ZHUKOVSKIY, V.B.

ZHUKOVSKIY, V.B.

Inspection of knit goods. Leg.prom.15 no.1:47-48 Ja '55.
(Knit goods) (MLRA 8:3)

ZHUKOVSKIY, V.B.

The MSOP-22-45 rotary knitting machine. Biul.tekh.-ekon.inform. no.9:47-48 '58. (MIRA 11:10)
(Knitting machines)

ZHUKOVSKIY, V.B.

The PF-10 automatic flat machine. Biul.tekh.-ekon.inform. no.10: 51-52 '58. (MIRA 11:12)
(Knitting machines)

GAL'TSOV, D.V.; ZHUKOVSKIY, V.Ch.

Use of the Wentzel-Kramers-Brillouin method in calculations with an accuracy to high degrees of h. Vest. Mosk. un. Ser.3: Fiz., astron. 19 no.5:50-53 S-O '64.

(MIRA 17:12)

1. Kafedra teoreticheskoy fiziki Moskovskogo universiteta.

ACC NR: AF/003222 SOURCE CODE: UR/0056/66/051/006/1829/1832

AUTHOR: Sokolov, A. A.; Zhukovskiy, V. Ch.; Korovin, Yu. A.

ORG: Moscow State University (Moskovskiy gosudarstvennyy universitet)

TITLE: Stimulated transitions in the radiation from a relativistic electron in an inhomogeneous magnetic field

SOURCE: Zh eksper i teor fiz, v. 51, no. 6, 1966, 1829-1832

TOPIC TAGS: relativistic electron, electron radiation, stimulated emission, axial magnetic field, maser theory, ELECTRON TRANSITION

ABSTRACT: The authors consider stimulated transitions of relativistic electrons moving in a constant but inhomogeneous magnetic field. In particular, the radiation from an electron placed in an axially symmetrical focusing magnetic field is investigated. The probability of the stimulated emission is obtained for an external electromagnetic wave which is linearly polarized and which propagates at a certain angle to the magnetic field direction. From this probability, the authors determine the power radiated by the electron in the case of resonant transitions induced by the external electromagnetic field at various harmonics, and the power of the dipole radiation. The region of variation of the harmonics, at which the stimulated emission should prevail over absorption, and is thus of interest in maser applications, is determined. Two conditions for emission are formulated in the form of inequalities relating the different parameters of the problem. Orig. art. has: 16 formulas.

SUB CODE: 20/ SUBM DATE: 15Jun66/ ORIG REF: 001/ OTH REF: 001

Card 1/1

L 29671-66 EWT(1)/ETC(f) IJP(c) AT
ACC NR: AT6012691 SOURCE CODE: UR/3136/65/000/988/0001/0022

AUTHOR: Bortnikov, A. V.; Brevnov, N. N.; Zhukovskiy, V. G.; Romanovskiy, M. K. 61 B41

ORG: State Committee on Use of Atomic Energy SSSR, Institute of Atomic Energy im. I. V. Kurchatov, Moscow (Gosudarstvennyy komitet po ispol'zovaniyu atomnoy energii, Institut atomnoy energii)

TITLE: Investigation of plasma in the "AS" installation

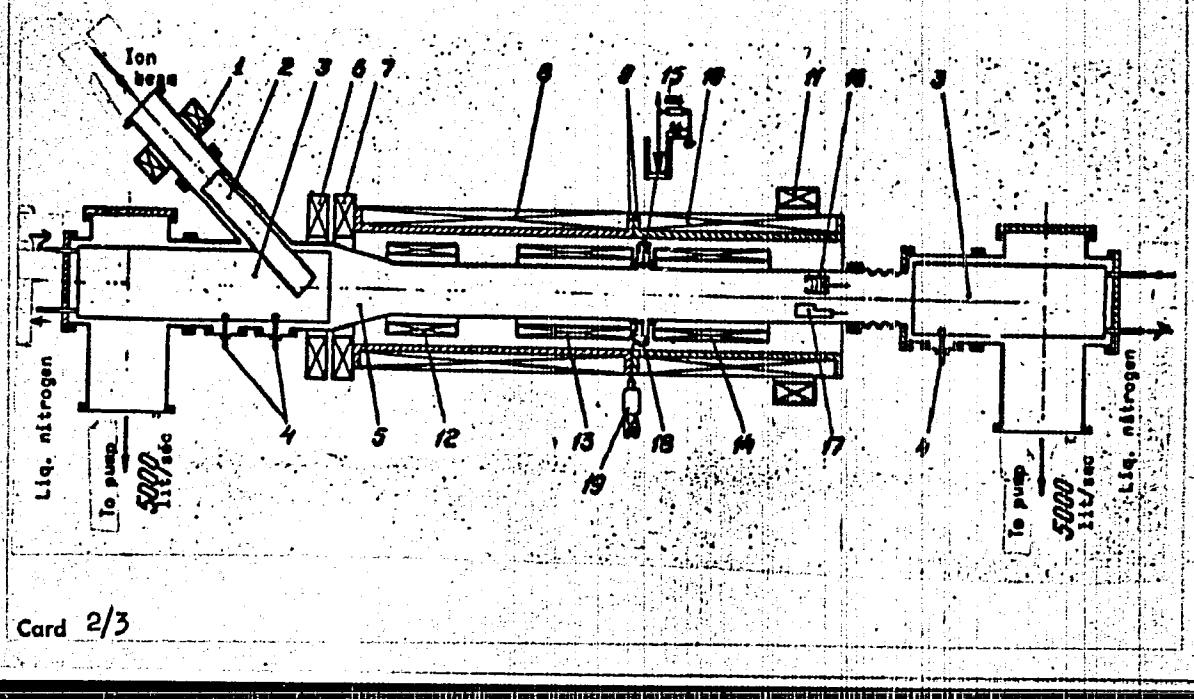
SOURCE: Moscow. Institut atomnoy energii. Doklady, no. 988, 1965. Issledovaniye plazmy v ustanovke AS, 1-22

TOPIC TAGS: plasma research, plasma compression, plasma injection, plasmoid acceleration, plasma stability, cyclotron resonance, magnetic mirror

ABSTRACT: The authors describe the "AS" (adiabatic compression) apparatus for the study of a plasma produced by injection of fast ions. An axially-centered cylindrical plasmoid is detached from the injector by means of a pulsed magnetic mirror, is accelerated toward a stationary magnetic mirror, and is compressed by a time-increasing magnetic field of mirror configuration. The initial ion energy can reach 10 kev. The article contains a description of the installation (Fig. 1), the auxiliary apparatus, and the measurement details. Measurements were made of the density and potential of the plasma, the lifetimes of the fast ions, and the

