate has been issued for a device for the automatic
 control of a wheeled vehicle, which includes a duplicating feeler, a feeler-deflec-
 tion transducer, an electric gate valve, and a hydraulic steering-gear amplifier. To
 simplify the changeover to and from automatic control, it is equipped with a three-
 way cock with a handle. The cock's input is connected to a pump, one of its outputs
 is connected to a distributing hydraulic amplifier, and its second output is connected

UDC: 631.36:629.114.2-52

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ACC NR: AP6035917

to the electric gate valve. In order to smoothly change the rpm, between the pump and the cock's input is mounted a throttle. Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 30Dec65/

Cord- 2/2

SOSHNIKOV, A.A.; LEVITANUS, A.D.; KUSHNIR, M.P., inzh.

Results of testing the T-125 wheeled truck tractor. Trakt. 1
L'khovmash. no.2:2-6 F '65. (MIRA 18:4)

1. Glavnyy konstruktor Khar'kovskogo traktornogo zavoda (for Soshnikov). 2. Zamestitel' glavnogo konstruktora Khar'kovskogo traktornogo zavoda (for Levitanus).

L 25716-66 EWT(d)/EWP(h)/EWP(1)

ACC NR: AP6004213 (A) SOURCE CODE: UR/0331/65/000/010/0009/0011

AUTHOR: Marchenko, N. D.; Livanov, A.P.; Kononenko, M. P.; Mushta, V.F.
Soshnikov, A.A.

ORG: (Marchenko, Livanov, Kononenko, Mushta) Caucasus Branch TsNIIME
(Kavkazskiy filial TsNIIME); (Soshnikov) Khar'kov Tractor Plant
(Khar'kovskiy traktorny zavod) 25
B

TITLE: New wheeled tractor for hauling trees 14

SOURCE: Lesnaya promyshlennost', no. 10, 1965, 9-11

TOPIC TAGS: tractor, towing vehicle, forestry

ABSTRACT: The authors describe a four-wheel tractor constructed by the above-mentioned organizations for experimental forest hauling purposes. The new vehicle was built on the basis of a tractor of the regular F-125 type and was designed for hauling trees with top ends suspended. The tractor can be used in connection with timber carriages or log trailers up to 20 tons at speeds up to 29 km/hr. The tractors can also be equipped with a bulldozer. The vehicle is driven by a 130-hp, 1700-rpm, six-cylinder diesel engine of SMD-462 type. It is 6200 mm long, 2310 mm wide and 2600 mm high. The weight is 8000 kg. The pull 2

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UDC: 634.0.377.4

L 25716-66

ACC NR: AP6004213

of its hoister is 4500 kg. (It is proposed to increase the pull up to 7250 kg). Various tractor operating speeds and tractions were tabulated and some other data (fuel consumption, tires, etc.) were given. The timber hoist apparatus was of TDT-40 type mounted on the rear frame of the trailer. The arrangement and operation of the hoister were explained. The new tractor was tested in the forestries located in various mountainous regions of the Caucasus. Comparative tests with oaterpillar tractors of TDT-60 type were organized. The tests were conducted under various conditions including snow-covered areas, steep grades, rough roads, etc. The tests were briefly described proving the higher operational speed of wheeled tractors. In general, it was proven that wheeled tractors of a 3-ton capacity could be used in mountains on grades up to 20 degrees. The tests will be continued. Orig. art. has: 2 photos showing the tractor in operation.

SUB CODE: 1347 SUBM DATE: None / ORIG REF: 000 / OTH REF: 000

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L 13006-66 EWT(m)/EWP(t)/EWP(b) IJP(c) JD/JG

ACC NR: AP6001635

SOURCE CODE: UR/0051/65/019/006/0864/0870

AUTHOR: Zapesochnyy, I. P.; Shimon, L. L.; Soshnikov, A. K.

ORG: none

TITLE: Effective excitation cross sections for atoms of alkali metals during collisions with slow electrons. II. Potassium

27 40 B

SOURCE: Optika i spektroskopiya, v. 19, no. 6, 1965, 864-870

TOPIC TAGS: excitation cross section, potassium, alkali metal, ~~atomic physics~~, resonance line, *electron*

ABSTRACT: The slow-electron excitation cross sections for 28 lines in the principal and subordinate series of the potassium atom were experimentally measured. The spectral lines were photoelectrically recorded using the most nearly monoenergetic electron beam possible at low current densities. The experimental conditions are described. Control experiments confirmed the linearity of the relationship between intensities for all lines up to vapor pressures and beam currents greater than those used for the measurements. Curves are given for the excitation cross section on the

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UDC: 539.186.2

L 13006-66

ACC NR: AP6001635

resonance line at 765 Å, as well as for the components of the second doublet in the principal series at 4044 and 4047 Å. Absolute functions are given for excitation of lines in the principal, sharp and diffuse series. Curves are given showing the excitation cross sections for the lines as a function of the principal quantum number. The results are used for evaluating the part played by successive transitions. It is found that the contribution made by successive transitions to S-levels (starting at n=7) is small. However, the contribution of successive transitions for the lower 6S level is about 15%. These transitions play an extremely important part at the 5S level. Successive transitions are responsible for approximately twice the fraction of the population at this level caused by direct excitation by electrons from the normal state of the atom. The contribution made by successive transitions to D-levels from the levels of the principal series, as well as from F-levels, is small (less than 10%) with the exception of the 3D-level (which is the final level for all lines of the fundamental series). It was impossible to evaluate the cross sections for D-levels due to lack of data for lines of the fundamental series. Orig. art. has: 6 figures, 1 table.

SUB CODE: 20/ SUBM DATE: 28Sep64/ ORIG REF: 009/ OTH REF: 000

jrn

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26204

S/106/60/000/002/005/009

A055/A133

9.6000 (1139, 1331)

AUTHORS: Andreyev, V. S., Soshnikov, E. M.

TITLE: Low-frequency divider.

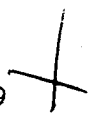
PERIODICAL: 'Elektrosvyaz', no. 2, 1960, 32 - 37

TEXT: The authors describe a low-frequency divider with a transistor-switch in the feedback circuit and using a selective RC-amplifier with a double-T bridge as selective element. To the knowledge of the authors, only Schmidt (see English-language reference at the end of the abstract) has already treated this problem in the literature. Besides the selective RC-amplifier (tube 6X4 [6Zh4]) and the transistor-switch (014 [P14]), the divider contains an auxiliary amplifier (tube 6H15N [6N15P]). The resonance frequency of the selective amplifier is 250 cps; its equivalent Q is 40 at $E_a = 230$ v, and 60 at $E_a = 300$ v. The operation of the transistor-switch is analogous to that of two diodes connected towards each other (emitter-base and collector-base) and having low forward resistances (20 - 30 ohms) and high reverse resistances (above 0.5 meg); when the positive half-wave of the control voltage is active, both diodes are blocked and

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S/106/60/000/002/005/009
A055/A133



