

NAUMOV, A.K., insh.

Medium-sized refrigerator trawler "Okean," Sudostroenie 25 no.2:81  
F '59. (MIRA 12:4)  
(Fishing boats) (Refrigeration on ships)

MAUMOV, A.L.; NAZAROV, A.A., professor, otvetstvennyy redaktor;  
URANOVSKAYA, L.M., redaktor; KHOKHANOVSKAYA, T.I., tekhnicheskii  
redaktor

[Theoretical mechanics] Teoreticheskaya mekhanika. Kiev, Izd-vo Kievskogo gos. univ. im. T.G. Shevchenko. Pt. 1. [Mechanics of particles and the free system of particles] Mekhanika chastitsy i svobodnoi sistemy chastits. 1957. 305 p.

(Mechanics)

(MLBA 10:5)

NAUMOV, A.L.; LUBENETS, L.P.

Study of the performance of a three-phase rectifier taking  
ohmic resistances into account. Trudy KTIPP no.17:221-227  
'57. (MIRA 13:1)  
(Electric current rectifiers)

NAUMOV, Adol'f L'vovich; DOTSENKO, M., red.; MATUSEVICH, S., tekhn.red.

[Theoretical foundations of electrical engineering] Teoretychni osnovy elektrotekhniky. Kyiv, Derzh.vyd-vo tekhn.lit-ry URSR. Pt.1. [Electromagnetic field] Elektromagnitne polc. 1958. 253 p. (MIRA 12:8)

(Field theory)

25(2)

PHASE I BOOK EXPLOITATION

SOV/2151

Naumov, Adol'f L'vovich

Teoreticheskaya mekhanika, ch. 2: Mekhanika nesvobodnoy sistemy. Absolyutno tverdoe telo (Theoretical Mechanics; Part 2: Mechanics of a Constrained System. Ideal Rigid Body) [Kiyev] Izd-vo Kiyevskogo gos. univ., 1958. 316 p. 5,000 copies printed.

Ed.: L. M. Granovskaya; Tech. Ed.: T. I. Khokhanovskaya.

PURPOSE: This is a textbook for students of physics departments of Ukrainian universities.

COVERAGE: Systems subject to geometrical or kinematic constraints are discussed in the light of classical Newtonian mechanics. This is supplemented with information on quantum mechanics and the theory of relativity (paragraphs 33, 39, 40, 50). A comparatively simple method for solving problems in constrained systems is presented. The method is based neither on d'Alembert's principle nor on the principle of possible displacements and is therefore

Card 1/3

## Theoretical Mechanics (Cont.)

SOV/2151

applicable to constraints with friction and with negligibly small masses of their moving parts. The mechanics of an ideal rigid body is treated in two chapters since the author uses previously discussed laws of the conservation of momentum. No personalities are mentioned. There are no references.

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Ch. X. Basic Concepts and Definitions. Examples of Constrained Systems	5
Ch. XI. Systems With Ideal Constraints	41
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Ch. XIV. Systems With Unrestrained Constraints	142

Card 2/3

BEGIN

Reel # 378

Re-Shoot



MAUMOV, A.K., insh.

Medium-sized refrigerator trawler "Okean." Sudostroenie 25 no.2:81  
F '59. (MIRA 12:4)  
(Fishing boats) (Refrigeration on ships)

MAUMOV, A.L.; NAZAROV, A.A., professor, otvetstvennyy redaktor;  
KHOVANSKAYA, L.M., redaktor; KHOKHANOVSKAYA, T.I., tekhnicheskii  
redaktor

[Theoretical mechanics] Teoreticheskaya mekhanika. Kiev, Izd-vo Kievskogo gos. univ. im. T.G. Shevchenko. Pt. 1. [Mechanics of particles and the free system of particles] Mekhanika chastitsy i svobodnoi sistemy chastits. 1957. 305 p.  
(MLRA 10:5)

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Study of the performance of a three-phase rectifier taking  
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PHASE I BOOK EXPLOITATION

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Naumov, Adol'f L'vovich

Teoreticheskaya mekhanika, ch. 2: Mekhanika nesvobodnoy sistemy. Absolyutno tverdoye telo (Theoretical Mechanics; Part 2: Mechanics of a Constrained System. Ideal Rigid Body) [Kiyev] Izd-vo Kiyevskogo gos. univ., 1958. 316 p. 5,000 copies printed.

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## Theoretical Mechanics (Cont.)

SOV/2151

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Card 2/3	

NAUMOV, Adol'f L'vovich; DOTSENKO, M., red.; MATUSEVICH, S., tekhn.red.

[Theoretical foundations of electrical engineering] Teoretychni osnovy elektrotekhniky. Kyiv, Derzh.vyd-vo tekhn.lit-ry URSR.  
Pt.1. [Electromagnetic field] Elektromagnitne pole. 1958.  
253 p. (MIRA 12:8)

(Field theory)

Theoretical Mechanics (Cont.)	SOV/2151
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AVAILABLE: Library of Congress	

Card 3/3

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8-21-59

SOV/144..58..7-10/15

**AUTHORS:** Naumov, Adol'f Lvovich, Dr. Tech. Sci., Professor, and  
Ayzen, Arik Markovich, Engineer.

**TITLE:** No-load Investigation on a Magnetic Amplifier  
(Issledovaniye kholostogo khoda magnitnogo usilitelya)

**PERIODICAL:** Izvestiya vysshikh uchebnykh zavedeniy,  
Elektromekhanika, 1958, Nr 7, pp 93-98 (USSR)

**ABSTRACT:** Calculation of the operating conditions of a magnetic amplifier with the direct current circuit open and with allowance for the weak magnetic saturation of the cores, consists in determining the instantaneous and effective values of current in the saturating choke and also the power consumption. The basis of the investigation of this problem is solution of a non-linear differential equation that expresses the relationship between current and voltage in the choke on the assumption that the graph of the magnetisation line is represented by a cubic parabola. The basis of the investigation is expression (1) which gives the relationship between current and voltage in a circuit of this kind. Here the magnetic flux linked with the coil is variable and is conveniently given by expression (2). The limits of

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No-load Investigation on a Magnetic Amplifier SOV/144-58-7-10/15

application of these approximations are then considered. Expression (4) is then derived as the non-linear differential equation required to determine the current in the system. It is then shown how to solve this equation by the method of successive approximations, and ultimately expression (10) is derived for the current and (11) for the power consumption. The limitations of these formulae are briefly mentioned. Formula (10) was used to work out the results of tests to determine the relationship between current and voltage in two coils, one with a core of transformer steel and the other with a core of permalloy. The results of the tests are given in Tables 1 and 2; the experimental values of voltage and current are given in columns 1 and 2 of these tables. The theoretical and experimental values of current for given values of voltage are plotted in the graphs of Figs 1 and 2 and the value of the current calculated from theory is given in column 5 of the table. It is concluded that the method of making calculations of no-load conditions of a magnetic amplifier based on representing the magnetisation lines by a cubic parabola is applicable

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No-load Investigation on a Magnetic Amplifier SOV/144-58-7-10/15

when the saturation of the core is weak. The method can be used to determine the currents and powers in magnetic amplifiers on no-load with some other types of approximation to the magnetisation line. The results obtained can serve as a basis for calculating the operating conditions of magnetic amplifiers.

There are 2 figures, 2 tables and 1 Soviet reference.