Card 1/3

L 29671-66
ACC NR: AT6012691

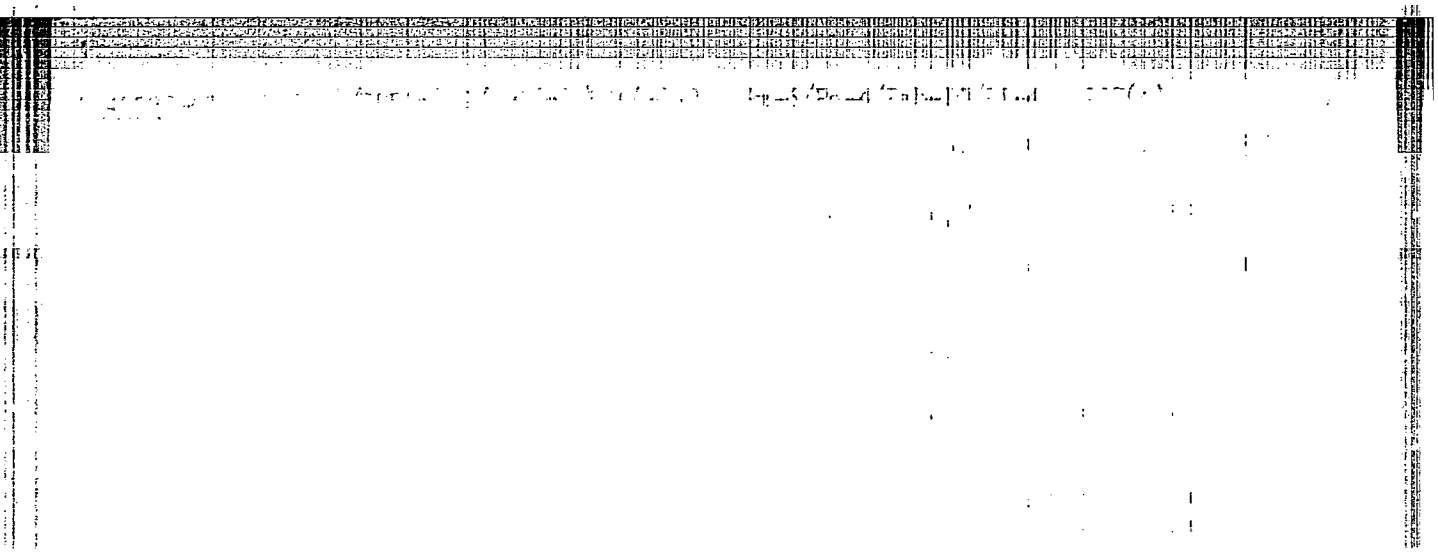


Card 2/3

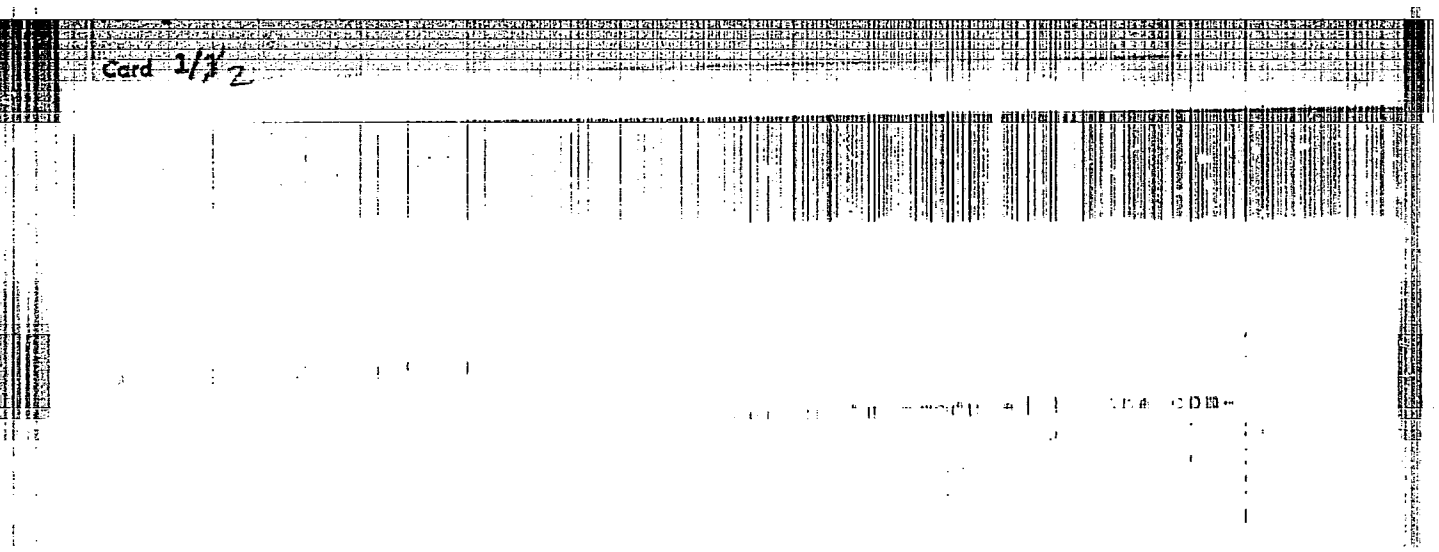
Fig. 1. Schematic diagram of "AS" installation. 1 - Magnetic lens, 2 - channel, 3 - azotite, 4 - titanium evaporators, 5 - chamber, 6,7,8,10,11 - stationary magnetic field coils, 9 - copper screen, 12 - detachment coil, 13,14 - compression coils, 15 - neutral particle detector, 16 - secondary ion energy spectrum analyzer, 17 - current receiver, 18 - rod probe, 19 - palladium leak valve.

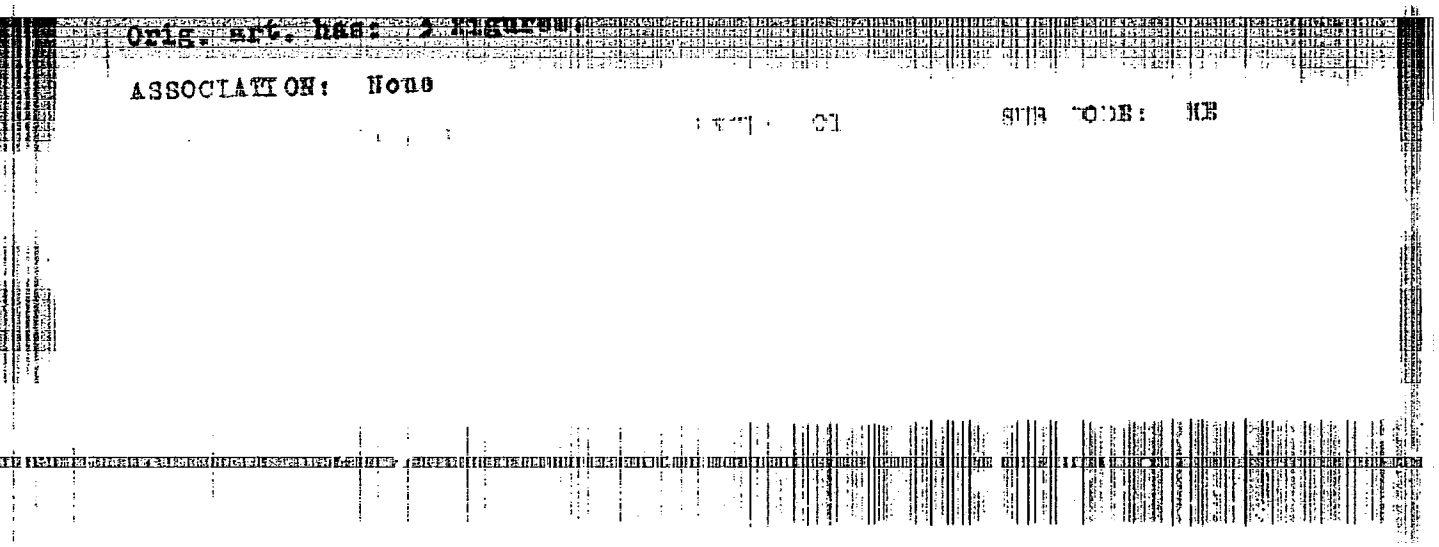
onset and development of oscillations at the ion-cyclotron frequency. The initial plasma density was found to be proportional to the injection current and amounted to 10^{18} cm^{-3} fast ions at a current of 5 ma. In the absence of injection-current pulsations, the plasma potential did not exceed +30-40 v and was independent of the injection current or of the neutral-gas pressure. Cyclotron instability with an increment time of 20-30 μsec developed in the plasma after detachment from the sourse, lasted for about 100 μsec, after which it decreased exponentially, apparently as a result of self-stabilization. The lifetime of the fast ions depended only on the charge exchange with the neutron molecules. The development of cyclotron instability did not cause additional ion losses. The plasma decayed after compression with a characteristic time of 500 μsec. This is several times smaller than the charge exchange time, and the reason for this behavior is not yet clear. The experimental plasma lifetime of the fast ions increased approximately in proportion to the pressure. Orig. art. has: 11 figures and 8 formulas.