Low-frequency divider

the whole voltage is applied to the amplifier; but during the negative half-period of the control voltage, the unblocked diodes shunt R_5 , and u_1 drops sharply. Since components of the divided frequency f exist in the spectrum of the obtained pulses, they can sustain the already produced oscillations at that frequency. As for the auxiliary amplifier, it was added to the system in order to release the selective amplifier from the shunting effect of the low-resistant input of the transistor-switch. The divider amplitude characteristics contain (at small division-factors n) two different sections: at small input signal amplitudes, the increase of the input voltage amplitude causes an approximately linear increase of output voltage amplitude; at large amplitudes, the output voltage amplitude is not affected perceptibly by the variation of the input voltage amplitude. But the output voltage amplitude decreases when n increases. At n equal to 8, 10 or more, the whole amplitude characteristic is a gently sloping curve. As for the frequency characteristics, their slope decreases when n increases. The presence of an adequate capacitance plays a very important part in the operation of the divider; its inclusion into the circuit occasions, for instance, an additional phase-shift of the pulse-envelope at the switch output with respect to the output voltage of the selective amplifier. The operation of the divider

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Low-frequency divider

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remains stable when the supply voltage or the input signal vary within very wide limits. When, for instance, the anode supply voltage varies between 250 and 150 v, the synchronization band varies only by 10 - 15 % under normal operating conditions of the divider. The increase of the anode supply voltage brings about an increase of the gain and selectivity of the selective amplifier. The output frequency range of the divider is determined by the frequency range of the selective amplifier: from 10 cycles to hundreds of kilocycles per second. There are 11 figures and 6 references: 5 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: Schmidt, "Frequency Divider with Phase-Shift Oscillators," Electronics, v. 25, VI, 1950.

SUBMITTED: November 6, 1959



Card 3/3

SOV/112-59-1-341

Modern Designs of Heating Pipelines

the use of prestressed reinforced concrete are submitted. Labor costs and expenditures of principal materials are compared for different passageway tunnels; the built-up tunnel design is appreciated. According to the author, the underground laying of an autoclave-foam-concrete insulated pipe, developed jointly by LOTEK and Lenenergo, is the most advanced type that ensures applicability of industrial methods. The design suggested by the Kiyev Branch of TEP with a tunnel consisting of hollow ceramic units is also appreciated. The most rational construction of passageway-type tunnels intended for joint use of municipal-service connections is the reinforced-concrete framework type used in industrial heating systems.

M. L. Z.

Card 2/2

ALEKSANDROVICH, Yu.B., inzh., red.; CHERNIN, L.A., inzh., red.;
NAYDICH, I.M., kand. tekhn. nauk, red.; BELYAYKINA, I.V.,
inzh., red.; NIKOLAYEV, A.A., inzh., red.; SOSHNIKOV, G.F.,
inzh., red.; FILIMONTSEV, A.V., inzh., red.; POPOVA, V.V.,
inzh., red.; IFTINKA, G.A., red.izd-va; RODIONOVA, V.M.,
tekhn. red.

[Construction specifications and regulations] Stroitel'nye
normy i pravila. Moskva, Gosstroizdat. Pt.1.Sec.G.ch.7[Heating
systems; materials, equipment, fixtures, elements, and structures]
Teplovye seti; materialy, oborudovanie, armatura, izdeliia i
stroitel'nye konstruksii (SNiP I-G.7-62). 1963. 22 p.
(MIRA 17:1)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam
stroitel'stva. 2. Gosstroy SSSR (for Aleksandrovich). 3. Mezhd-
duvedomstvennaya komissiya po peresmotru Stroitel'nykh norm i
pravil (for Chernin, Naydich). 4. Vsesoyuznyy Gosudarstvennyy
institut po proyektirovaniyu teplovykh elektrostantsiy (for
Belyaykina, Nikolayev, Soshnikov, Filimontsev). 5. Vsesoyuz-
nyy nauchno-issledovatel'skiy i projektnyy institut po teplo-
tekhnicheskim sooruzheniyam (for Popova).

FOGEL', Dmitriy Nikolayevich; MAKHNOVETSKIY, Solomon Iosifovich; SOSHNI-
KOV, M.N., red.; MIKHAYLOVA, L.G., red. izd-va; LOBANKOVA, R.Ye.,
tekhn. red.

[Possibilities for developing the lumbering industry in the region
of the Angara Valley Hydroelectric Power Station Cascade; utiliza-
tion of forests in flooded areas] Perspektivy razvitiia lesnoi pro-
myshlennosti v raione Angarskogo kaskada GES; osvoenie lesov na
zatopliaemykh territoriakh. Moskva, Goslesbumizdat, 1961. 125 p.
(MIRA 14:9)

(Angara Valley--Lumbering)

MACHABELI, Sh.L., inzh.; SOSHNIKOV, M.N.

Some problems in assembling elements for the roof of single-story industrial buildings with a 12m span. Prom. stroi. 41 no.1:12-17 Ja '64. (MIRA 17:6)

1. Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu Akademii stroitel'stva i arkhitektury SSSR.

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S/133/62/000/011/005/005
A054/A127

AUTHORS: Rakhshadt, A.G., Docent, Meshcherionova, O.N., Candidates of Technical Sciences, Gnevko, A.I., Soshnikov, S.A., Engineers

TITLE: The effect of boron and titanium on the mechanical properties and ductility of the new 55 XTP (55KhGR) and 55CT2P (55SG2R) spring steels

PERIODICAL: Stal', no. 11, 1962, 1041 - 1047

TEXT: At the MBTV im. Baumana (MVTU im. Bauman) and TsNIICM tests were carried out to improve the quality of 60 C2 (60S2), 55 C2 (55S2) and 55 XTP (55KhG) spring steels by the addition of boron (0.003 - 0.01%) and titanium (0.06 - 0.24%). The new grades were melted in a 50-kg magnesite-lined induction furnace in the following composition (55KhGR = A', A"; 55S2GR = B', B"; 55S2 = C for control):

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The effect of boron and.....

Heats Cantroc	C	Mn	Si	Cr	Ti	B	Heats Cantroc	C	Mn	Si	Ti	B	
A'	1	0.54	1.02	0.35	1.4	0.06	0.003	1	0.54	1.7	1.25	0.06	0.003
	2	0.54	1.10	0.32	1.2	0.06	0.006	2	0.55	1.65	1.38	0.06	0.006
	3	0.55	1.05	0.37	1.3	0.06	0.01	3	0.55	1.7	1.40	0.06	0.01
A'	1	0.55	1.08	0.24	1.3	—	0.003	1	0.54	1.7	1.08	0.06	—
	2	0.55	1.1	0.30	1.5	0.06	—	2	0.54	1.5	1.05	0.10	0.003
	3	0.55	1.04	0.32	1.30	0.09	0.003	3	0.54	1.6	1.1	0.12	0.003
	4	0.55	0.99	0.32	1.35	0.16	0.003	4	0.54	1.65	1.15	0.24	0.003
	5	0.55	0.94	0.36	1.30	0.24	0.003						
BC	—	0.53	1.0	1.8	0.3	—	—	—	—	—	—	—	