ASSOCIATIONS: Kafedra fiziki Kiyevskogo tekhnologicheskogo instituta pishchevoy promyshlennosti (Physics Chair, The Kiyev Technological Institute of the Food Industry)  
Proyektno-konstruktorskiye byuro MPSM USSR (The Planning and Designing Office of MPSM Ukr SSR)

SUBMITTED: May 25, 1958

Card 3/3

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S/144/60/000/02/003/019  
E192/E182

9.3230

**AUTHOR:** Naumov, A.L., Doctor of Technical Sciences, Professor  
**TITLE:** Analytical Investigation, Taking into Account the Hysteresis and Eddy Current Losses of the Alternating Current Networks, Comprising Weakly Saturated Steel  
**PERIODICAL:** Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1960, Nr 2, pp 15-23 (USSR)

**ABSTRACT:** In the analysis of a network containing a resistance  $r$ , an inductive coil  $L$  and a condenser  $C$ , the number of flux linkages  $\psi$  is, in the simplest case, a linear function of the current  $i$ . However, if the core of the coil is slightly saturated, the dependence between  $\psi$  and  $i$  can be represented by:

$$\psi = Li - \beta i^3 \quad [1, 2] \quad (2)$$

or more generally by

$$\psi = Li - \beta i^{2k+1} \quad (3)$$

where  $k$  is a certain positive integer. Eqs (2) and (3) can describe a system in which the hysteresis loop is infinitely narrow, so that it can be represented by a single curve. However, in practice the loop of a steel ✓

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Analytical Investigation, Taking into Account the Hysteresis and Eddy Current Losses, of the Alternating Current Networks Comprising Weakly Saturated Steel

core is in the form shown in Fig 1. It is thus represented by a closed contour ABDFA. The loop can be represented analytically by employing Eq (3). This is done as follows. Over the portion AB (see Fig 1) for the current changing from  $I_m$  to 0 the flux linkages can be expressed by the remaining Eq (4). The parameters  $\alpha$  and  $k$  in Eq (4) are certain positive integers. Eq (4) can be normalised by introducing parameters  $\beta$  and  $c$  which are defined by Eq (5). In this case Eq (4) can be written as Eq (6). Now the parameters  $L$ ,  $\beta$  and  $c$  have the same dimensions. Eq (6) can be used to determine the relationship between the voltage  $u$  at the terminals of a network and the current  $i$  in it. It is assumed that the steel core of the coil is weakly saturated and that the losses in it are small. The equation describing the relationship between  $u$  and  $i$  is:

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Analytical Investigation, Taking into Account the Hysteresis and Eddy Current Losses, of the Alternating Current Networks Comprising Weakly Saturated Steel

$$\frac{d\psi}{dt} + ri + \frac{\int_0^t i dt + q_0}{c} = u \quad (9)$$

where  $\psi$  depends on  $i$  in the manner described by Eqs. (6), while  $q_0$  is the charge on the condenser at the instant  $t = 0$ . It is assumed that the current varies sinusoidally; this is expressed by:

$$i = I_m \cos \omega t, \quad (10)$$

By substituting  $\psi$ , defined by Eq (6) into Eq (10), the following expression for  $u$  is obtained:

$$u = [L - (2k+1)\beta \cos^{2k} \omega t](-I_m \omega \sin \omega t) + (2\alpha+1)c \cos^{2\alpha} \omega t (-I_m \omega \sin \omega t) + rI_m \cos \omega t + \frac{1}{\omega c} I_m \sin \omega t \quad (11)$$

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In the above it is assumed that  $q_0 = 0$ . By introducing the notation defined by Eq (13) it is shown that Eq (11) ✓

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Analytical Investigation, Taking into Account the Hysteresis and Eddy Current Losses, of the Alternating Current Networks Comprising Weakly Saturated Steel

can be expressed as Eq (14). The above expression is used to determine the effective (root-mean square) value of the voltage  $u$ . It is then found that the relationship between the effective values of current and voltage is expressed by Eq (18), where  $M(2\alpha)$  is defined by Eq (17). The impedance  $Z_1 = \sqrt{r^2 + X_1^2}$ , where  $X_1$  is defined by Eq (13). It is now possible to determine the average power dissipated in the network. This is expressed by:

$$P = rI^2 + \frac{M(2\alpha)}{\pi} \omega c_0 I^2 (\alpha_1 + 1) \quad (19)$$

The parameters  $c_0$ ,  $\alpha$  and  $\alpha_1$ , of Eq (19) have a certain definite value which can be determined by comparing Eqs (18) and (19) with experimental results. The parameters  $\beta_0$ ,  $c_0$ ,  $k$ ,  $\alpha$ ,  $k_1$ ,  $\alpha_1$ , of Eq (18) describe the magnetic properties of the steel core and are determined experimentally. The first term of

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E192/E182

Analytical Investigation, Taking into Account the Hysteresis and Eddy Current Losses, of the Alternating Current Networks Comprising Weakly Saturated Steel

Eq (19) represents the energy dissipated in the resistance of the network; the second term determines the energy lost in the heating of the core. There are 1 figure and 2 Soviet references.

Card

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ASSOCIATION: (Kiyevskiy institut grazhdanskogo vozdušnogo flota  
Kiyev Institute of Civil Aviation)

SUBMITTED: October 28, 1959

✓

S/0196/64/000/002/B002/B002

ACCESSION NR: AR4027712

SOURCE: RZh. Elektrotehnika i energetika, Abs. 2B5

AUTHOR: Naumov, A.L.; Sambur, N.I.

TITLE: Analytical formula for hysteresis loops of ferromagnetic materials

CITED SOURCE: Vistnyk Kyivsk. un-tu, 1962, no.5, Ser. matem. ta mekhan.,  
vy\*p. 2, 12-16

TOPIC TAGS: ferromagnetic material, hysteresis loop, hysteresis loop formula,  
ferromagnetic material hysteresis loop

TRANSLATION: A method is offered for plotting the hysteresis loop and magnetisa-  
tion curve by using this type of approximation  $B = \mu H - \beta H^2 \pm c(H_m \pm H)$ .

Three parameters characterizing the material and its magnetization intensity are  
necessary for the plotting. These parameters are taken from experiments. The  
investigation results are given in the form of graphs. From the summary.

Date ACQ: 24Mar64

SUB CODE: EM

ENCL: 00

Card 1/1



L 42929-65 EWT(1)/EED-2/EWA(h) Pn-L/Fg-L/Feb

ACCESSION NR: AP5006810

S/0144/65/000/001/0003/0012

AUTHOR: Naumov, A. L.; (Doctor of technical sciences, Professor);  
Zhigotskaya, N. I. (Aspirant)

21  
20  
13

TITLE: Transformer as a nonlinear electric circuit with ferromagnetic losses

SOURCE: IVUZ. Elektromekhanika, no. 1, 1965, 3-12

TOPIC TAGS: transformer, nonlinear circuit, ferromagnetic loss

ABSTRACT: A set of differential equations describing the operation of a transformer is solved, and on this basis, design formulas are derived. No-load and short-circuit conditions, effects of saturation, hysteresis, and eddy currents are investigated. The exact design formulas (7, 8, 9, 10) permit determining all the parameters for various fundamental magnetic fluxes  $\Phi_m$  if the load parameters C, L, r are known. The relations between input and output parameters of a transformer used in an automatic-control system can also be established. For the conditions when the load impedance is considerably higher than the internal

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L 42929-65

ACCESSION NR: AP5006810

impedance of the transformer, the design formulas acquire a much simpler form (25) because a number of transformer parameters can be neglected in this case. The formulas (25) correspond to a conventional equivalent circuit of the trans-

Associated with the Army Research Office, University of Georgia (Georgia State University)

NO REF SOV: 001

OTHER: 000

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Card 2/2

L 26593-66 EWT(1)

ACC NR: AP6011413

SOURCE CODE: UR/0021/66/000/003/0286/0291

AUTHOR: Naumov, A. L.; Zhygots'ka, N. I.—Zhigotakaya, N. I.

ORG: Kiev State University (Kyivskyy derzhavnyy universytet)

26  
B

TITLE: Approximate method of determining forced oscillations described by certain nonlinear differential equations.

SOURCE: AN UkrSSR. Dopovidi, no. 3, 1966, 286-291

TOPIC TAGS: nonlinear differential equation, oscillation, approximate solution, harmonic oscillation

ABSTRACT: This is a continuation of earlier work by the authors (Izv. vyssh. uch. zaved. elektromekhanika No. 1, 3, 1965), where an approximate method was developed for obtaining nonlinear differential equations (or systems of linear differential equations with nonlinear coefficients) describing forced oscillations. The present article is devoted to an analysis of the solutions obtained there with an aim at determining the accuracy of the equation. The particular differential equation analyzed is

$$L \frac{d^2q}{dt^2} + r \frac{dq}{dt} + \frac{1}{C} + f(q, \dot{q}) = u, \quad (1)$$

where  $r$ ,  $L$ , and  $C$  are constant coefficients,  $u$  a specified sinusoidal function of the time ( $u = U_m \sin(\omega t + \alpha)$ ), and  $f$  is a power function of  $q$  and  $\dot{q}$ , and possibly of higher

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ACC N: AR6011413

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order derivatives;  $\beta$  is a small parameter. It is proved that by adding to the sinusoidal solution  $q = q_0 \sin(\omega t)$  a higher harmonic, it is possible to choose the amplitude of this harmonic in such a way that a harmonic of the same order occurs in the expansion of the specified function of the time. At this amplitude all the higher harmonics vanish with accuracy  $\beta^2$ . The limits of applicability of this method are discussed. This report was presented by Academician of AN UkrSSR Yu. O. Mytropo-  
pol's'kiy (Yu. A. Mitropol'skiy). Orig. art. has: 15 formulas.