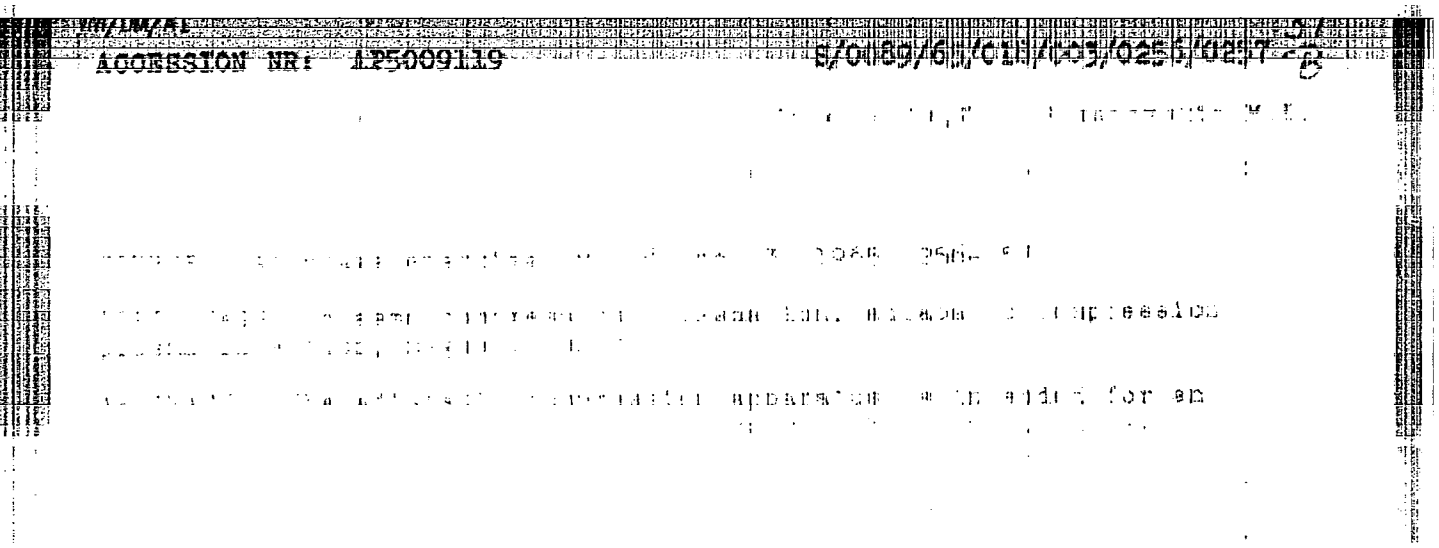
SUB CODE: 20/ SUBM DATE: 00/ ORIG REF: 005/ OTH REF: 005

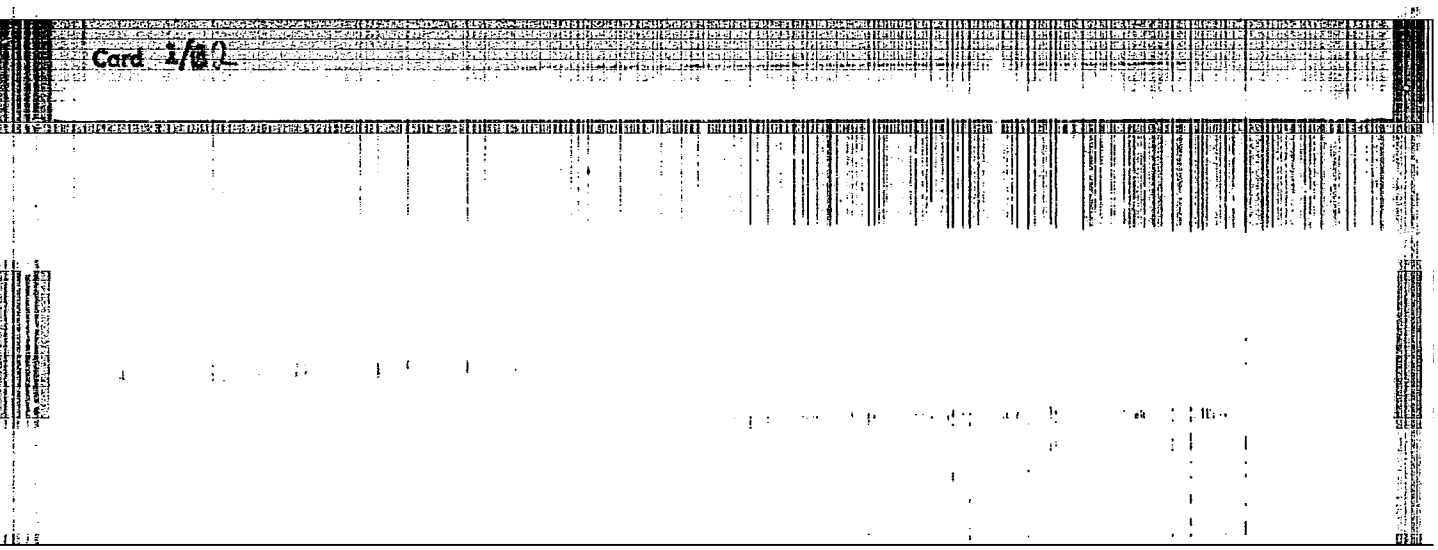


APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065010015-1"