Prior to adding boron the steel was reduced by aluminum, then titanium was added. Tests carried out to study the hardenability of the new grades showed that an addition of 0.003% boron greatly improved this property. Addition of up to 0.06% titanium to steels containing 0.003% boron improves the hardenability still further. When more than 0.06% titanium was added, however, this property of the steel deteriorated, most probably due to the crystallizing effect of titanium compounds leading to the transformation of the supercooled austenite phase. The addition of more than 0.1% titanium weakens the tendency to grain growth in the

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The effect of boron and.....

steel structure, on account of the capping effect of titanium compounds that are not dissolved in the austenite phase, not even at high (up to 1150°C) temperatures. The optimum addition both with regard to grain growth and hardening properties are 0.003% boron and 0.06% titanium. The addition of 0.06 - 0.12% titanium slightly reduces the strength of the test grades. The 55SG2R grade, containing various amounts of boron and titanium has a higher ductility than the conventional 55S2 grade. The threshold of ductility will be attained with 0.003% boron and 0.1 - 0.16% titanium. Optimum ductility for the 55SG2R grade will be obtained with annealing at 350°C, whereas for the 55KhGR grade at 300°C. In the 55SG2R grade the value of stresses reaches the maximum simultaneously with the maximum value of ductility; at the same time the microplastic friction starts developing. Spring steels containing boron and titanium show a lower tendency to decarburization (in 55KhGR grade: 0.01 mm, in 55SG2R: 0.003 mm, whereas in the 55S2 grade: 0.12 mm). The test grades proved superior to the conventional spring steels also in view of relaxation stability, which was tested under uni-axial extension at a stress of $\sigma_0 = 120 \text{ kg/mm}^2$. To obtain a high degree of relaxation stability, the steel must contain sufficient chrome. In general, the optimum amounts of boron and titanium added depend on the steel composition. Greater amounts of

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The effect of boron and.....

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boron and titanium should be added to chrome-manganese steels, than to silico-
-manganese ones.. If higher ductility is required, the boron content should be
increased. The 55KhGR grade should be applied for heavy purpose springs. In
structures operating under high static stresses, and where the ductility of the
spring is not of primary importance, the 55SG2R grade should be used. There are
8 figures.

ASSOCIATION: MBTY im. Baumana (MVTU im. Bauman) and TsNIICHM

Card 4/4

34043
S/109/62/007/001/022/027
D266/D301

9,1400

AUTHORS:

Litvinenko, O.N., and Soshnikov, V.I.

TITLE:

Synthesis of non-uniform transmission lines based on the solution of the inverse Sturm - Liouville problem

PERIODICAL:

Radiotekhnika i elektronika, v. 7, no. 1, 1962, 169 - 170

TEXT: The purpose of the paper is to provide an exact method for determining the input impedance of a non-uniform transmission line. The problem can be written in the following form: Determine $\varphi(x)$ in the differential equation

$$u'' + [\lambda - \varphi(x)]u = 0$$

for a given characteristic function $M(\lambda)$. The solution of this differential equation can be obtained as follows:

$$\varphi(x) = 2 \frac{dK(x, x)}{dx},$$

where $K(x, x)$ satisfies the integral equation

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Synthesis of non-uniform ...

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$$f(x, y) + \int_0^x K(x, s)f(s, y)ds + K(x, y) = 0, \quad (3)$$

$$x \geq y,$$

$$\text{where } f(x, y) = \int_{-\infty}^{\infty} \cos \sqrt{\lambda} x \cos \sqrt{\lambda} y [\sigma'(\lambda) - \frac{1}{\pi \sqrt{\lambda}}] d\lambda, \quad (4)$$

$$\text{and } \sigma(\lambda) = \lim_{\delta \rightarrow 0} \lim_{\epsilon \rightarrow 0} \frac{1}{\pi} \int_{\delta}^{\lambda+\delta} \text{Im } M(u + j\epsilon) du. \quad (5)$$

This solution can be applied to the transmission line problem if

$$M(\lambda) = \frac{Z(p)}{p} \quad (6)$$

where $Z(p)$ - normalized input impedance of the non-uniform transmission line, $p = j\omega = -j\sqrt{\lambda}$, ω - angular frequency. The characteristic impedance is then given by the formula

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S/108/62/017/009/001/003
D288/D308

9/1000
AUTHORS:

Litvinenko, O. N. and Soshnikov, V. I. Members
of the Society (see Association)

TITLE:

Synthesis of inhomogeneous lines by solving the
inverse Sturm-Liouville problem

PERIODICAL:

Radiotekhnika, v. 17, no. 9, 1962, 15 - 23

TEXT:

A brief review of the practical importance of inhomogeneous transmission lines and of previous investigations of the problem, is given. The authors employ a different approach, following Gel'fand and Levitan in solving the inverse Sturm-Liouville problem, which yields a general solution for the law of the changing transmission characteristic with a given input impedance, independent of the reflection coefficient at the input. The mathematical problem consists in determining the spectral function for a given input impedance, by considering the general case as a sum of two waves propagating in opposite directions. After a general analysis, the authors consider the synthesis

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Synthesis of inhomogeneous lines ... S/108/62/017/009/001/003
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of Transmission lines, whose input impedance is a rational function of frequency expressing the characteristic function in terms of the spectral function and its derivative, and obtaining a formula for the characteristic impedance. There are 10 references. .VB

ASSOCIATION: Nauchno-tehnicheskoye obshchestvo radiotekhniki i elektrosvyazi im. A.S. Popova, (Scientific and Technical Society of Radio Engineering and Electrical Communications, imeni A.S. Popov) [Abstractor's note: Name of Association taken from first page of journal]

SUBMITTED: May 19, 1961

Card 2/2

LITVINENKO, O.N.; SOSHNIKOV, V.I.

Reply to V.P. Torchigin's letter concerning the article
"Synthesis of nonuniform lines based on the solution of the
inverse problem of Sturm-Liouville." Radiotekh. i elektron.
8 no.11:1959-1960 N '63. (MIRA 17:1)

L 64009-65 EWT(I)/EEC-4/EWA(h)

AM4043698

BOOK EXPLOITATION

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621.372.061.5

20
BT1Litvinenko, O. N.; Soshnikov, V. I.

The theory of heterogenous lines and their use in radio engineering (Teoriya neodnorodnykh liniy i ikh primeneniye v radiotekhnike), Moscow, Izd-vo "Sovetskoye radio", 1964, 535 p. illus., biblio. 8,500 copies printed.

TOPIC TAGS: transmission line, pulse shape, radio engineering, mathematic matrix, delay circuit

PURPOSE AND COVERAGE: Nonuniform transmission lines are lines whose characteristic impedance changes along one coordinate. In accordance with the law of characteristic impedance change, nonuniform transmission lines can have the most diverse frequency characteristics. This accounts for their wide use in radio engineering. In the first part of the book, the problem of synthesis of nonuniform transmission lines (determination of the law of characteristic impedance change according to the given frequency dependance of input impedance or the coefficient of transmission) is examined. The achieved results are used in the second part of the book which is concerned with the application

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of nonuniform transmission lines in radio engineering. Here the uses of nonuniform transmission lines for pulse shaping and transformation for the matching of resistance and impedance are examined. The areas indicated do not encompass all of the possible applications of nonuniform transmission lines. The theory developed in the first part of the book makes it possible to produce a synthesis of nonuniform transmission lines which can be used as oscillators, matched filters, directional couplers, etc. The book is intended for radio engineering students of higher learning institutions.