SUB CODE: 11, 20/      SUBM DATE: 29Apr65/      ORIG REF: 002

Cora 2/2      BLO

NAUMOV, A.M.; RYSEIN, G.Ya.

Self-diffusion in solid lithium. *Zhur.tekh.fiz.* 29 no.2:189-  
191 F '59. (MIRA 12:4)

1. Leningradskiy fiziko-tekhnicheskiy institut.  
(Lithium) (Diffusion)

NAUMOV, A.N.

Preliminary results of geological studies of the western slope  
of the Orulgan Range, 1958-1959. Inform.biul.NIIGA no.16:  
37-42 '59. (MIRA 15:3)  
(Orulgan Range--Geology)

NAUMOV, A.N., inshener, redaktor; FOTOTSKIY, G.I., inshener; KANTOR, V.B.,  
inshener, redaktor; VERINA, G.P., tekhnicheskii redaktor

[Progressive working methods in the management of the railroad  
track] *Ferodovye metody truda v putevom khoziaistve*. Moskva,  
Gos.transp.shel-dor. izd-vo, 1955. 207 p. (MLRA 9:3)  
(Railroads--Track)

*А.А.Мир, А.А.*

ALFEROV, A.A.; AETEMKIN, A.A.; ASHKENAZI, Ye.A.; VINOGRADOV, G.P.; GALBYEV, A.U.; GRIGOR'YEV, A.N.; D'YACHENKO, P.Ye.; ZALIT, N.N.; ZAKHAROV, P.M.; ZOBIN, H.P.; IVANOV, I.I.; IL'IN, I.P.; KMETIK, P.I.; KUDRYASHOV, A.T.; LAPSHIN, F.A.; MOLYARCHUK, V.S.; PERTSOVSKIY, L.M.; POGODIN, A.M.; RUDOV, M.L.; SAVIN, K.D.; SIMONOV, K.S.; SITKOVSKIY, I.P.; SITNIK, M.D.; TETREEV, B.K.; TSETYRKIN, I.Ye.; TSUKANOV, P.P.; SHADIKYAN, V.S.; ADELUNG, N.N., retsenzent; AFANAS'YEV, Ye.V, retsenzent; VLASOV, V.I., retsenzent; VOROB'YEV, I.Ye., retsenzent; VORONOV, N.M., retsenzent; GRITCHENKO, V.A., retsenzent; ZHEREBIN, M.H., retsenzent; IVLIYEV, I.V., retsenzent; KAPORTSEV, N.V., retsenzent; KOCHUROV, P.M., retsenzent; KRIVORUCHKO, N.Z., retsenzent; KUCHKO, A.P., retsenzent; LOBANOV, V.V., retsenzent; MOROZOV, A.S., retsenzent; ORLOV, S.P., retsenzent; PAVLUSHKOV, B.D., retsenzent; POPOV, A.N., retsenzent; PROKOF'YEV, P.F., retsenzent; RAKOV, V.A., retsenzent; SINEGUBOV, N.I., retsenzent; TERENIN, D.F., retsenzent; TIKHOMIROV, I.G., retsenzent; URBAN, I.V., retsenzent; FIALKOVSKIY, I.A., retsenzent; CHEPYZHEV, B.F., retsenzent; SHEBYAKIN, O.S., retsenzent, SHCHERBAKOV, P.D., retsenzent; GARNYK, V.A., redaktor; LOMAGIN, N.A., redaktor; MORDVINKIN, N.A., redaktor; NAUMOV, A.N., redaktor; POBEDIN, V.F., redaktor; RYAZANTSEV, B.S., redaktor; TVERSKOY, K.N., redaktor; CHEREVATYY, N.S., redaktor; ARSHINOV, I.M., redaktor; BABELYAN, V.B., redaktor; BERNGARD, K.A., redaktor; VERSHIISKIY, S.V., redaktor; GAMBURG, Ye.Yu., redaktor; DNRIBAS, A.T., redaktor; DOMBROVSKIY, K.I., redaktor; KORNEYEV, A.I., redaktor; MIKHEYEV, A.P., redaktor

(Continued on next card)



ALFEROV, A.A. ---- (continued) Card 2.

MOSKVIN, G.N., redaktor; RUBINSHTEYN, S.A., redaktor; TSYPIN, G.S.,  
redaktor; CHERNYAVSKIY, V.Ya., redaktor; CHERNYSHEV, V.I., redaktor;  
CHERNYSHEV, M.A., redaktor; SHADUR, L.A., redaktor; SHISHKIN, K.A.,  
redaktor

[Railroad handbook] Spravochnaia knizhka zheleznodorozhnika. Izd.  
3-e, ispr. i dop. Pod obshchei red. V.A.Garuyka. Moskva, Gos.  
transp.zhel-dor. izd-vo, 1956. 1103 p. (MLRA 9:10)

1. Nauchno-tekhnicheskoye obshchestvo zheleznodorozhnogo transporta.  
(Railroads)

NAUMOV, A.N.

Improve the quality of ties and fastenings. Put' i put'khoz. 3 no.3;  
12-15 '64. (MIRA 1719)

1. Glavnyy inzh. Glavnogo upravleniya puti i sooruzheniy Ministerstva  
putey soobshcheniya.

*W.A. M... / 10*  
YERSHKOV, O.P., kandidat tekhnicheskikh nauk.; MAIBOV, A.N., inzhener.;  
CHERNYSHEV, M.A., kandidat tekhnicheskikh nauk.; SHAKHUYANTS, G.M.,  
doktor tekhnicheskikh nauk.

More initiative and inventiveness. Put' i put. khos. no.1:29-31 Ja  
'57. (Railroad engineering) (MLRA 10:4)

NAUMOV, A.N.

Work better in the current year than in the last. Put.1 put.khos.  
no.4:3-5 Ap '57. (MLRA 10:5)  
(Railroads--Maintenance and repair)

NAUMOV, A.N.

Railroad track in Great Britain. Put' i put. khoz. no. 4:44-48 Ap '58.  
(MIRA 11:4)

1. Glavnyy inzhener Glavnogo upravleniya puti i sooruzheniy.  
(Great Britain--Railroads. Track)

NAUKOV, A.N.

Upper Carboniferous deposits of the Orulgan Range. Trudy  
NIIGA 111:24-27 '60. (MIRA 14:7)  
(Orulgan Range—Geology, Stratigraphic)



NAUMOV, A.N.

Carboniferous sediments in the western slope of the Orulgan Range  
(northern Verkhoyansk Range). Sbor.st.po paleont. i biostrat. no.24:  
5-12 '61. (MIRA 15:2)  
(Orulgan Range--Paleontology, Stratigraphic)

NAUMOV, A.H.

Nature of the convergence of the Verkhoyansk fold system and the Verkhoyansk frontal trough region in the area of the western slope of the Orulgan Range. Trudy NIIGA 130:91-98 '62. (MIRA 16:5)  
(Orulgan Range region--Geology, Structural)



IVANOV, K.Ye., kand. tekhn. nauk; SHARBATOV, I.T., inzh.; SHUL'GA,  
V.Ya., kand. tekhn. nauk, dots.; NAUMOV, A.N., retsenzent;  
SHAFIRKIN, B.I., retsenzent; KOLTUNOVA, M.P., red.;  
BOBROVA, Ye.N., tekhn. red.

[Efficiency of the new technology and mechanization in  
track operation, maintenance and repair] Effektivnost'  
novoi tekhniki i mekhanizatsii v putevom khoziaistve. Mo-  
skva, Transzheldorizdat, 1963. 311 p. (MIRA 17:2)

NAUMOV, A.N.