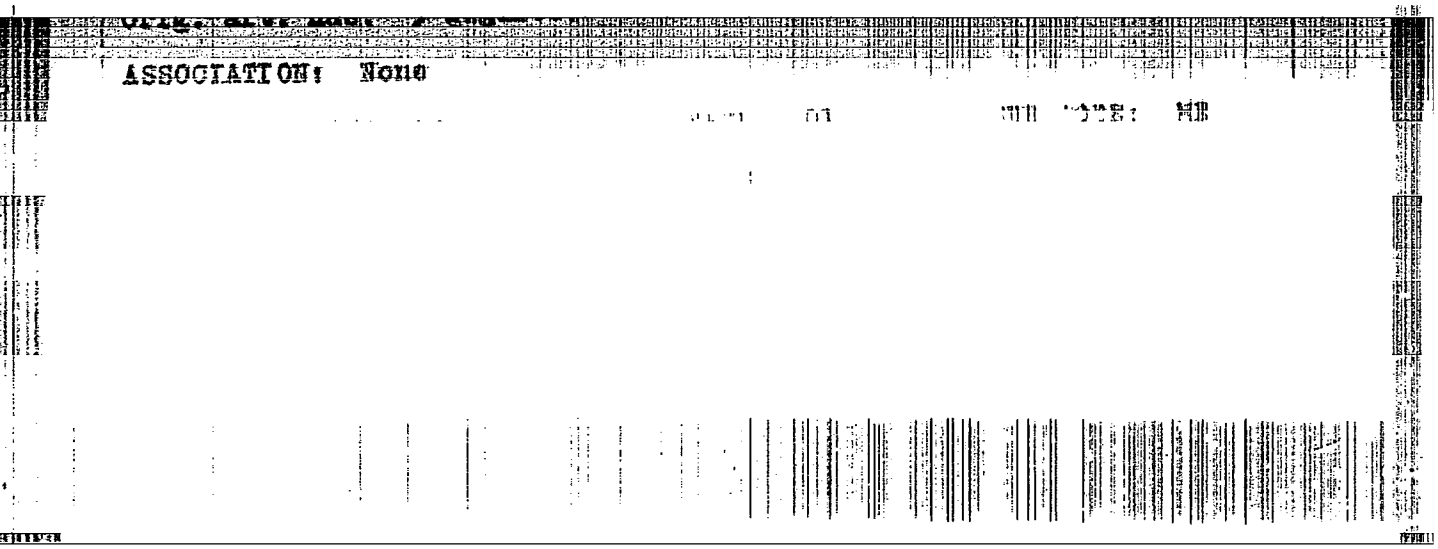








APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065010015-1"



ZHUKOVSKIY, V.D.

Study of combined electronarcosis by means of impulse and interference currents under experimental conditions. Biul. eksp.biol. i med. 59 no.5:120-123 '65.

(MIRA 18:11)

1. Laboratoriya eksperimental'noy fiziologii po ozhivleniyu organizma (zav. - prof. V.A.Negovskiy) AMN SSSR i Kafedra fiziki (zav. - prof. N.M.Liventsev) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M.Sechenova. Submitted September 13, 1963.

85018

9,2110 (1043, 1145, 1153)

S/048/60/024/010/027/033
B013/B063

AUTHORS: Andreyeva, N. A., Grushevskaya, O. A., and Zhukovskiy, V. I.

TITLE: Some Considerations on the Methods of Producing Materials With a Smooth Temperature Dependence of the Dielectric Constant

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 10, pp. 1285 - 1288

TEXT: In order to obtain a smooth temperature dependence of the dielectric constant, the authors looked for an efficient admixture to $BaTiO_2$. For this purpose, they chose bismuth, titanium, and zirconium oxides in different ratios and combinations. The system $BaTiO_3$-$Bi_4Ti_3O_{12}$ was given special attention. Fig.1 shows the temperature dependence of the dielectric constants of various samples. It may be seen that they become fairly smooth by the addition of $BaTiO_3$-$Bi_4Ti_3O_{12}$. The maximum (Curie point) characteristic of barium titanate, is, however, not affected. Phenomena

Card 1/3

Some Considerations on the Methods of Producing Materials With a Smooth Temperature Dependence of the Dielectric Constant

S/048/60/024/010/027/033
B013/B053

of the same qualitative character may be also found in samples of the system $BaTiO_3$-Bi_2O_3-ZrO_2 (Fig.2). Fig.3 illustrates the temperature and frequency dependences of ε and tan δ for one sample of the system $BaTiO_3$-$Bi_4Ti_3O_{12}$. This illustration indicates the presence of relaxation properties. An X-ray analysis performed by V. G. Prokhvatilov and Ye. I. Gindin has shown that various compositions of the systems $BaTiO_3$-Bi_2O_3-TiO_2 and $BaTiO_3$-Bi_2O_3-ZrO_2, besides a phase having the structure of barium titanate with changed lattice parameters (not perfectly cubic), exhibit another phase which might be held responsible for the relaxation properties of the material. Solid solutions, which can be formed presumably only in a very small range of concentration, were not detected in the systems examined. The authors' studies lead to the conclusion that the materials of the two systems under consideration contain a piezoelectric and a relaxation phase. The composition of the latter has not yet been determined so far. The dielectric constants of several samples showed two maxima. It is assumed that the low-temperature

85018

Some Considerations on the Methods of Producing Materials With a Smooth Temperature Dependence of the Dielectric Constant

S/048/60/024/010/027/033
B013/B063

maximum has a relaxation character and the high-temperature maximum a piezoelectric character. G. I. Skanavi is mentioned. The present paper was read at the Third Conference on Piezoelectricity, which took place in Moscow from January 25 to 30, 1960. There are 3 figures and 5 references: 2 Soviet.

IX

Card 3/3

24.7600 (1043, 1160, 1075)

85021
S/048/60/024/010/030/033
B013/B063

AUTHORS: Zhukovskiy, V. I., Dorokhova, M. P., Zaremba, N. Ye., Dykman, D. G., Boys, G. V.

TITLE: Data of a Thermographic Study of Barium Titanate With Certain Admixtures

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 10, pp. 1294 - 1295

TEXT: The authors examined the effect of commonly used admixtures upon the sintering process of barium titanate. These admixtures include ZrO_2, Bi_2O_3, TiO_2, $CaCO_3$, $MgCO_3$, $BaCO_3$, etc. For this purpose, they made use of a complex thermal analysis which was conducted on an apparatus of the type УКТА-58 (UKTA-58). Barium titanate was synthesized at 1260°C. The samples were produced by the conventional ceramic process. The thermogram of barium titanate is shown in Fig.1. The first exothermic effect appears at 300°C and is related to the burning out of the plasticizer; the second effect occurs at 1300°C and is due to the termination of the

Card 1/3

Data of a Thermographic Study of Barium Titanate With Certain Admixtures

S/048/60/024/010/030/033
B013/B063

production process of barium titanate. The endothermic effect observable at 870°C may be explained by the conversion of $BaCO_3$ contained in the material used. On the addition of TiO_2 and ZrO_2, two other thermal effects are visible in the temperature range 1250 ÷ 1290°C: an endothermic effect on heating and an exothermic effect on cooling (Fig.2). This is presumably due to the formation of an eutectic $BaTiO_3$ melt with titanates of higher acidity and their subsequent crystallization. An X-ray analysis, performed by Ye. I. Gindin, of the system $BaTiO_3$-ZrO_2 indicated the existence of a solid solution with a perovskite lattice. This fact is indicative of an excessive amount of titanate dioxide. The above-mentioned thermal effects are probably related to the presence of the latter. However, the data available do not indicate the compounds that form an eutectic melt. The authors established that a liquid phase exists when sintering a material on the basis of barium titanate with the addition of TiO_2 and ZrO_2. In the presence of $MgCO_3$, $CaCO_3$, $BaCO_3$,

85021

Data of a Thermographic Study of Barium Titanate With Certain Admixtures

S/048/60/024/010/030/033
B013/B063

and other admixtures, the thermal effects due to the presence of ZrO_2 are maintained. They are, however, suppressed by adding Bi_2O_3.

E. K. Keler and N. B. Karpenko are mentioned. The present paper was read at the Third Conference on Piezoelectricity, which took place in Moscow from January 25 to 30, 1960. There are 3 figures and 2 references: 1 Soviet and 1 US.

Card 3/3

ACC NR: AP6030730 SOURCE CODE: UR/0055/66/000/004/0117/0128

AUTHOR: Kalinin, S. V.; Zhukovskiy, V. I.