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Ch. II. Solutions to equations for voltage and current of nonuniform transmission lines given in the form of power series -- 30
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Ch. IV. Linear-rational transformation of input impedance -- 67
Ch. V. Synthesis of nonuniform transmission lines according to input impedance and the coefficient of transmission in the form of a linear-rational

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Bibliography -- 524

SUB CODES: EC, EE

SUBMITTED: 03Apr64

NO REF SOV: 068

OTHER: 087

Card 3/3 *llc*

SOV/51-6-3-6/28

AUTHOR: Soshnikov, V.N.

TITLE: Temperature Dependence of the Cross-Section for Absorption of Visible Light by Nitrogen Dioxide (Temperaturnaya zavisimost' secheniya pogloshcheniya vidimogo sveta dnuokis'yu azota)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 3, pp 315-322, (USSR)

ABSTRACT: The author used 300°K data reported by Hertzberg (Ref.6) to obtain the differential cross-section (σ) for absorption of visible light by NO₂ molecules. The value of σ was found as a function of the wave number ν between 13 000 and 32 000 cm⁻¹ (Fig.1) and the absolute temperature T up to 7 000°K (Fig.2). The dependence $\sigma(\nu, T)$ was calculated by fitting unknown parameters of the molecule to the experimental absorption curve corresponding to transitions from the vibrational ground level. These parameters were found using the large shift of the normal coordinates of NO₂ between the ground and excited electron Card 1/2 states. The author shows that, for a certain set of

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Temperature Dependence of the Cross-Section for Absorption of
Visible Light by Nitrogen Dioxide

parameters, absorption can be considered to be due to a one-dimensional oscillator. In a note added at the proof-reading stage the author agrees with L.M. Biberman's remarks that the calculated cross-sections reported in the present paper may be much lower than the true ones. This is because it was assumed that the exponent in the expression for attenuation of radiation passing through NO_2 represents the mean value of the absorption cross-section (this is not always true). Acknowledgment is made to M.A. Yel'yashevich who supervised this work. There are 3 figures and 9 references, of which 2 are Soviet, 1 German, 5 English and 1 translation from English into Russian.

SUBMITTED: April 15, 1958

Card 2/2

SOV/51-7-4-21/32

AUTHORS: Biberman, L.M., Yerkovich, S.P. and Soshnikov, V.M.

TITLE: On the Probability of a Transition in the Schumann--Runge Band System of the O₂ Molecule.

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 4, pp 562-563 (USSR)

ABSTRACT: Keck, Camm and Kivel (Ref 1) measured the absolute intensity of emission by oxygen at 4100^oA at wavelengths of 3000-5000 Å. They compared the experimental data with an approximate expression for the intensity of emission given in an earlier paper (Ref 2) and concluded that the oscillator strength for the Schumann--Runge band system of O₂ is $f = 0.015$; this value is much smaller than that deduced from absorption by cold O₂, which was given as $f = 0.16-0.26$ (Refs 3, 4). Keck et al explained this large difference between the two values of the oscillator strength to be due to dependence of the probability of an electronic transition on internuclear distances. The conclusions of Keck et al are questioned by the present authors, who compare the experimental data of Keck et al with a stricter expression for the intensity of emission I_{λ} (Eq 3). Using the experimental values of I_{λ} and Eq (3), the authors calculated $R_e^2(\lambda)$, where $R_e(\lambda)$ is the electronic moment of a transition, which may depend on internuclear distance. It

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SOV/51-7-4-21/32

On the Probability of a Transition in the Schumann--Runge Band System of the O₂ Molecule

was found that $R_g^2(\lambda)$ falls monotonically from 1 atomic unit at $\lambda = 3000 \text{ \AA}$ to 0.5 atomic unit at 5000 \AA (see the dashed curve in a figure on p 563). These values of $R_g^2(\lambda)$ correspond to an oscillator strength $f = 0.1-0.2$, which agrees quite well with the values of f deduced from absorption (Refs 3, 4) and with theoretical estimates (Refs 5, 9). Using the calculated values of $R_g^2(\lambda)$ and a set of Franck--Condon multipliers $q(v', v'')$, Eq (3) was found to yield the distribution of intensities in the Schumann--Runge system between 3000 and 5000 \AA at 2000 , 4000 , 4100 and 6000°K . These intensities are plotted as continuous straight lines in the figure on p 563. Acknowledgment is made to I.T. Yakubov who supplied his set of calculated Franck--Condon factors. There are 1 figure and 11 English references.

SUBMITTED: February 3, 1959

Card 2/2

SOSHNIKOV, V.N.

Effect of the rotational structure of molecular bands on the
absorption of light by layers of finite thickness. Opt. i spektr.10
no.4:448-456 Ap '61. (MIRA 14:3)
(Spectrum, Molecular)

22866

S/053/61/074/001/002/003
B117/B212

24.6200 (1055, 1057, 1158)

AUTHOR:

Soshnikov, V. N.

TITLE:

Absolute intensities of electron transitions in diatomic molecules

PERIODICAL:

Uspekhi fizicheskikh nauk, v. 74, no. 1, 1961, 61 - 85

TEXT: In the present survey, the author discusses the existing material on the probability of electron transitions. The aim of this paper is to systematize the material available. This survey is to continue those of V. Kolesnikov, L. Leskov (Ref.1: UFN 65, 3 (1958)), of R. Nicholls, P. Fraser, W. Jarman (Ref.3: Combustion and flame 3, 13, 276 (1959)), and of R. Nicholls, P. Fraser, W. Jarman, R. McEachran (Ref233: Astrophys. J. 131, 399 (1960)) which deal with absolute electron intensities in atoms and with relative electron intensities in diatomic molecules. The first chapter deals with the connection between the quantities determining the intensity of an electron transition. According to the author, the formulas applied for this purpose are justified if the total transition probability can be represented as a product of vibration and rotation probabilities of the electron.
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Absolute intensities of ...

Strictly speaking, the latter is false, since the wave functions of the electron are a function of its distance r from the nucleus. Therefore, the transition probability in the vibration band of the electron will be proportional to

$$\left| \int \psi_{v'}(r) \psi_{v''}(\bar{r}) R_e(r) dr \right|^2.$$

It is noted that the question as to whether the transition probability is a strong function of $R_e^2(v)$ has not been completely investigated (R_e^2 - square of the electron transition moment). The second chapter deals with the theoretical calculation of oscillator powers, and the third one describes an experimental determination of these powers. With the exception of very simple cases, oscillator powers are calculated by approximate wave functions. All theoretical data, which are mostly obtained after extensive calculations, must not be considered to be definite and require experimental verification. Table 1 shows calculated oscillator powers and the method applied. Quite often, the experimental value of the oscillator power will be very uncertain. The resolution of the instrument and the presence of rotational structures of the bands will play an essential role when deter-
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Absolut intensities of ...

mining $k(\nu)$. The oscillator powers found experimentally are given in Table 2. The following Soviet authors are mentioned: S. Yerkovich (Ref.88: Optika i spektroskopiya 6, 297 (1959)); V. Dianov-Klovov, (Ref.98: Optika i spektroskopiya 7, 621 (1959)); L. Avramenko, V. Kondrat'yev (Ref.230: Acta Physicochim. 7, 567 (1937)). There are 3 figures, 2 tables, and 242 references: 17 Soviet-bloc and 225 non-Soviet-bloc.