Strengthening of the tracks is the most important factor in the increase of train speeds. Zhel.dor.transp. 45 no.9:30-37 S '63.

(MIRA 16:9)

1. Glavnyy inzh. Glavnogo upravleniya puti i sooruzheniy Ministerstva putey soobshcheniya.

(Railroads—Track)

(Railroads—Train speed)

KOZYKHKO, K.F.; NUDZOV, G.N.; SUDOV, Yu.N.

Boundary of initial and final stages in the Verkhnyansk  
Range. Uss. zap. NIIG no.1:26-34 '63.

(SIRA 17:7

NAUMOV, A.N.

Apparatus for the remote control of 14-KR type electric locomotives.  
Gor. zhur. no.1:65-67 J<sub>R</sub> '64. (MIRA 17:3)

1. Konstruktorskoye byuro TSvetmetavtomatika, Moskva.

ACCESSION NR: AP4043381

S/C181/64/006/008/2517/2518

AUTHOR: Naumov, A. N.

TITLE: Diffusion of lithium in sodium

SOURCE: Fizika tverdogo tela, v. 6, no. 8, 1964, 2517-2518

TOPIC TAGS: lithium helium, diffusion coefficient, self diffusion

ABSTRACT: The diffusion coefficients and the solubility of lithium in sodium were measured in the interval 18--85C, which lies below the melting point of sodium. The mutual diffusion of alkaline metals has not yet been investigated before. Polycrystalline samples in cylindrical form 1.8 cm in diameter and 5 cm length were used. The temperature was maintained constant to  $\pm 0.05C$ . Two unlike samples were pressed together, annealed, separated, and seven or eight layers 0.2 mm thick and 1 mm apart were cut from the ends of the samples with a microtome. The amount of lithium in the layer

Card 1/3

ACCESSION NR: AP4043381

was determined by isotopic dilution. The results show that the coefficient of diffusion of lithium in sodium and of the self diffusion of sodium are practically the same over the entire investigated temperature interval. It is therefore concluded that the mechanism of diffusion of lithium in sodium is the same as the mechanism of self-diffusion of sodium; namely, the lithium diffuses in sodium over the vacancies. "The author is grateful to G. Ya. Ry\*skin for a discussion of the results." Orig. art. has: 2 figures.

ASSOCIATION: Fiziko-tehnicheskiy institut im. A. F. Ioffe AN SSSR  
(Physicotechnical Institute AN SSSR)

SUBMITTED: 22Feb64

ENCL: 01

SUB CODE: 58

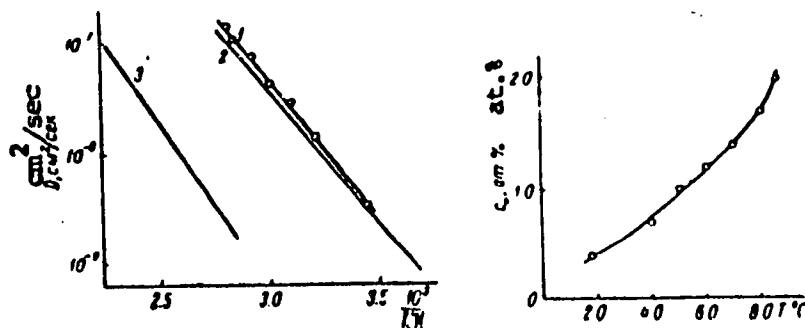
NR REF SOV: 002

OTHER: 003

Card 2/3

ACCESSION NR: AP4043381

ENCLOSURE<sup>01</sup>



Temperature dependence of the diffusion coefficient (left, 1), the self-diffusion coefficients of Na and Li (left, 2,3) and solubility of Li in Na

Card 3/3

L 10853-65 KPA(b)-2/EWT(m)/EPT(r)-2/EPA(bb)-2/EMP(q)/EWP(b) Ft-10/Pu-4  
 ASD(p)-3/AEDG(h)/AFWL/SSD/AS(wp)-2/ASD(m)-3/AFAC(p) WA/JD/JG/JIT(CZ)  
 ACCESSION NR: AP4043381 5/0181/64/006/008/2517/2518

AUTHOR: Naumov, A. N.

TITLE: Diffusion of lithium in sodium (B)

SOURCE: Fizika tverdogo tela, v. 6, no. 8, 1964, 2517-2518

TOPIC TAGS: lithium helium, diffusion coefficient, self diffusion  
 SODIUM\*

ABSTRACT: The diffusion coefficients and the solubility of lithium in sodium were measured in the interval 18--85C, which lies below the melting point of sodium. The mutual diffusion of alkaline metals has not yet been investigated before. Polycrystalline samples in cylindrical form 1.8 cm in diameter and 5 cm length were used. The temperature was maintained constant to  $\pm 0.05C$ . Two unlike samples were pressed together, annealed, separated, and seven or eight layers 0.2 mm thick and 1 mm apart were cut from the ends of the samples with a microtome. The amount of lithium in the layer

Card 1/3 \* [No mention of helium in article]



L 10813-65

ACCESSION NR: AP4043381

2

was determined by isotopic dilution. The results show that the coefficient of diffusion of lithium in sodium and of the self diffusion of sodium are practically the same over the entire investigated temperature interval. It is therefore concluded that the mechanism of diffusion of lithium in sodium is the same as the mechanism of self-diffusion of sodium; namely, the lithium diffuses in sodium over the vacancies. "The author is grateful to G. Ya. Ry\*skin for a discussion of the results." Orig. art. has: 2 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR  
(Physicotechnical Institute AN SSSR)

SUBMITTED: 22Feb64

ENCL: 01

SUB CODE: 88

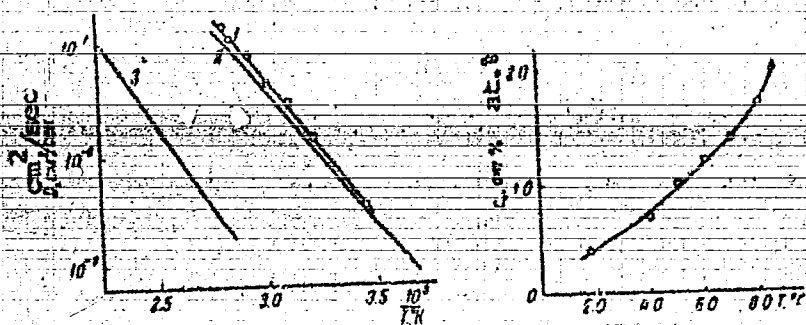
NR REF SOV: 002

OTHER: 003

Card 2/3

ACCESSION NR: AP4043381

ENCLOSURE, 01



Temperature dependence of the diffusion coefficient (left, 1), the self-diffusion coefficients of Na and Li (left, 2,3) and solubility of Li in Na

Card 3/3

NAUMOV, A.N.

Increase the labor productivity. Put' i put. khoz. z. no. 9:1-3 '64.  
(MIRA 17111)

1. Glavnyy inzh. Glavnogo upravleniya puti i sooruzheniy Ministerstva  
putey soobshcheniya.

7-13900-65 EIP(a)-2/EPA(a)-2/EWA(c)/EWT(m)/EWP(b)/T/EAT(t) Pt-7/Push/Pab  
 DIAAP/IJP(c) JE/JG  
 ACCESSION NR: AP5006868 8/2181/65/007/003/0695/0696

AUTHOR: Naumov, A. N.; Ryskin, G. Ya. 45

TITLE: Isotopic effect of diffusion of lithium in sodium 44

SOURCE: Fizika tverdogo tela, v. 7, no. 3, 1965, 695-696 17  
 21 21

TOPIC TAGS: isotopic effect, diffusion, lithium, sodium, diffusion coefficient ratio 6

ABSTRACT: Results are presented of the measurements of the isotopic effective diffusion of lithium in sodium at 80C. Polycrystalline samples were used in the form of cylinders 1.8 cm in diameter and 5 cm long. The initial lithium comprised 7.9%  $Li^6$  and 92.1%  $Li^7$ . The procedure of the experiments was described earlier (EIP v. 6, 2517, 1964). The ratio of the diffusion coefficients of the isotopes was found to be  $1.073 \pm 0.006$ , in good agreement with the theoretical value 1.08 (square root of the ratio of the isotope masses). The method of separating the diffused lithium from the sodium is described. Orig. art. has: 2 formulas and 1 table.