ORG: Department of Theoretical and Applied Mechanics NIIM (Otdel teoreticheskoy i prikladnoy mekhaniki NIIM)

TITLE: Conditional stability of motion of an object with an automatic control device in some critical cases

SOURCE: Moscow. Universitet. Vestnik. Seriya fiziki i khimii, no. 4, 1966, 117-128

TOPIC TAGS: servomotor, motion stability, aircraft stability

ABSTRACT: The system of equations for the motion of an object (aircraft) with an automatic control is given by

$$\ddot{\varphi} + M\dot{\varphi} + k^2\varphi = -N\eta,$$
$$\ddot{\eta} + p\eta = F(t, \Psi), \qquad (1)$$
$$\Psi = \varphi + \beta\dot{\varphi} - \frac{1}{a}\eta.$$

The first equation is that of the object the motion of which is to be regulated; the second is the equation of the servomotor. Here φ is the deviation from the state

Card 1/2 UDC: 531.391.5

ACC NR: AP6030730

prescribed for the system, η - angle of the rudder rotation. ψ is the argument of the rudder regulation, $F(t, \psi)$ is the characteristics of the servomotor which determines the rate of readjustment of steering. The authors consider the case when $F(t, \psi)$ is not linear. A linear approximation results in a characteristic equation, of which the following cases are considered: 1) one zero root, 2) one zero and two imaginary roots, 3) two zero roots, 4) three zero roots. A case of a small mass of the servomechanism is also considered. The general conclusion is that in order to have a stable motion, the nonlinear characteristics of the servomotor can be given not only by an equation of an odd order, but also, under certain conditions, by an equation of an even order. Orig. art. has: 23 equations.

SUB CODE: 13/ SUBM DATE: 11May65/ ORIG REF: 014

Card 2/2

SADYKHOV, N.M., kand. med. nauk; ZHUKOVSKIY, V.K.

Complications during the clinical use of muscl relaxants. Azerb. med. zhur. 41 no.1:22-31 Ja '64. (MIRA 17:12)

1. Iz kafedry anesteziologii (zav. - dotsent Ye.A.Damir) TSentral'nogo instituta usovershenstvovaniya vrachey (direktor - M.D.Kovrigina) i ordena Lenina bol'nitsy imeni Botkina (glavnyy vrach - Yu.G.Antonov).

MOLCHANOV, Nikolay Semenovich; ZHULKOVSKIY, V.K., red.; LEBEDEVA, Z.V., tekhn. red.

[Hypotonic states]Gipotonicheskie sostoianiia. Leningrad, Medgiz, 1962. 201 p. (MIRA 16:1)

(HYPOTENSION)

PONOMARENKO, F.T.; GAYLISH, Ye.A.; MARTYUSHOV, K.I.; ODELEVSKIY, V.I.; VERBITSKAYA, T.N.; FRIDBERG, I.D.; MANOYLOV, V.Ye.; VENEDEYCHIK, N.M.; ZHUKOVSKIY, V.I.; LISKER, K.Ye.; MIKHAYLOV, M.M.; KNYAZEV, T.S.

Georgii Ivanovich Skanavi; obituary. Elektrichestvo no.4:94 Ap '60. (MIRA 14:4)

(Skanavi, Georgii Ivanovich, d. 1959)

ZHUKOVITSKIY, V.I., inzh.

Electronic conveyor scales with a meter-adder. Vop. rud. transp. no.5:21-41 '61. (MIRA 16:7)

1. Dnepropetrovskiy gornyy institut.
(Conveying machinery--Electronic equipment)
(Scales(Weighing instruments)

ZHUKOVITSKIY, V.I., kand.tekhn.nauk

Error of conveyor scales without a speed transducer. Vop. rud. transp. no.7:86-94 '63. (MIRA 16:9)

1. Dnepropetrovskiy gornyy institut.
(Conveying machinery)
(Scales (Weighing instruments))

L 41342-66 EWT(d) IJP(c)

ACC NR: AR6017333 SOURCE CODE: UR/0044/66/000/001/B046/B046 22 B

AUTHOR: Zhukovskiy, V. I.

TITLE: Some instability conditions sufficient for a trivial solution of a system of two linear differential equations

SOURCE: Ref. zh. Matmatika, Abs. 1B205

REF SOURCE: Uch. zap. Orekhovo-Zuyevsk. ped. in-t, v. 22, no. 3, 1964, 30-34

TOPIC TAGS: linear equation, differential equation, [illegible] solution

ABSTRACT: Results obtained in the paper are based on a modification of N. G. Chetayev' s instability theorem. The proof of sufficient conditions of instability has been demonstrated by means of linear forms. V. Toloknov. [Translation of abstract] [KP]

SUB CODE: 12/ [illegible]

Card 1/1 113 UDC: 517.917

L 43134-66 EWT(d) IJP(c)
ACC NR: AP6014168 SOURCE CODE: UR/0376/65/001/012/1601/1605

AUTHOR: Zhukovskiy, V. I.

ORG: All-Union Correspondence Institute of Textile and Light Industries (Vsesoyuznyy zaochnyy institut tekstil'noy i legkoy promyshlennosti)

TITLE: Instability and conditional stability in the critical case of n zero roots

SOURCE: Differentsial'nyye uravneniya, v. 1, no. 12, 1965, 1601-1605

TOPIC TAGS: differential equation system, differential equation solution, motion, stability

ABSTRACT: The fundamental theorem of motion instability due to N. G. Chetayev (Uch. zap. Kazansk. un-ta, Matematika, kn. 9, 98, vyp. 3, 1938) and the theorem of stability due to P. A. Kuz'min (PMM, t. XVIII, vyp. 1, 1954) allow the establishment of sufficient conditions for instability and conditional stability in critical cases. The author investigates an autonomous differential equation system of perturbed motion with a holomorphic right-hand side, and with a characteristic equation of the linear system in the first approximation with n zero roots to which correspond simple elementary denominators of the characteristic matrix. The author derives sufficient instability conditions different from those found in the literature (A. A. Shestakov, DAN SSSR, 79, No 1, 1951; G. V. Kamenkov, Sb. trudov KAI, No 9, 1939).

Card 1/2

S/195/62/003/006/007/011
E075/E436

AUTHORS: Vlasov, V.G., Zhukovskiy, V.M.

TITLE: Reduction of uranium trioxide with ammonia

PERIODICAL: Kinetika i kataliz, v.3, no.6, 1962, 882-886

TEXT: The kinetics of reduction of UO_3 was investigated in the temperature range 300 to 425°C under 10 to 600 mm Hg partial NH_3 pressure. Amorphous UO_3 (0.5 g) was heated after drying in high vacuum in a circulatory apparatus with a continuous recording of its weight losses. The composition of end products was checked by their decomposition to U_3O_8 at 950°C in air and by Debye-Sherer X-ray analysis. For a fixed NH_3 pressure, the reduction rate decreases with decreasing temperature while the induction period increases. The dependence of the rate of the reaction w on partial NH_3 pressure p_{NH_3} is given by

$$w = k\left[1 - \frac{b \cdot p_{NH_3}}{1 + bp_{NH_3}}\right] \qquad (1)$$

where k and b are constants (k = 1.89%/min and

Card 1/2

$b = 0.00312\ mm^{-1}$ Hg at 400°C). The apparent activation energy for the process is 45.3 kcal/mole and practically does not depend on the degree of UO_3 reduction. The authors conclude that the reduction is realized in the following stages: 1) adsorption of gaseous NH_3 on UO_3 surface, 2) decomposition of adsorbed NH_3: $NH_3\ ads \longrightarrow NH_{2ads} + H_{ads}$; $NH_{2ads} \longrightarrow NH_{ads} + H_{ads}$; $NH_{ads} \longrightarrow N_{ads} + H_{ads}$; 3) reduction of U^{6+} to U^{4+}: $O^{2-} + H_{ads} \longrightarrow OH^- + e$; $OH^- + H_{ads} \longrightarrow H_2O_{ads} + e$; $U^{6+} + 2e \longrightarrow U^{4+}$; 4) rearrangement of crystalline lattice of the oxidized phase; 5) desorption of N from the surface: $2N_{ads} \longrightarrow N_{2\,ads} \longrightarrow N_2$ gas; 6) desorption of H_2O formed during the reduction. The slowest stage in this process is stage 5. There are 5 figures.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S.M.Kirova
(Ural Polytechnic Institut imeni S.M.Kirov)

SUBMITTED: March 24, 1961 (initially)
September 11, 1961 (after revision)

ZHUKOVSKIY, V.M.; VLASOV, V.G.; LEBEDEV, A.G.