Legend to Table 1: Theoretical oscillator powers of diatomic molecules;
1) molecule; 2) transition; 3) assumed r_e (A); 4) assumed ν_{\max}^{abs} ; 5) calculated ν_{\max}^{abs} ; 6) method; 7) f_e abs; 8) literature; 9) remarks; 10) Lyman bands; 11) Werner bands; 12) continuum; 13) photoionization; 14) Swan bands; 15) Deslandres-d'Azambuja system; 16) II - positive system; 17) I - negative system; 18) Schumann-Runge system; 19) remarks: a) ν_{\max}^{abs} was found with a

small relative shift of the potential curves, assuming a harmonic oscillator and using the principle of Franck-Condon with the aid of Ref.6: (G. Herzberg, Molecular Spectra and Molecular Structure of Diatomic Molecules, 2nd edition, N. Y., 1951); with a large shift, the calculated values of Franck-Condon factors had been used (Ref.1,2, and 3. Ref.2: R. Nicholls,

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Absolute intensities of ...

Ann. géophys. 14, 208 1958)). v_{\max}^{abs} of non-observed spectra are given in parentheses. δ) From the formula $R_e = (R_e^{\text{AO}} + R_e^{\text{MO}})/2$, where R_e^{MO} and R_e^{AO} have been calculated from the formulas: (10) $R_e \approx [r/\sqrt{2(1-S^2)}]$ (LCAO MO); (11) $R_e \approx (Sr/\sqrt{1-S^4})$ (AO). β) has been calculated from the dipole velocity

$$(3a) \quad R_e^2 = \left| \frac{h}{4\pi^2 m c v} \cdot \int \psi_e \left(\sum_i \nabla_i \right) \psi_e' d\tau_e \right|^2$$

γ) Ref.7 (R. Mulliken, G. Rieke, Repts. Progr. Phys. 8, 231 (1941) contains a comparison with experimental values of dispersion and polarizability;

λ) calculated from the formula $R_e = R_e^{\text{MO}}/2$, where R_e^{MO} is obtained from expression (10). ϵ) calculated from formula (12): $R_e \approx (r/2\sqrt{1-S^2})$ (AO and LCAO MO); κ) exact bicentric wave function; ζ) one-electron approximation of the H_2^+ type; η) calculation with variable r ; θ) comparison with

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Absolute intensities of ...

f_e^{abs} (LCAO MO), which was calculated in various approximations; r) for perpendicular transitions and a strong function $R_e^2(r)$; v) (AO) taking into account the "interatomic correlation interaction" suggested by Kholey; u) Ref.64 (A. Arthurs, J. Hyslop, Proc, Phys. Soc. A70, 849 (1957)) presents the electron transition probability $2p\sigma - 1s\sigma$, $He^{++} + H \rightarrow He^+ + H^+ + hv$ according to v .

Молекула a)	Переход b)	Принятое f_e (A) c)	Принятое f_e (max) d)	Расчетное f_e (max) e)	Метод f)	f_e погл g)	Литература h)	Примечания i)
H ₂	$B^1\Sigma_u^+ - X^1\Sigma_g^+$	0,74	99	98	MO	0,24	7	Г
	полосы	0,74	99		MO	0,18	39	В
	Лаймана	0,74	99		AO	0,21	7	
		0,74	99		σ	0,58	7	
	$C^1\Pi_u - X^1\Sigma_g^+$	0,74	104	106	MO	0,38	7	Г
	полосы	0,74	104		MO	0,42	39	В
	Вернера							
	$3\Sigma_g^+ - 3\Sigma_u^+$	0,74	104		AO	0,37	7	
	континуум				к		7, 40-43, 223	Переход в нижнее отталкивательное состояние;

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Absolute intensities of ...

							$R_0^2(r)$ и испуска- тельная способ- ность
	$2\rho\sigma_u - 1s\sigma_g$	1,06	100		с	0,3	Верхнее состоя- ние отталкива- тельное Кoeff. непрерыв- ного поглощения и испускатель- ная способность $60, 170$ при раз- личных T и v
	$2\rho\sigma_u - 1s\sigma_g$	1,59	45,5		ж. и, н. л	0,29	
	$2\rho\pi_u - 1s\sigma_g$	1,59	114			0,48	Верхнее состоя- ние отталкива- тельное В верхнем состоя- нии небольшой минимум энер- гии Верхнее состоя- ние отталки- вательное
H_2	$3\rho\sigma_u - 1s\sigma_g$	1,59	143			$4,1 \cdot 10^{-3}$	
	$3d\pi_g - 1s\sigma_g$	1,59	148			$7,6 \cdot 10^{-7}$	Оба состояния от- талкивательные
	$4\rho\sigma_u - 1s\sigma_g$	1,59	168			$1,55 \cdot 10^{-3}$	
	$4f\sigma_u - 1s\sigma_g$	1,59	170			$4,4 \cdot 10^{-4}$	
	$2s\sigma_g - 2\rho\sigma_u$	1,59	83,0			0,10	

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S/053/61/074/001/002/003
B117/B212

Absolute intensities of ...

$3d\sigma_g - 2p\sigma_u$	1,59	93,4		0,29	41, 47, 45-49, 55, 50-53 56, 58	В верхнем состо- янии небольшой минимум энер- гии Оба состояния от- талкивательные Верхнее состо- яние отталкива- тельное В обоих состо- яниях небольшой минимум энер- гии
$3d\pi_g - 2p\sigma_u$	1,59	102		0,28		
$3s\sigma_g - 2p\sigma_u$	1,59	117		0,016		
$2s\sigma_g - 2p\pi_u$	1,59	14,7		0,15		
$3d\sigma_g - 2p\pi_u$	1,59	28,0		0,10		

Продолжение табл. I

Моле- кула 1)	Переход 2)	При- нитое $r_e(\text{Å})$ 3)	При- нитое $\nu_{\text{погл}}$ 4)	Рас- четное $\nu_{\text{погл}}$ 5)	Метод 6)	f_e погл 7)	Литера- тура 8)	Примечания 9)
14) Свана	$A^3\Pi_g - X^3\Pi_{ug}$	1,29	19	20	э	0,029	77	Без гибридиза- ции и ортого- нализации
	Полосы	1,31	19,4		МО	0,13	78	В различных приближениях f_e погл = 0,02— —0,3; н в

Card 7/16

Absolute intensities of ...