Card 1/2

L 43900-85

ACCESSION NR: AP50C6868

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad  
(Physicotechnical Institute, AN SSSR)

SUBMITTED: 18Jun64

EXCL: 00

SUB CODE: HP, 88

NR R&F SOV: 005

OTHER: 001

Card 2/2 mg

L 43902-65 EWA(c)/EWT(a)/ENR(h)/T/EWP(t) Feb DIAAP JD

ACCESSION NR: AP5006865

S/0181/65/007/003/0577/0682

AUTHOR: Maurov, A. N.; Ptashnik, V. B.

25  
23  
B

TITLE: Methods of determining the isotopic effect of diffusion in a solid

SOURCE: Metals i Verkhnaya, v. 7, no. 3, 1965, 677-682

TOPIC TAGS: diffusion, isotopic effect, diffusion coefficient

ABSTRACT: Exact and approximate formulas relating the experimentally determined separation factor and the magnitude of the isotopic effect of diffusion in a solid are derived from known solutions of the diffusion equations. Experimental conditions under which the ratio of the diffusion coefficients of two isotopes is obtained with maximum accuracy are deduced. Diffusion in an infinite solid and from an infinitesimally thin layer is considered, and the methods of determining the concentration and amount of diffusing matter by the various methods are compared. Methods based on the determination of the amount of diffusing matter are preferable in the case of precision analysis of the isotopic composition requiring a large amount of matter (flotation analysis or activation analysis). In the case

Card 1/2

L 43902-65

ACCESSION NR: AP7006865

2

of spectrometric or radioactivity analysis, it becomes necessary to make use also of methods involving the determination of the concentration. "The authors thank G. Ya. Fyskin for participating in the discussion of the results." Orig. art. has: 3 figures, 8 formulas, and 1 table.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad  
(Physicotechnical Institute, AN SSSR)

SUBMITTED: 18May64

ENCL: 00

SUB CODE: NP, SS

HR REF EOV: 001

OTHER: 005

Card 2/214

NAUMOV, A.N.; RYSKIN, G.Ya.

Isotopic effect of diffusion of lithium in sodium. Fiz. tver.  
tela 7 no.3:695-696 Mr '65. (MIRA 18:4)

1. Fiziko-tehnicheskly institut imeni Ioffe AN SSSR, Leningrad.



NAUMOV, A.N.

Secure high-quality production. Put' i put. khoz. 9 no.10:  
3-6 '65. (MIRA 18:10)

1. Glavnyy inzh. Glavnogo upravleniya puti i sooruzheniy  
Ministerstva putey soobshcheniya.

ACC NR: AP7005848

SOURCE CODE: UR/0181/66/008/012/3590/3594

AUTHOR: Naumov, A. N.; Ptashnik, V. B.

ORG: Physicotechnical Institute im. A. F. Ioffe AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Methods of determining the isotopic effect of diffusion in the case of electron transport in solids

SOURCE: Fizika tverdogo tela, v. 8, no. 12, 1966, 3590-3594

TOPIC TAGS: physical diffusion, transport phenomenon, isotopes, electric field

ABSTRACT: This is a continuation of earlier work (FTI v. 7, 677, 1965) where formulas were derived to determine the ratio of diffusion coefficients of two isotopes with different masses in a solid, in the case of diffusion in a solid without application of an electric field. The present article presents a graphic and an approximate analytic method for determining the diffusion of isotopes from one semi-infinite body to another when a constant electric field is applied. Quantitative relations are derived by this method between the magnitude of the field and the magnitude of the measured effect, in the form of formulas relating the experimentally determined separation factor of the isotopes and the ratio of the diffusion coefficients of the isotopes. The results show that the use of a constant electric field in experiments on diffusion from one body to another makes it possible to increase by a factor of several times the measured separation factor and by the same token increase the ac-

Card 1/2

ACC NR: AP7005848

curacy with which the ratio of the diffusion coefficients is determined. This in turn makes it possible to determine the isotopic effect of diffusion for those elements for which the diffusion ratio has been too small to investigate until now. The authors thank G. Ya. Ryskin for useful remarks. Orig. art. has: 3 figures and 7 formulas.

SUB CODE: 20/    SUBM DATE: 26May66/    ORIG REF: 001/    OTH REF: 007

card 2/2

NAUMOV, NP

~~Removal of rubber and plastic materials from the M  
 (Nov. 1950) ...  
 (Oct. 20, 1950) ...  
 are placed in a full frequency electromagnetic field. The  
 heat generated by induction weakens the bonds in the  
 rubber or plastic ...~~

15  
 2  
 15

4  
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 3

15

TSIKHERMAN, L.Ya.; PANOV, Ye.I.; NAUMOV, A.P.; PROFERANSOV, V.P.

Methods and instruments for checking the anticorrosion insulation  
of underground pipelines. Gas. prom. no.3:11-15 Mr '57.

(MIRA 12:3)

(Pipelines--Equipment and supplies)

(Insulating materials)

NAUMOV, A.P.; NIKOL'SKIY, K.K.

New regulations on protecting underground metal installations from corrosion. Gor.khoz.Mosk. 33 no.9:46-47 S '59. (MIRA 12:11)

1. Uchenyy sekretar' Tekhnicheskogo soveta po bor'be s korroziyey podzemnykh metallicheskih sooruzheniy, Moskva (for Naumov). 2. Starshiy inzhener Tsentral'nogo nauchno-issledovatel'skogo instituta svyazi, chlen Tekhnicheskogo soveta po bor'be s korroziyey podzemnykh metallicheskih sooruzheniy, Moskva (for Nikol'skiy).  
(Corrosion and anticorrosives)

ALEKTOROV, Vladimir Aleksandrovich [Alektorov, V.O.]; IVANOVA, Mariya Petrovna; MITROFANOV, Yevgeniy Mitrofanovich [Mytrofanov, IE.M.]; NAUMOV, Andrey Petrovich; YURCHENKO, Nikolay Fomich [Yurchenko, N.Kh.]; KOVAL'CHUK, O., red.; GUMAROV, K. [Gusarov, K.], tekhn.red.

[Electric engineering problems and calculations] Zadachi ta rozrakhunky s elektrotekhniky. Kyiv, Derzh.vyd-vo tekhn.lit-ry URSR, 1960. 254 p. (MIRA 14:3)  
(Electric engineering--Problems, exercises, etc.)

NAUMOV, A.P., inzh.

Protecting underground metallic structures from corrosion in Moscow.  
Gor. khoz. Mosk. 35 no.11:33-34 N '61. (MIRA 16:7)

1. Otdel podzemnykh sooruzheniy Glavnogo arkhitekturno-planirovochnogo  
upravleniya.

(Moscow--Electrolytic corrosion)



ZHEVAKIN, S.A.; NAUMOV, A.P.

Absorption of electromagnetic radiation by water vapors on  
10μ ÷ 2cm waves in the upper atmospheric strata. Geomag. i  
aer. 3 no.4:666-678 J1-Ag '63. (MIRA 16:11)

1. Radiofizicheskiy institut pri Gor'kovskom gosudarstvennom  
universitete.

ZHEVAKIN, S.A.; NAUMOV, A.P.

Coefficient of the absorption of electromagnetic waves by water  
vapor in the 10  $\pm$  2cm. band. Izv. vys. ucheb. zav.; radiofiz.  
6 no.4:674-694 '63. (MIRA 16:12)

ACCESSION NR: AP4043666

S/0109/64/009/008/1327/1337

AUTHOR: Zhevakin, S. A.; Naumov, A. P.

TITLE: Absorption of centimeter and millimeter waves by atmospheric water vapor

SOURCE: Radiotekhnika i elektronika, v. 9, no. 8, 1964, 1327-1337

TOPIC TAGS: radio, radio communication, radio wave, radio wave absorption, radio wave atmospheric absorption

ABSTRACT: The coefficient of absorption of (0.7 mm - 32 cm) radio waves by atmospheric water vapor is computed on the basis of a kinetic equation developed by the authors earlier (IVUZ. Radiofizika, 1963, 6, 4, 674, and Geomagnetizm i aeronomiya, 1963, 3, 4, 666). The shape of the water spectral line determined from that equation is credited with a better agreement than Van-Vleck-Weisskopf's line shape with published experimental data, yet no complete

Card 1/2

ACCESSION NR: AP4043666

agreement between theory and experiment has been reached for the out-of-resonance range. For the 2-8-mm band, the discrepancy is 1.5 times, which is better than the 3 times previously attained. "The authors take this opportunity to thank A. I. Rakova and M. B. Flaksman for their help in processing the results." Orig. art. has: 4 figures and 6 formulas.