Electric properties of the system uranium - oxygen in the range of U_3O_8 - UO_2 compounds. Fiz. met. i metalloved. 14 no.2:319-320 Ag '62. (MIRA 15:12)

1. Ural'skiy politekhnicheskiy institut imeni Kirova.
(Uranium compounds—Electric properties)

24,2130 21,2120

41523
S/126/62/014/003/020/022
E039/E420

AUTHORS: Zhukovskiy, V.M., Vlasov, V.G., Lebedev, A.G.

TITLE: Electrical properties of the uranium-oxygen system in the range of composition UO_3 to U_3O_8

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.3, 1962, 475-478

TEXT: The range of uranium-oxygen compounds UO_2 to U_3O_7 investigated by other workers is extended to cover UO_3 to U_3O_8. Electrical conductivity is measured in the temperature range 25 to 200°C. Samples are prepared from UO_3 by dissociation in a muffle furnace. Spectroscopic measurements show the presence of impurities Na, K, Mn, Fe, Si and Al, the largest component being Na at 3.8×10^{-2}%. Debye-Scherrer X-ray analysis indicates that UO_3 is amorphous while U_3O_8 has a hexagonal lattice. Intermediate compounds show a mixture of the two phases, even $UO_{2.97}$ exhibits weak lines of the U_3O_8 structure. Samples are formed into tablets 14.5 mm in diameter and 7 mm thick at a pressure of 3000 kg/cm^2. Densities after compression are 3.0 g/cm^3 (for UO_3) and 3.65 g/cm^3 (for U_3O_8). Resistances in the range 10^6 to

Card 1/2

Electrical properties ...

10^{11} ohms are measured using a constant current megohmmeter with an accuracy of 2 to 20%. Resistances in the range 10^{-1} to 10^{-6} ohm are measured using an a.c. bridge at 1000 c/s with an accuracy of better than 5%. Samples are measured under vacuum (10^{-3} to 10^{-4} mm Hg). Values of the specific electrical conductivity $\varkappa$ ($ohm^{-1}cm^{-1}$) for UO_3 and $UO_{2.67}$ at 25 and 200°C are given in the table. The temperature dependence of the electrical conductivity is given by

$$\varkappa = A \exp(-\Delta E/2kT)$$

where ΔE is the activation energy. Isotherms of $\varkappa$ are given and also the dependence of ΔE on composition. It is shown that all samples have a negative thermal emf with respect to copper. Both the electrical measurements and X-ray analysis show that there is a transition from a state of low order for UO_3 to greater order for U_3O_8. There are 2 figures and 1 table.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S.M.Kirova
(Ural Polytechnical Institute imeni S.M.Kirov)

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065010015-1"

S/080/62/035/010/001/012
D204/D307

AUTHORS: Zhukovskiy, V.M. and Vlasov, V.G.

TITLE: The effect of alkali metal carbonates on the rates of reduction of uranium trioxide

PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no. 10, 1962, 2131-2134

TEXT: The effects of analytical purity Li_2CO_3, Na_2CO_3 and K_2CO_3 were observed, on the rates of reduction of amorphous UO_3 (specific surface 15.0 m^2/g, density 6.5 g/cm^3, containing about 10^{-2} - 10^{-4} % amounts of K, Na, Mn, Fe, Si, Cu, Al and Ni) with a dry, NH_3-free mixture of H_2 and N_2, derived from the catalytic decomposition of ammonia. The carbonates were added, singly, in amounts of 0.2 - 10 mol.% (w.r.t. UO_3), were ground together with the oxide, and were preheated for 2 hours at 380°C before the reduction. The pressure of ($3H_2$ + N_2) was 200 mm Hg; and the temperature was 400°C in all cases. It was found that carbonate additions slow-

Card 1/2

Card 2/2

S/195/63/004/001/005/009
B079/B496

AUTHORS: Vlasov, V.G., Zhukovskiy, V.M.

TITLE: Reduction of uranium trioxide by a nitrogen-hydrogen mixture

PERIODICAL: Kinetika i kataliz, v.4, no.1, 1963, 76-81

TEXT: This work is a continuation of kinetic studies of the reduction of UO_3 with various gases. An amorphous UO_3 with the surface area of 15 m^2/g and density of 6.9 g/cm^2 was reduced with a mixture of N_2 and H_2 resulting from the reduction of NH_3 over Ni at 930°C. Full transition from UO_3 to UO_2 was considered as 100% reduction. The reduction was studied between 300 and 500°C at a pressure of $P_{3H_2+N_2}$ = 200 mm Hg and at 425°C with pressures ranging from 25 to 600 mm Hg. The rate of reduction increased rapidly with temperature, no induction periods being noticed. The effect of pressure on the reduction rate v is expressed by $v = kp_{H_2}$, p_{H_2} being the partial pressure of hydrogen. The values of k are approximately 0.025. The reduction is therefore independent of N_2 which acts only as a diluent. The process takes place in the following stages:

Card 1/2

Reduction of uranium ...

1) $UO_3 \longrightarrow UO_{2.92}$; reduction rate = constant;

2) an autocatalytic process

$$UO_{2.92}\ \text{amorph.} + H_2\ \text{gas} \longrightarrow UO_{2.67}\ \text{cryst.} + H_2O_{\text{gas}} \quad \text{(I)}$$

3) $$UO_{2.55}\ \text{cryst.} + H_2\ \text{gas} \longrightarrow UO_{2.25}\ \text{cryst.} + H_2O_{\text{gas}} \quad \text{(II)}$$

4) $$UO_{2.55} \rightleftharpoons UO_{2+x} \longrightarrow UO_2 \quad \text{(III)}$$

The first stage takes place in the presence of two solid phases and the second in the presence of one solid phase of changing composition with the reduction rate falling continuously. The apparent activation energies for the various stages of reduction vary from 26.5 to 31.7 kcal/mole. In general, the reduction with $N_2 + H_2$ occurred more easily and to a fuller extent than that with NH_3. There are 4 figures.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S.M.Kirova (Ural Polytechnic Institute imeni S.M.Kirov)

SUBMITTED: May 13, 1961 (initially)
September 26, 1961 (after revision)

Card 2/2

S/126/63/015/002/008/033
E039/E420

AUTHORS: Zhukovskiy, V.M., Tkachenko, Ye.V., Vlasov, V.G.