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S/053/61/074/001/002/003
B117/B212

C ₂		1,31	19,4		MO	0,18	79, 80	В соответствии с экспериментальным f_e погл(CN) = 0,081 и. Ортогонализация и гибридизация Без ортогонализации и гибридизации В различных приближениях f_e погл = 0.03 — 0,4; к и
					AO, MO	0,075	72	
					MO	0,24	19	
	$c^1\Pi_g - b^1\Pi_u$	1,29	26	26	з	0,039	77	
Li ₂	Система Деландр-Д'Азамбуха	1,32	26		MO	0,17	78	
		1,32	26		MO	0,23	79, 80	
N ₂	$A^1\Sigma_u^+ - X^1\Sigma_g^+$	2,65		15	MO	~0,51	71	и, к
		2,65			MO	~0,49	71	в
	$B^3\Pi_u - X^1\Sigma_g^+$	2,65		21	MO	~1,00	71	и, к
		2,65			MO	~0,63	71	в
	$C^3\Pi_u - B^3\Pi_g$	1,18	30	32	з	0,033	77	

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22866

S/053/61/074/001/002/003
B117/B212

Absolute intensities of ...

N ₂	B ² Σ _u ⁺ - X ² Σ _g ⁺	1,117	26	26	MO ^o	0,04	82	Ср. таже 17 ^o В различных приближениях f _ε полн = 0,025 - -0,3; κ и
	I отрица- тельная система	1,117	25,5		MO	0,12	74	
		1,117	25,5		MO	0,18	79, 80	
Na ₂	A ¹ Σ _u ⁺ - X ¹ Σ _g ⁺	3,08	14,7	16	o	0,039	68	} Без учета гиб- ридизации
		1,78	14,7		o	0,26	69	
		-3,08	14,7		MO	-0,2	70	В пределах f _ε полн = 0,03 - -0,6; κ, и, κ

Card 9/16

SOSHNIKOV, V.N.

Light absorption in the band $\nu_0 = 2350 \text{ cm}^{-1}$ of CO_2 at
T = 1000-4000°K. Opt. i spektr. 12 no.1:123-127 Ja '62.
(MIRA 15:2)

(Carbon-dioxide-Spectra)

SOSHNIKOV, V.N.

Degree of blackness of carbon dioxide at $T = 1000-4000^{\circ}\text{K}$.
Opt. i spektr. 13 no.4:582-584 0 '62. (MIRA 16:3)
(Carbon dioxide—Spectra)
(Quantum theory)

SOSHNIKOV, V. N.

Testing the applicability of a random model of the arrangement
of rotational lines. Opt. i spektr. 13 no.6:867-869 D 162.
(MIRA 16:1)

(Electrons—Spectra) (Molecular spectra)

43500

S/051/62/013/006/020/027
E032/E314

24011

AUTHOR: Soshnikov, V.N.

TITLE: A simplified method of calculating the profile of infrared molecular bands at high temperatures

PERIODICAL: Optika i spektroskopiya, v. 13, no. 6, 1962,
871 - 873

TEXT: It is noted that the method put forward by the author in previous papers (Opt. i spektr., 12, *123, 1962; 13, *582, 1962), which involves approximate integration in the case of overlap of rotational lines, is very laborious. In this note a much simpler graphical device is described and its possibilities are illustrated in the case of CO₂. The profile of a band $k(\nu, p, \ell)$ is given by the superposition of transitions $\nu_1, \nu_2, \dots \rightarrow \nu_1', \nu_2', \dots$, which are shifted in the wave number in accordance with the relation $\nu_0' - \nu = \sum b_i \nu_i$, where $b_i = \text{const}$ for a given change in the vibrational quantum numbers $\Delta \nu_i$. If $b_i \geq 0$, each transition enters into the sum defining the profile with the

Card 1/4 *NOT SELECTED FOR ABSTRACTING*

S/051/62/013/006/020/027
E032/E314

A simplified method

Boltzmann factor $e^{-\frac{kc}{kT} \sum \alpha_i v_i}$. The profile corresponding to each of the transitions is described by the rotational distribution χ/ρ , where $\chi = j e^{-\frac{kc B_0}{kT} j^2}$.

and the distance between the lines is given by $\rho = |2 B_0 \pm 2 \alpha_0 j|$.

The quantity j is defined by $\nu - \nu_0 + \sum b_i v_i = \pm 2 B_0 j - \alpha_0 j^2$.

where $\alpha_0, B_0 = \text{const.}$ The probability of the transition is proportional to the square of the matrix element and the degree of degeneracy which usually corresponds to factors of the form

$M^2 = \prod (1 + v_i)$. It can be shown that the presence of the factors $1 + v_i$ is equivalent to a series of transitions corresponding to quantum numbers n_1, n_2, \dots, n_s with $M^2 = 1$. A computational scheme is illustrated in Fig. 1, in which the wave numbers are plotted along the horizontal axis (each transition is Card 2/4

S/051/62/013/006/020/027

E032/E314

A simplified method

represented by a ^{short} horizontal line) and the energy of the level from which the transition proceeds, $E = \sum_{i=1}^s \omega_i n_i$,

is plotted along the vertical axis (Fig. 1 corresponds to the case $s = 2$). The contribution to the resultant profile at a point ν , due to each point ν_0^* on the rotational distribution with $n_i = 0$ is determined by the height of the lowest horizontal bar at the particular ν and the number of bars $N(\nu)$ intersecting the ordinate axis (given by the broken lines) at the point ν and height $\leq \gamma kT$ above the lowest bar, where $\gamma \sim 1$. Thus, when $\omega_1/b_1 \leq \omega_2/b_2$, the total contribution is proportional to

where
$$\varphi(\nu) = N(\nu) e^{-\frac{hc\nu_0^*}{kT} \cdot \frac{\nu_0^* - \nu}{b_1}} \approx \left(\frac{\nu_0^* - \nu}{b_1} + 1 \right) e^{-\frac{hc}{kT} \cdot \frac{\omega_1}{b_1} (\nu_0^* - \nu)}$$

$$N(\nu) \leq \left(\frac{\delta\nu_{max}}{b_1} + 1 \right) \cdot \omega_{\delta\nu_{max}} = \frac{\gamma kT}{hc \left(\frac{\omega_2}{b_2} - \frac{\omega_1}{b_1} \right)}$$

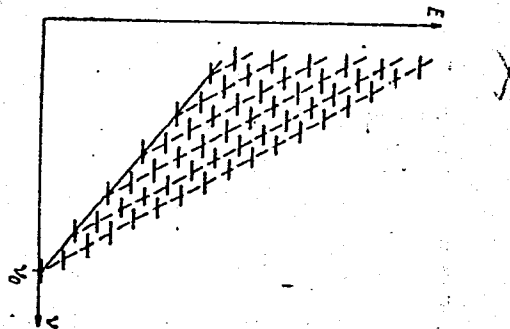
Card 3/4

A simplified method

S/051/62/013/006/020/027
E032/E314

The procedure can easily be generalized to any amount of quantum numbers s . It is shown that in the case of the $2350 \text{ cm}^{-1} \text{ CO}_2$ band, the present method gives virtually identical results with the more elaborate method described previously. It is noted that Penner's method (Quantitative Molecular Spectroscopy and Gas Emissivities. London-Massachusetts, 1959), which takes into account only the rotational distribution, cannot be used with polyatomic molecules. There are 2 figures.

SUBMITTED: July 5, 1962



Card 4/4

Fig. 1:

43501

S/051/62/013/006/021/027
E039/E120

24.3500

AUTHOR: Soshnikov, V.N.