ASSOCIATION: none

SUBMITTED: 28Feb63

ENCL: 00

SUB CODE: EC

NO REF SOV: 009

OTHER: 035

Card 2/2

ALEKTOROV, Vladimir Aleksandrovich, kand. tekhn. nauk; IVANOVA,  
Mariya Petrovna, inzh.; NAUMOV, Andrey Petrovich, inzh.;  
YURCHENKO, Nikolay Fomich, inzh.; SVIREN, S.Ya., inzh.,  
retsensent

[Problems and exercises in electrical engineering] Zadachi  
i raschety po elektrotekhnike. Kiev, Tekhnika, 1965. 279 p.  
(MIRA 18:7

NAIMOV, A.I.

Microwave absorption spectrum of molecular oxygen. *Izv. vuzov, ucheb. zav.; radiofiz. R no.4:668-678 '65.* (MIRA 18:9)

1. Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete.

L 00861-66 ENG(j)/ENT(m)/EPF(c)/ENP(t)/EMP(b) LJP(c) JD

ACCESSION NR: AP5015860

UR/0109/65/010/006/0987/0996  
621.371.166

27  
25  
B

AUTHOR: Zhevakin, S. A.; Naumov, A. P.

TITLE: Calculating the coefficient of absorption of centimeter and millimeter waves by the atmospheric oxygen 27

SOURCE: Radiotekhnika i elektronika, v. 10, no. 6, 1965, 987-996

TOPIC TAGS: wave absorption by oxygen, centimeter wave, millimeter wave

ABSTRACT: A review is presented of the published works on the coefficient of absorption of microwaves by oxygen. The coefficient of absorption is calculated for a 2.2 mm-10 cm band with a line form obtained by solving a kinetic equation. The discrepancy between the above results and the absorption coefficient estimated with the (erroneous) Van-Vinck-Weisskopf line form is insignificant at wavelengths of 2.3 mm and over (at 3 mm, the discrepancy is 1.8 times). By comparing the calculated absorption coefficient with some experimental results, in the 4.3-6.7-mm band, a mean half-width of the spectral line of 0.81 Gc is determined (for 760 torr). The equivalent nonresonant radio-wave path in the atmospheric oxygen slightly depends on frequency and is equal to 5.0-5.3 km, for a polytropic atmosphere model, which coincides with a former characteristic O<sub>2</sub> - absorption height for an exponential atmosphere model.  
Card 1/2

L 00861-66

ACCESSION NR: AP3015806

2

Under resonance conditions, within 56--64 Gc, the equivalent path depends on frequency considerably and can be as high as 8--21 km. "In conclusion, the authors wish to thank I. A. Rakova and M. B. Flaksman for their calculation work on a digital computer." Orig. art. has: 2 figures, 10 formulas, and 1 table.

ASSOCIATION: none

SUBMITTED: 28 Feb. 64

ENCL: 00

SUB CODE: EC

NO REF SOV: 014

OTHER: 045

Card 2/2



NAUMOV, A.P.; KHI ZHNYAKOV, I.P.

Heat radiation of Jupiter. Astron. zhur. 42 no.3:626-638 My-Je '65.

(MIRA 18:5)

1. Radiofizicheskiy institut Gor'kovskogo gosudarstvennogo universiteta.

L 26055-66 INT(d)/INT(m)/SEC(k)-2 JD/WS-2

AGG NR: AF5022790

SOURCE CODE: UR/0141/65/008/004/0668/0678

AUTHOR: Naumov, A. P.

Scientific

51  
48  
B

ORG: Radio-physics Research Institute of Gor'kiy University (Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete)

TITLE: The millimeter absorption spectrum of molecular oxygen

SOURCE: IVUZ. Radiofizika, v. 8, no. 4, 1965, 668-678

27

TOPIC TAGS: oxygen, absorption spectrum, radio wave absorption, microwave

ABSTRACT: Centimeter and millimeter radiowave absorption by oxygen molecules at increased pressure of about several atmospheres is of interest because experimental and theoretical results make it possible to obtain additional information on the atmospheric oxygen spectrum (nonresonance absorption, dependence of the width of line O<sub>2</sub> on pressure) which in turn is needed to clarify the characteristics of microwave distribution and solve certain geophysical problems. It is noted that the Mariott-Birnbaum resonance frequency shift hypothesis of the oxygen absorption microwave spectrum is not true at the pressure of about several atmospheres. The approximate account of nonresonance absorption is shown to be

Card 1/2

UDC: 539.267

2

L. 26055-66

ACC NR: AP5022790

3

sufficient for a quantitative explanation of measurement results of millimeter radio wave absorption in the case of high pressures. The description of the absorption spectrum of  $O_2$  in the 5 mm range may be obtained by the usual method up to the pressure  $P \approx 7 + 8$  atmosphere. The author is sincerely grateful to S. A. Zhavakin for reviewing the manuscript and the observations made, to K. S. Stankevich for his useful discussions, and also to I. A. Rakovaya for help in formulating results. Orig. art. has: 1 table and 7 formulas.

SUB CODE: 07,20/SUBM DATE: 31Oct64/ ORIG REF: 009/ OTH REF: 022

Card 2/2 *pla*

L 11819-66 EWT(d)/EWT(1) RB/GM

ACC NR: AP6002294  
AUTHOR: Zhevakis, S. A.; Naumov, A. P. SOURCE CODE: UR/0141/65/008/006/1100/1109  
44,55 54 B

ORG: Scientific Research Institute of Radio Physics at Gorky University (Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gorkovskom vr' versitete)

TITLE: Some problems in calculating and measuring the absorption of millimeter and submillimeter waves in atmospheric water vapor

SOURCE: IVUZ. Radiofizika, v. 8, no. 6, 1965, 1100-1109

TOPIC TAGS: millimeter wave, submillimeter wave, radio wave absorption

ABSTRACT: Theoretical values of the absorption factor  $\gamma$  for a range of  $10 \mu$  --  $32 \text{ cm}$  were reported in recent of the authors' works (e.g., Rad. i elektronika, no. 9, p. 1327, 1964); measured values of  $\gamma$  were 1.5--2 times higher than the theoretical for the 2--3  $\mu$  band and for the submillimeter ( $\lambda > 60 \mu$ ) band. The present article examines the temperature of solar radiation attenuated by the Earth's atmosphere, the absorption factor of atmospheric water vapor, and the temperature of atmospheric radiation. It is preferable to measure the absorption in the submillimeter range by solar radiation than by atmospheric radiation, despite the fact that the solar-radiation method is applicable only when the antenna solar temperature is rather high and substantially varies with the zenith distance. Possible causes of the above discrepancy are briefly discussed in the light of current (1963-65) Western publications. Orig. art. has: 5 figures and 2 formulas. [03]

SUB CODE: 17.09 / SUBM DATE: 14May65 / ORIG REF: 017 / OTH REF: 015 / ATD PRESS: 418  
Card 1/1 HUW UDC: 621.371.166.22

L 37940-66 EWT(1)/FCC

GH

SOURCE CODE: UR/0141/66/009/003/0433/0450

ACC. NR: AP6022069

AUTHOR: Zhevakin, S. A.; Naumov, A. P.