TITLE: On the question of phase conversion in reduced U_4O_9

PERIODICAL: Fizika metallov i metallovedeniye, v.15, no.2, 1963, 210-214

TEXT: The contradictory work of a number of authors on the state and structure of the phase compositions in the U - O system for the range $UO_2 - UO_{2.25}$ is examined. The dependence of the density and parameters of the cubic lattice on the composition of the solid phase formed in reduced U_4O_9 when decomposed by ammonia and solid carbon is investigated. With increase in quantity of introduced oxygen the density of the oxide is increased and the lattice parameter decreased. When the oxygen content of the oxide is changed it is necessary to alter the charge on some of the uranium ions in order to maintain electrical neutrality. In particular in UO_2 uranium is found only in the form of U^{4+} ions (according to the authors' data), the lattice parameter is 5.47 Å and the density is 10.7 g/cm3. In the case of U_4O_9 which has a lattice parameter of 5.44 Å and a density of 11.4 g/cm3, it is necessary to alter the

Card 1/2

On the question of phase ... S/126/63/015/002/008/033
E039/E420

charge on some of the uranium ions from U^{4+} to U^{5+} or U^{6+}. The substitution of some U^{4+} ions by the smaller U^{5+} and U^{6+} ions may lead to a decrease in the lattice parameter for U_4O_9 in spite of the introduction of more oxygen (the radii of the U^{4+}, U^{5+} and U^{6+} ions are 1.05, 0.91 and 0.79 Å respectively). Densities measured experimentally compare well with those determined from X-ray diffraction analysis. The results are in agreement with the statement that the phase of UO_{2+x} has a cubic lattice of the fluorite type with disordered introduction of surplus oxygen and four atoms of uranium in the elementary cell. There are 3 figures.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S.M.Kirova
(Ural Polytechnical Institute imeni S.M.Kirov)

SUBMITTED: July 7, 1962

Card 2/2

VLASOV, V.G.; ZHUKOVSKIY, V.M.; LEBEDEV, A.G.; SHALAGINOV, V.N.

Adsorption of certain gases on uranous-uranic oxides. Izv. vys. ucheb. zav.; tsvet. met. 6 no.4:113-117 '63. (MIRA 16:8)

1. Ural'skiy politekhnicheskiy institut.
(Uranium oxides) (Adsorption)

S/080/63/036/001/004/020
D204/D307

AUTHORS: Vlasov, V.G. and Zhukovskiy, V.M.

TITLE: The reduction of U_3O_8 with decomposed ammonia

PERIODICAL: Zhurnal prikladnoy khimii, v. 36, no. 1, 1963, 42 - 47

TEXT: The reduction kinetic were studied on (I) U_3O_8 made by firing $UO_4 \cdot nH_2O$ in air at 800°C for 5 hrs, and (II) U_3O_8 made by oxidizing UO_2 in air at 550°C over 5 hrs. The reducing mixture was obtained by passing NH_3 over a Ni catalyst at 930°C. Measurements of the temperature-dependence of the rate of reduction (at a pressure of 200 mm, between 450 and 650°C) showed that the curves were practically the same for specimens I and II; the apparent activation energy was E = 32.2 ± 1.6 kcal/mole. The kinetic curves and x ray diffraction studies showed that the reaction may be represented by the sequence: $U_3O_8 \rightarrow U_3O_{8-x_{max}} \rightarrow$

Card 1/2

The reduction of U_3O_8 ... S/080/63/036/001/004/026
D204/D307

$\longrightarrow U_4O_9 \longrightarrow UO_{2+x_{max}} \longrightarrow UO_{2+x}$. The reaction was retarded by water vapor, especially at the lower temperatures. The pressure-dependence of the rate v (at 600°C, between 50 and 600 mm Hg of $(3H_2 + N_2)$) was

$$v = k \times p_{H_2}^n ,$$

where $n = 0.80 \pm 0.02$ is little dependent of the specimen. Various possible rate-determining stages are discussed, proposing that the rate-limiting stage is in this case the interaction of adsorbed (atomic and molecular) hydrogen with oxygen of the oxide. There are 4 figures.

ASSOCIATION: Ural'skiy politechnicheskiy institut imeni S.M. Kirova (Urals Polytechnic Institute imeni S.M. Kirov)

SUBMITTED: March 15, 1962

Card 2/2

ZHUR, Il'ya Ivanovich, zhurnalist; KHOKHLUSHIN, Viktor Afanas'yevich; GUROV, S., red.; YAKOVLEVA, Ye., tekhn. red.

[Plant changes its production program] Zavod meniaet profil'. Moskva, Mosk. rabochii, 1963. 82 p. (MIRA 16:12)

1. Direktor moskovskogo zavoda "Kalibr" (for Khokhlushin).
(Moscow--Instrument industry)

BABADZHAN, A.A.; ZHUKOVSKIY, V.M.; BUTUZOVA, L.V.; VETRENKO, Ye.A.

Thermodynamic analysis of germanium behavior in the pyroselection process. TSvet. met. 38 no.4:59-62 Ap '65. (MIRA 18:5)

BABADZHAN, A.A.; ZHUKOVSKIY, V.M.; VETRENKO, Ye.A.

Thermodynamic analysis of the behavior of rare elements in the pyrometallurgical process. TSvet. met. 37 no.6:55-58 Je '64. (MIRA 17:9)

BABADZHAN, A.A.; ZHUKOVSKIY, V.M.; ZAPONOVA, K.F.; VETRENKO, Ye.A.

Kinetics of volatalizing zinc, lead, and certain rare elements during the treatment of metallurgical dusts by the pyroselection method. TSvet. met. 36 no.11:20-22 N '63. (MIRA 17:1)

ZHUKOVSKIY, V.M.; VLASOV, V.G.

Interaction of uranium trioxide with decomposed ammonia in the presence of some foreign oxide additions. Dokl. AN SSSR 153 no.5:1077-1080 D '63. (MIRA 17:1)

1. Ural'skiy politekhnicheskiy institut im. S.M. Kirova. Predstavleno akademikom A.A. Balandinym.

VIASOV, V.G.; ZHUKOVSKIY, V.M.; LEBEDEV, A.G.; SHALAGINOV, V.N.

Adsorption of some gases on uranium trioxide. Zhur. prikl. khim. 37 no.10:2170-2175 O'64. (MIRA 17:11)

STREKALOVSKIY, V.N.; BESSONOV, A.F.; ZHUKOVSKIY, V.M.; NEUYMIN, A.D.

Electric properties of uranium oxides. Trudy Inst. elektrokhim. UFAN SSSR no.3:155-159 '62. (MIRA 16:6)

(Uranium oxides—Electric properties)

ZHUKOVSKIY, V.N., gornyy elektromekhanik

Drilling out of coal in the faces of development workings.
Ugol' Ukr. 6 no.8:29-31 Ag '62. (MIRA 15:11)
(Donets Basin—Coal mines and mining)
(Rock drills)