TITLE: On the position of the upper electronic level and the oscillator strength of the optical transition

$$\nu_{\max}^{\text{abs}} \sim 25000 \text{ cm}^{-1} \text{ in NO}_2$$

PERIODICAL: Optika i spektroskopiya, v.13, no.6, 1962, 874-875

TEXT: An attempt is made to interpret separate and inconsistent data on the oscillator strength f_e and upper electron level ν_e . Published results are discussed and it is shown that agreement is possible if account is taken of the difference in atomic spectra of the wave numbers of maximum intensities for absorption and emission

ν_{\max}^{abs} and ν_{\max}^{em} . Using the ratio

$$f_e = \frac{1.51 \nu_{\max}^{\text{abs}}}{(\nu_{\max}^{\text{em}})^3}$$

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On the position of the upper ...

S/051/62/013/006/021/027
E039/E120

and putting τ the electron lifetime in the upper level
 $= 4.4 \times 10^{-5}$ sec and $f_e = 0.008$, we obtain

$\nu_{\max}^{\text{em}} \sim 4750 \text{ cm}^{-1}$. For the same value of τ a value of

$1.7 \times 10^{-16} \text{ cm}^2$ is obtained for the quenching cross section which agrees with the known value. A value for $\nu_e \sim 15000 \text{ cm}^{-1}$ is also derived. Photographic spectra of NO_2 in the region $3400-7000 \text{ \AA}$ at 1.5 and $4.2 \text{ }^\circ\text{K}$ bear a striking resemblance to the spectrum of NO_2 at room temperature. A sharp decrease in the intensity of absorption at $\lambda > 6200 \text{ \AA}$ is observed. The region $14300 < \nu < 16100 \text{ cm}^{-1}$ suggests the presence of other levels. Insofar as the character of absorption is defined by the position and form of the potential surface of the upper electron state, then the value $\lambda = 6200 \text{ \AA}$ ($\nu \sim 16000 \text{ cm}^{-1}$) is in agreement with the above results and confirms the author's interpretation. This interpretation does not exclude the possibility that the experimental facts may be explained by the presence of some low electron levels. It is suggested that the simpler model should be accepted until there is definite proof that a more complex model is necessary. There is 1 figure. SUBMITTED: June 12, 1962

Card 2/2

~~L 8759-65~~ EWT(1)/T IJP(c)
ACCESSION NR: AP4044846

S/0051/64/017/003/0349/0355

AUTHOR: Soshnikov, V. N. 6

TITLE: Cross sections of optical absorption in electron bands of diatomic molecules at high temperatures

SOURCE: Optika i spektroskopiya, v. 17, no. 3, 1964, 349-355

TOPIC TAGS: absorption cross section, electron band, vibration band, diatomic molecule, vibration spectrum, rotation spectrum

ABSTRACT: In view of the incompleteness of the published data, the authors calculate the cross sections of optical absorption, averaged over the vibrational and rotational structure of the spectrum, for the electron-vibrational bands of the molecules N_2 , N_2^+ , O_2 , NO, and H_2 at temperatures 2,000--12,000K. It is pointed out that the more complicated formulas used by some American investigators (B. Kivel

Card 1/3

L 8759-65

ACCESSION NR: AP4044846

et al., Ann. Phys. v. 2, 57, 1957 and v. 7, 1, 1959; C. Treanor, Preprint of paper, International Hypersonics Conference, MIT, Cambridge, Massachusetts, 1961) offer no advantages over the simpler formula used by the author. The results of the calculations, which have been used by the author for several years, are listed in the form of tables. Simple procedures for estimating the dependence of the cross section on the wave number and on the temperature are indicated. It is pointed out that the use of these cross sections for the determination of the spectral emissivities calls for a certain caution, for actually no complete superposition of the vibration bands is usually observed, especially at low temperatures and at the wings of the contour of the electron band. The spread in the unaveraged values may reach in this case a factor of 2--3. It is also mentioned that the results of S. Yerkovich (Opt. i spektr. v. 8, 307, 1960) for H_2 are in error. Orig. art. has: 1 formula and 8 tables.

Card 2/3

L 8759-65

ACCESSION NR: AP4044846

ASSOCIATION: None

SUBMITTED: 19Oct63

ENCL: 00

SUB CODE: OP

NR REF SOV: 010

OTHER: 018

Card 3/3

L 35853-66 EWT(1)

ACC NR: AP6014061

SOURCE CODE: UR/0294/66/004/002/0166/0172

AUTHOR: Soshnikov, V. N. (Moscow); Trekhov, Ye. S. (Moscow)

ORG: none

TITLE: The theory of a high frequency vortical discharge at high pressure. I.

SOURCE: Teplofizika vysokikh temperatur, v. 4, no. 2, 1966, 166-172

TOPIC TAGS: high frequency discharge, thermodynamic equilibrium, *HIGH PRESSURE, VORTEX*

ABSTRACT: On the basis of a qualitative analysis of the conditions which characterize an infinitely long cylindrical high frequency vortical discharge at high pressure ($p \gg 0.1$ atm), the article proposes a simple qualitative criterion for the presence of thermodynamic equilibrium. In this case, the theory of a vortical discharge leads to the simultaneous solution of Maxwell's equations (with the electrical conductivity as a function of the radius) and the heat conductivity equation. Numerical calculations are made in the article for air at a temperature at the center of 6000 and 10,000°K, a pressure of 1 atm, and a field frequency of 50 megacycles. The calculations establish the non-existence, under these conditions, of the effect of the magnetohydrodynamic forces of the

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UDC: 537.52, 537.96, 533.9.07

L 35853-66

ACC NR: AP6014061

high frequency magnetic field due to the discharge. Results of the calculations are shown in tabular and graphic form. Orig. art. has: 11 formulas, 2 figures and 1 table.

SUB CODE: 20/ SUBM DATE: 13Feb65/ ORIG REF: 009/ OTH REF: 012

Card 2/2 *lll*

ACCESSION NR: APL042472

S/0294/64/002/003/0479/0481

AUTHOR: Soshnikov, V. N.

TITLE: Cross sections of optical absorption in molecular electron bands at high temperature

SOURCE: Teplofizika vyssokikh temperatur, v. 2, no. 3, 1964, 479-481.

TOPIC TAGS: absorption coefficient, absorption spectrum, wave number, temperature dependence, carbon, carbon monoxide, hydroxide, cyanide

ABSTRACT: Tables are presented of the optical absorption cross section as a function of wave number and temperature $\sigma(\nu, T)$ for CN, CO, C_2 and OH at high temperatures. The molecular system and the range of ν and T in the tables are as follows: CN, $(B^2\Sigma^+ - X^2\Sigma^+)$, 21000-30000 cm^{-1} , 2000-12000K; CN $(A^2\Pi - X^2\Sigma^+)$, 3000-18000 cm^{-1} , 2000-10000K; CO, $(A^2\Pi - X^2\Sigma^+)$, 30000-70000 cm^{-1} , 4000-12000K; CO, $(a^2\Sigma^+ - a^2\Pi)$, 3000-24000 cm^{-1} , 4000-12000K; C_2 , $(A^2\Pi_u - \Pi_u)$, 12000-30000 cm^{-1} , 6000-8000K; OH, $(X^2\Sigma^+ - X^2\Pi)$, 24000-36000 cm^{-1} , 2000-8000K. Orig. art. has: 7 tables.