ORG: Scientific-Research Institute of Radiophysics, Gor'kiy University  
(Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete)

TITLE: Absorption of 3-7.5-mm electromagnetic waves in the Earth atmosphere

SOURCE: IVUZ. Radiofizika, v. 9, no. 3, 1966, 433-450

TOPIC TAGS: electromagnetic wave absorption, atmospheric absorption, atmospheric physics

ABSTRACT: As the seasonal variations of absorption factors of  $O_2$  and  $H_2O$  and characteristic absorption altitudes are needed for many geophysical problems (including accurate weather prediction) and as this data is lacking in the available literature, the present article offers some results of calculations made for winter and summer for the 1960 standard atmosphere;  $50-60^\circ$  N. latitude;  $\lambda = 3-7.5$  mm ( $40-100$  Gc). Out of  $O_2$  and  $H_2O$  resonance, the seasonal variations of the total absorption factor reach 30-40%. For higher altitudes, the  $H_2O$  contribution falls off fairly rapidly. The characteristic absorption altitudes for vapor and oxygen monomers are: 1.56 km and 4.8 km (summer) or 1.48 km and 4.3 km (winter), respectively. Within the resonance regions, the characteristic altitudes substantially depend on the wavelength. The relation between the total absorption factor and the altitude is nonexponential. \*The authors wish to thank I. A. Rakova for carrying out the calculations on a BESM-2 computer and for her help in the data processing.\*

UDC: 621.371.166.22

Card 1/2

L 37940-36

ACC NR: AP6022069

Orig. art. has: 11 figures, 10 formulas, and 3 tables.

[03]

SUB CODE:04, 08 / SUBM DATE: 18Jun65 / ORIG REF: 020 / OTH REF: 017

Card 2/2112P

NAUKOV, A.P.

Specialization and automation of the production of standard reducing gears. Stroi. i dor. mashinostr. 5 no.11:33-38 № '60.

(MIRA 13:10)

1. Direktor Izhevskogo zavoda imeni V.I.Lenina.  
(Gearing) (Automation)

L 33159-66 ENT(1) IJR(c)

ACC NR: AB6016178

SOURCE CODE: UR/0058/65/000/011/DO14/DO14

AUTHOR: Zhevakin, S. A.; Naumov, A. P.

TITLE: Calculation of rotational spectrum of water-vapor molecules

SOURCE: Ref. zh. Fizika, Abs. 11D100

REF SOURCE: Tr. Komis. po spektroskopii. AN SSSR, t. 3, vyp. 1, 1964, 42-51

TOPIC TAGS: molecular spectrum, water vapor, absorption coefficient, absorption spectrum, dielectric constant, optic transition, spectral line, line width, kinetic equation

ABSTRACT: An electronic computer was used to calculate the absorption coefficient in the range from 10  $\mu$  to 32 cm and the dielectric constant in the range from 0.1 mm to 2 cm of water vapor with account of 871 rotational transitions. Matrix elements of the direction cosines for the model of a rigid axially-symmetrical top, molecular terms with account of centrifugal perturbation, line halfwidths calculated by the Anderson theory, and a spectral line shape obtained from solution of the kinetic equation were used in the calculations. The results of the calculations are in good agreement with experiment. [Translation of abstract]

SUB CODE: 20

LS

Card 1/1



NAUMOV, A.V., dotsent, kand. techn. nauk

Cost of cartographic production and some problems in planning and  
accounting. Izv. vya. ucheb. zav., geod. i aerof. no. 5:117-118  
'64. (MIRA 18:5)

1. Moskovskiy Institut Inzhenerov Geodezii, Aerofotol'yumki i  
kartografii.

NAUMOV, A.V.

RUSINOV, Igor' Nikolayevich; ~~NAUMOV, Aleksandr Konstantinovich~~; BENDOVSKIY,  
Mark Konstantinovich; LYSIUK, V.N., redaktor; SHAMAROVA, T.A.,  
redaktor; KUZ'MIN, G.M., tekhnicheskiy redaktor

[Organisation and planning in cartography] Organizatsiia i planirova-  
nie kartograficheskogo proizvodstva. Pod obshchei red. V.N.Lysiuka.  
Moskva, Izd-vo geodezicheskoi lit-ry, 1954. 196 p. (MLRA 8:4)  
(Cartography)

NAUMOV, A. V., Docent.

"Some Problems of the Household of Cartographic Production."

report presented at a Scientific-Technical Conference at Moscow Inst. of Geodesy,  
Aerial Photography and Cartography Engineers, 24-26 April 1958.  
(Geodeziya i kartografiya, no. 6, pp.79-80, 1958)

NAUMOV, A.V., dots., kand. tekhn. nauk

Some economic problems of cartography. Trudy MIIGAIK no.33:63-69  
'58. (MIRA 12:8)

1. Kafetra organizatsii i planirovaniya kartografo-geodesicheskikh  
rabot Moskovskogo inġituta inġhenrov geodesii, aerofoto"yemki  
i kartografii. (Cartography)

YEGOROV, I.N., dotsent; SIROSH, P.M.; NAUMOV, A.V.; RASKIN, M.M.; NIKIFOROV, N.I., kand.veterin.nauk; TRAKHANOV, D.F., kand.veterin.nauk; PETUKHOVSKIY, A.A.; ENDZIN, A.K.

Sanitation and veterinary hygiene. Veterinariia 41 no.3:73-82 Mr '64.  
(MIRA 18:1)

1. Krasnoyarskiy sel'skokhozyaystvennyy institut (for Yegorov).
2. Glavnyy veterinarnyy vrach Chernovitskogo oblastnogo upravleniya proizvodstva i zagotovok sel'skokhozyaystvennykh produktov (for Sirosh).
3. Zaveduyushchiy khimicheskim otdelom Chernovitskoy oblastnoy veterinarnoy laboratoriyey (for Raskin).
4. Direktor Chernovitskoy oblastnoy veterinarnoy laboratoriyey (for Naumov).
5. Vsesoyuznyy nauchno-issledovatel'skiy institut veterinarnoy sanitarii (for Nikiforov, Trakhanov).
6. Desinfektsionnaya stantsiya Moskovskogo gorodskogo otdela zdravookhraneniya (for Petukhovskiy).
7. Vsesoyuznyy nauchno-issledovatel'skiy institut veterinarnoy sanitarii (for Endzin).

USSR/Engineering - Automatic Control  
V. 7  
Jan 52

"Calculation and Adjustment of the Single-Impulse Electronic Feed-Water Regulator," Cand Tech Sci, V. D. Mironov, Laureate of Stalin Prize, A. V. Mamov, Engr, Lab of Automatic Regulation

"Is v-s Teplotekh Inst" No 1, pp 1-9  
Briefly reviews automatic feed-water regulating systems in boilers and describes system of 2 single-impulse electronic regulators with combined fixed and variable feedback. Discusses dynamic

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Properties of zone under regulation and develops formulas for calc adjustment of regulators and for evaluating quality of regulation.

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NAUMOV, A. V.

NAUMOV, A. V.

USSR/Engineering - Automatic Control Apr 52

"From Experience in the Adjustment of Regulators,"  
A.V. Naumov, Engr, Lab of Automatic Regulation

"Iz v-s Teplotekh Inst" No 4, pp 29-31

Discusses methods for decreasing rate of regulation and suggests flexible cable-type connection of control column with regulating members instead of usual rigid ties and levers. Analyzes follow-up system for position synchronization of 2 servomotors and suggests its simplification by elimination of main control column and slight changes in follow-up columns.

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*Naumov A. F.*

621.316.71.076.7 : 621.187.1

4110. Three-impulse electronic regulator of boiler  
feedwater. V. D. MIRONOV AND A. V. NAUMOV,  
Elektr. Stantsii, 1954, No. 2, 10-16. In Russian.

operation of a regulator controlled simultane-

following large changes of load, or of feedwater  
pressure. Water and steam flow indicators have  
square-law characteristics, and further improvement  
in dynamic performance is expected with linear  
indicators. F. QUELON



NAUMOV, A.V.

AID P - 2040

Subject : USSR/Electricity

Card 1/1 Pub. 110-a - 13/14

Author : Naumov, A. V., Eng.

Title : Centralizing control and operation of electric power stations abroad (Review of Foreign Periodicals)

Periodical: Teploenergetika, 4, 61-62, Ap 1955

Abstract : A report on postwar developments in the control and operation of electric power plants in the USA and England, with a detailed description of a colored memonic switchboard. A very detailed diagram and 2 drawings. Six English references, 1950-1954.

Institution: None

Submitted : No date

Naumov, A V

AID P - 2879

Subject : USSR/Engineering  
Card 1/1 Pub. 110-a - 12/16  
Author : Naumov, A. V., Eng.  
Title : ~~NEW METHOD OF COMBUSTION CONTROL~~  
Periodical : Teploenergetika, 10, 57-58, 0 1955  
Abstract : A report on a British electric power plant planned for construction in Acrinton with a reference to "The Steam Engineer", 1955, p. 174-176. A diagram shows the layout of the automatic combustion control.  
Institution : None  
Submitted : No date

NAUMOV, A. Ya., Cand Tech Sci -- (diss) "Study of the  
behaviour of <sup>separate</sup> sulphides of heavy non-ferrous  
metals <sup>in</sup> ammonia<sup>ly</sup> lixiviation under oxygen pressure."

Mos, 1958, 11 pp (Min of Higher Education USSR. Mos  
Inst of Non-Ferrous Metals and Gold in M.I. Kalinin.  
Chair of Metallurgy of Heavy Metals) (KL, 50-58, 125)

AUTHORS: Naumov, A.A.,  
Tseydler, A.A. SOV/149-58-4-11/26

TITLE: Solubility of Copper, Nickel, Cobalt and Iron Sulphides  
in Ammoniacal Leaching Solutions under Pressure  
(Rastvorimost' sul'fidov medi, nikel'ya, kobal'ta i  
zheleza pri vyshcholachivanii v ammiachnykh rastvorakh  
pod davleniyem)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya  
Metallurgiya, 1958, Nr 4, pp 83-90 (USSR)

ABSTRACT: Copper, nickel, cobalt and certain other metals react  
with aqueous ammonia solutions forming complex ions of  
 $[Me(NH_3)_x]^{n+}$  type. Complexes of this type are also  
formed by sulphides of these metals, but the rate at  
which the reaction  $MeS + 2O_2 + xNH_3 \rightarrow Me(NH_3)_xSO_4$  occurs  
at atmospheric pressure is very slow and formation of  
complexes in open vessels may take weeks. Determination  
of the solubility of synthetic sulphides in ammoniacal leaching  
solutions under increased oxygen pressure, apart from  
being of theoretical interest, would provide data on the

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basis of which an efficient method of treating certain intermediate (sulphide) products could be developed. Consequently, the effect of temperature, duration of the leaching process, concentration of ammonia and ammonium sulphate, oxygen pressure and particle size on solubility of Cu, Ni, Co and Fe sulphides in ammoniacal solutions was investigated. The experimental materials were prepared by direct fusion of pure metals with sulphur and their composition is given in Table 1. The experiments were carried out in a specially designed, stainless steel, autoclave, 470 ml capacity. 2.5 - 5.0 g of sulphide powder was placed in the autoclave with 170 ml of the solution. After purging with oxygen, the autoclave was charged with oxygen to the required pressure and attached to a mechanical (bottle type) mixer placed in an electrically heated thermostat. At the completion of each test the pulp was filtered and the solution was analysed for the metal and sulphur content. The results of all experiments are tabulated or

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reproduced graphically. The following conclusions were reached: 100% of copper, nickel and iron, and up to 90% of cobalt can pass into the solution in a single leaching operation lasting 3-4 hours, and carried out under the following conditions: Temperature = 100-125°C; oxygen pressure = 15 atm; consumption of ammonia = 3 times that of theoretical; excess of ammonium sulphate = 125%. Recovery of cobalt can be improved if the sulphide is leached 2-3 times, each time with a fresh solution. The higher the temperature the higher the solubility of sulphides. However, raising the temperature increases the ammonia and water vapour pressure which leads to an increase of the total pressure and causes hydrolysis. Increasing the concentration of ammonia inhibits hydrolysis and accelerates the rate of solution of sulphides which is also affected by the variation of oxygen pressure. (When the relationship between the rate of reaction and the partial oxygen pressure is known it will be possible to establish the mechanism

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of the leaching process. However, investigation of this type would have to be carried out in an autoclave with a constant oxygen pressure). When pure sulphides are leached the concentration of the sulphate and sulphamate ions in the solution is not sufficiently high as the result of which the salts are hydrolysed, the rate of leaching is slowed down and low recovery of metals is obtained. This difficulty is overcome by addition of excess  $(\text{NH}_4)_2\text{SO}_4$ . The rate of solution of pure sulphides is also affected by their particle size, the optimum size being 0.074 mm. In practical applications the optimum values of temperature, pressure and strength of solution can be calculated, taking into account the fact that the extra cost due to thicker walls of the autoclave required for higher operating temperature and pressure is offset by savings in volume of the materials to be handled and in their

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consumption. Consumption of ammonia can be lowered by using multi-stage leaching with the application of counter-flow. There are 3 figures, 6 tables and 6 references of which 4 are Soviet and 2 English.

ASSOCIATION: Moskovskiy Institut Tsvetnykh Metallov i Zolota, Kafedra Metallurgii Tyazhelykh Tsvetnykh Metallov (Moscow Institute of Non-Ferrous Metals and Gold, Chair for Metallurgy of Heavy Non-Ferrous Metals)

SUBMITTED: 20th March 1958.

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SOV/136-59-5-10/21

**AUTHORS:** Naumov, A.Ya., and Tseydler, A.A.

**TITLE:** Influence of Various Factors on the Rate of Solution of Copper and Cobalt Sulphides in Ammoniacal Solutions under Oxygen Pressure (Vliyaniye razlichnykh faktorov na skorost' rastvoreniya sul'fidov medi i kobal'ta v ammiachnykh rastvorakh pod davleniyem kisloroda)

**PERIODICAL:** Tsvetnyye metally, 1959, Nr 5, pp 49-54 (USSR)

**ABSTRACT:** The author outlines the advantages of using high pressures for hydrometallurgical reactions, especially those in which gas is a reactant. The earliest suggestion for this was made in the USSR in 1933 (Ref 1) and a considerable amount of work, some of it (Refs 8, 9) on the leaching of sulphide minerals in ammoniacal solutions, has been carried out in the USSR (Refs 2, 3, 8) and abroad (Refs 4, 5, 6, 7 and 9). The authors maintain that these investigations failed to deal adequately with the kinetics of the process and go on to describe experiments on the kinetics of the ammoniacal leaching of copper and cobalt sulphides. These were carried out in 1957-58 in the laboratoriya metallurgii tyazhelykh metallov (Metallurgy of Heavy Metals Laboratory) of the b. (former) Mintsvetmetzoloto. A 0.5 litre autoclave

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with a magnetic stirrer rotating at 250, 500, 750 and 1000 rpm was used. The autoclave assembly was made of type 1Kh18N9T steel and had sampling facilities and temperature measurement (controlled to  $\pm 1^\circ\text{C}$ ). 250 ml of solution were subjected for 3 hours to oxygen under pressure with continuous addition of oxygen. The materials studied were cast cylinders of artificially prepared sulphides, (76.5% Cu, 23.5% S; and 69.0% Co, 31.0% S) enclosed except for one polished face in plastic and stainless steel. The apparatus is shown in Fig 1. For studying the influence of temperature, solutions containing 50 g/litre of ammonia and 50 g/litre of ammonium sulphate were used, the oxygen pressure being 15 atm. The concentration of copper (mg/litre) at various times (0-180 min) and at temperatures of 50-150°C is shown in Table 1, Fig 2 shows the rate constants of copper and cobalt plotted against  $1000/\text{absolute temperature}$ : the values of the temperature coefficients of the constants for copper and cobalt are 1.63-1.09 and 1.26-1.03, respectively, and the apparent activation

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energies at 50 to 125 °C are -7500 and 1775 cal/mol, respectively. The same solutions were used for studying the influence of oxygen pressure (5-25 atm) on the rate of the process. The results confirm published data on the relation between pressure and the duration of solution. Fig 3 shows plots of the rate constant against oxygen pressure and the authors discuss the significance of the linear relation obtained. The effect of changes in ammonia concentration and ammonium sulphate (10-100 g/litre) were studied at 125 °C and 15 atm. In both cases (Table 3) the rate constant rose with increasing concentration but not to the same extent as with oxygen. Stirrer-speed variation from 750-1000 rev/min had no influence on the rate constant, but an effect was observed at 250-500 rev/min. The experiments indicate that high recoveries of copper, cobalt and nickel in the solution can be obtained by

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ammoniacal leaching in autoclaves.

There are 3 figures, 4 tables and 9 references, 4 of  
which are Soviet and 5 English.

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