Card 1/2

ACCESSION NR: APl4042472

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

SUBMITTED: 13Jan64

ENCL: 00

SUB CODE: OP

NO REF SOV: 006

OTHER: 012

Card 2/2

ACCESSION NR: AP4032363

S/0051/64/016/004/0562/0565

AUTHOR: Soshnikov, V.N.

TITLE: Concerning applicability of the Delta-function method to calculation of the optical absorption cross sections in the electronic bands of high-temperature diatomic molecules

SOURCE: Optika i spektroskopiya, v.16, no.4, 1964,562-565

TOPIC TAGS: absorption cross section, absorption coefficient, Franck Condon principle, transition probability calculation, Delta function method

ABSTRACT: In view of the fact that the optical absorption cross sections in the regions of the electronic bands of diatomic molecules at high temperatures are relatively insensitive to fluctuations of the spectroscopic parameters in different systems, these cross sections can be used for evaluating the radiant flux. A promising method for evaluating the cross sections is the δ -function method proposed by E. Condon (Phys. Rev. 32, 858, 1928; Amer. J. Phys. 15, 365, 1947) for calculating the cross sections in continuous electronic spectra (such as those of Cl_2 , Br_2 , H_2 , etc.) In this method the vibrational wave functions in one or both electronic states are

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ACCESSION NR: AP4032863

taken in the form of δ -functions at the points of change in direction of the potential curves. A modification of the δ -function method has been used by V. Sochnikov (Opt. i spectro. 6, 315, 1959) and J. Keck, J. Camm, B. Kivel and T. Wentik (Ann. Phys. 7, 1, 1959) for evaluating the probabilities for transitions in NO_2 and O_2 at high temperatures. In the present study there were calculated by the δ -function method the relative absorption cross sections in the red system of CN and the Schumann-Runge system of O_2 at 6000°K primarily for the purpose of evaluating the applicability of the δ -function method to systems with different shifts of the potential curves. Comparative calculations were performed using the Franck-Condon factors and on the basis of the Franck-Condon principle. The results are presented in the form of curves obtained by the different methods of calculation. Two variants of the δ -function method were tried (taking and not taking into account the tails). The applicability of the δ -function method and its limitations are discussed briefly. Orig. art. has: 4 formulas and 2 figures.

ASSOCIATION: none

SUBMITTED: 28Jun63

DATE ACQ: 07May64

ENCL: 00

SUB CODE: OP

NR REF SOV: 005

OTHER: 005

Card 2/2

ANDREYEV, V.S.; SOSHNIKOV, Ye.M.

Low-frequency divider. 'Elektrosviaz' 14 no.12:32-37 F '60.
(MIRA 13:5)

(Frequency changers)

BOSHNIKOV, YU. A.

"Influence of the Resistance in a Centrifugal Governor on Certain Characteristics of the Quality of the Regulation of a High Speed Engine. " Min Culture USSR, Tomsk Order of Labor Red Banner Polytechnic Inst imeni S. M. Kirov, Irkutsk, 1953
DISERTATION for the Degree of Candidate of Technical Sciences)

SO: Knizhnaya Letopis', No. 32, 6 Aug 55

44020
S/860/61/000/000/015/020
A006/A101

12300

AUTHORS: Lashko, S. V., Katsman, B. O., Lashko, N. F., Soshnikova, K. I.

TITLE: Heat-resistant solder

SOURCE: Sbornik izobreteniy; svarochnaya tekhnika. Kom. po delam izobr. i otkrytiy. Moscow, Tsentr. byuro tekhn. inform. 1961, 133 - 134 (Authors' Certificate no. 118460, cl. 49h, 2602, no. 592121 of February 11, 1958)

TEXT: The proposed cadmium-base solder for soldering copper and its alloys consists of 4.0 - 6.0% silver, 1.5 - 2.5% zinc and 1.5 - 2.5% nickel. It offers good fluidity and high ductility and meets the higher requirements for heat-resistance of soldered parts in electric machines and heat-exchange devices. The ultimate strength of the solder during tension in cast state is 12 kg/mm² which exceeds 6 times this value for "02" grade and 3 times that for POS-50 solder. Fluidity on copper of the new solder is 25 cm², exceeding 8 times that of 02 and 3.5 times that of POS-50. The solder can be used for copper, brass, and copper-plated steel parts, operating at 300°C, and for stepped soldering require-

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Heat-resistant solder

S/860/61/000/000/015/020
A006/A101

ing a solder with different melting points. The solder can be rolled into foils or drawn into a wire. Fluxes ЛК-2 (LK-2) and ФК-30 (FK-30) may be used.

Card 2/2

S/860/61/000/000/017/020
A006/A101

AUTHORS: Katsman, B. O., Lashko, S. V., Soshnikova, K. I.

TITLE: Flux for soldering copper and brass

SOURCE: Sbornik izobreteniy; svarochnaya tekhnika. Kom. po delam izobr. i
otkrytiy. Moscow, Tsentr. byuro tekhn. inform. 1961, 135 - 136
(Authors' Certificate no. 118465, cl. 49h, 26₀₁; no. 592120 of
February 11, 1958)

TEXT: Fluxes with a higher heat resistance than conventional alcohol-
aqueous mixtures of colophony, zinc chloride and ammonium chloride, are required
in connection with the use of new solders which offer higher melting points and
heat resistance than conventional materials for soldering copper and its alloys.
The following flux is proposed for soldering with heat resistant cadmium-base
solders: 51.2% cadmium chloride; 27.3% sodium chloride; 19.0% zinc chloride
and 2.5% ammonium chloride. This flux dissolves in water and can be easily re-
moved from soldered parts. Tests showed satisfactory results in soldering
radiators. ✓

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44019

S/B60/61/000/000/014/020
A006/A101

12300

AUTHORS: Lashko, S. V., Katsman, B. O., Lashko, N. F., Soshnikova, K. I.

TITLE: Heat-resistant cadmium solder

SOURCE: Sbornik izobreteniy; svarochnaya tekhnika. Kom. po delam izobr. i otkrytiy. Moscow, Tsentr, byuro tekhn. inform. 1961, 133
(Authors' Certificate no. 118120, cl. 49h, 26₀₂, no. 592124 of February 11, 1958)

TEXT: The proposed heat-resistant cadmium solder contains 11 - 13% silver, 0.1 - 0.2% magnesium and the rest cadmium. It can be used for soldering electric machine parts operating at 300 - 350°C. The ultimate strength of the solder during tension in cast state is 17.5 kg/mm², exceeding 8 times that of O2 solder. Its fluidity on copper is 3 times higher than that of O2 solder. Tests of copper joint produced with the described solder at high temperatures show that the ultimate shearing strength at 250°C is 2.2 kg/mm²; at 300°C - 1.7 kg/mm²; at 350°C - 1.5 kg/mm², whereas O2 solder melts already at 232°C. The solder can be manufactured in wire or foil form. ФК-30 (FK-30) flux is used for soldering. In

Card 1/2