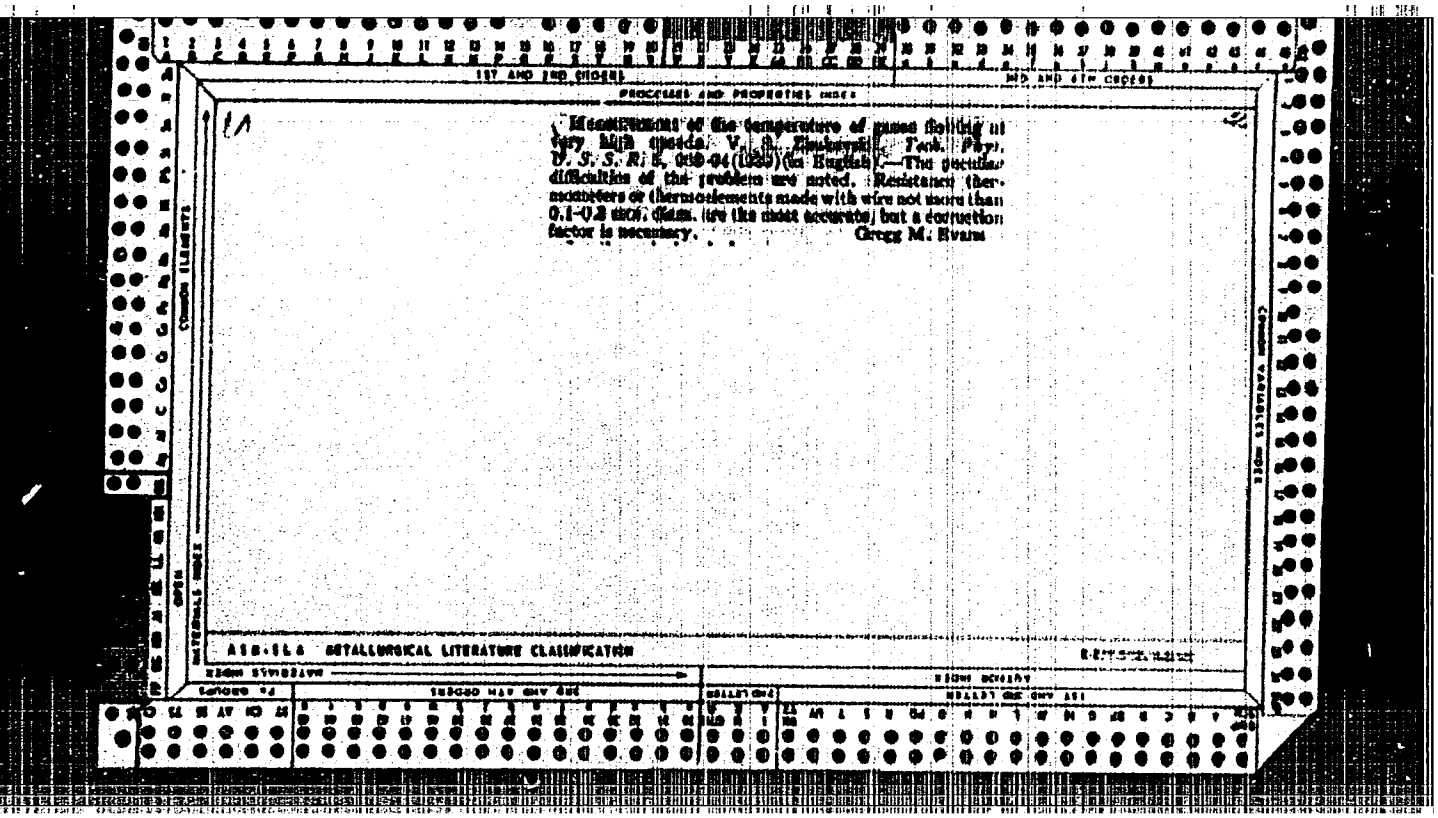
ZHUKOVSKII, V. S.

Izmerenie temperatury gazovogo potoka pri ves'ma bol'shikh skorostiakh. (Zhurnal tekhnicheskoi fiziki, 1938, v.8, no. 21, p.1938-1953, and no. 22-23, p/2026-2036, table, diagrs.)

Title br: On the measurement of the temperature of gases flowing at very high speeds.

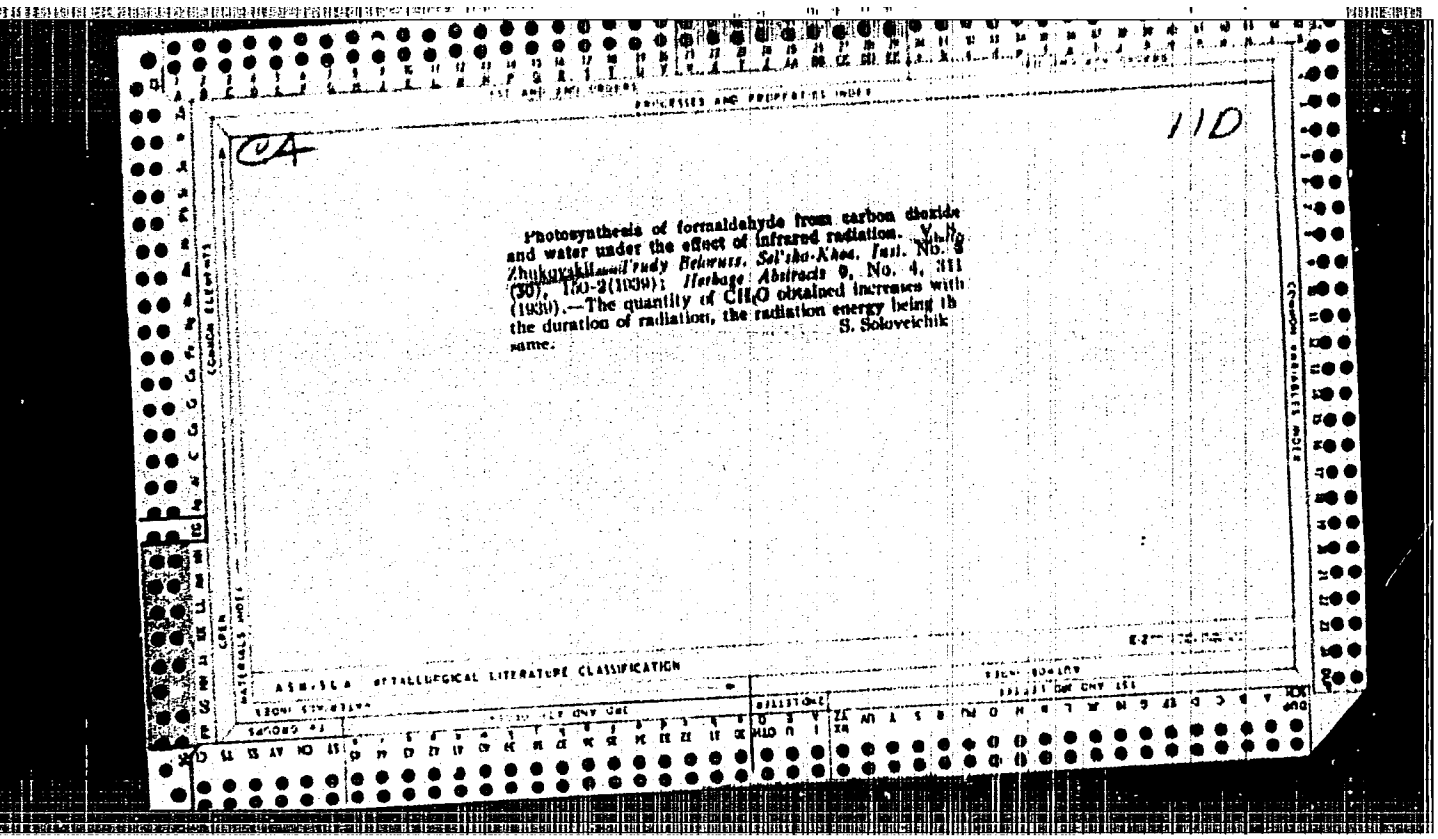
QCl. Z48 1938

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955



Measurements of the temperature of gases flowing at very high speeds. V. A. Zinchenko. *Tech. Phys. U.S.S.R.* 5, 910-94 (1938) (in English).—The peculiar difficulties of the problem are noted. Resistance thermometers or thermoelements made with wire not more than 0.1–0.2 mm. diam. are the most accurate, but a correction factor is necessary. Gregg M. Evans

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

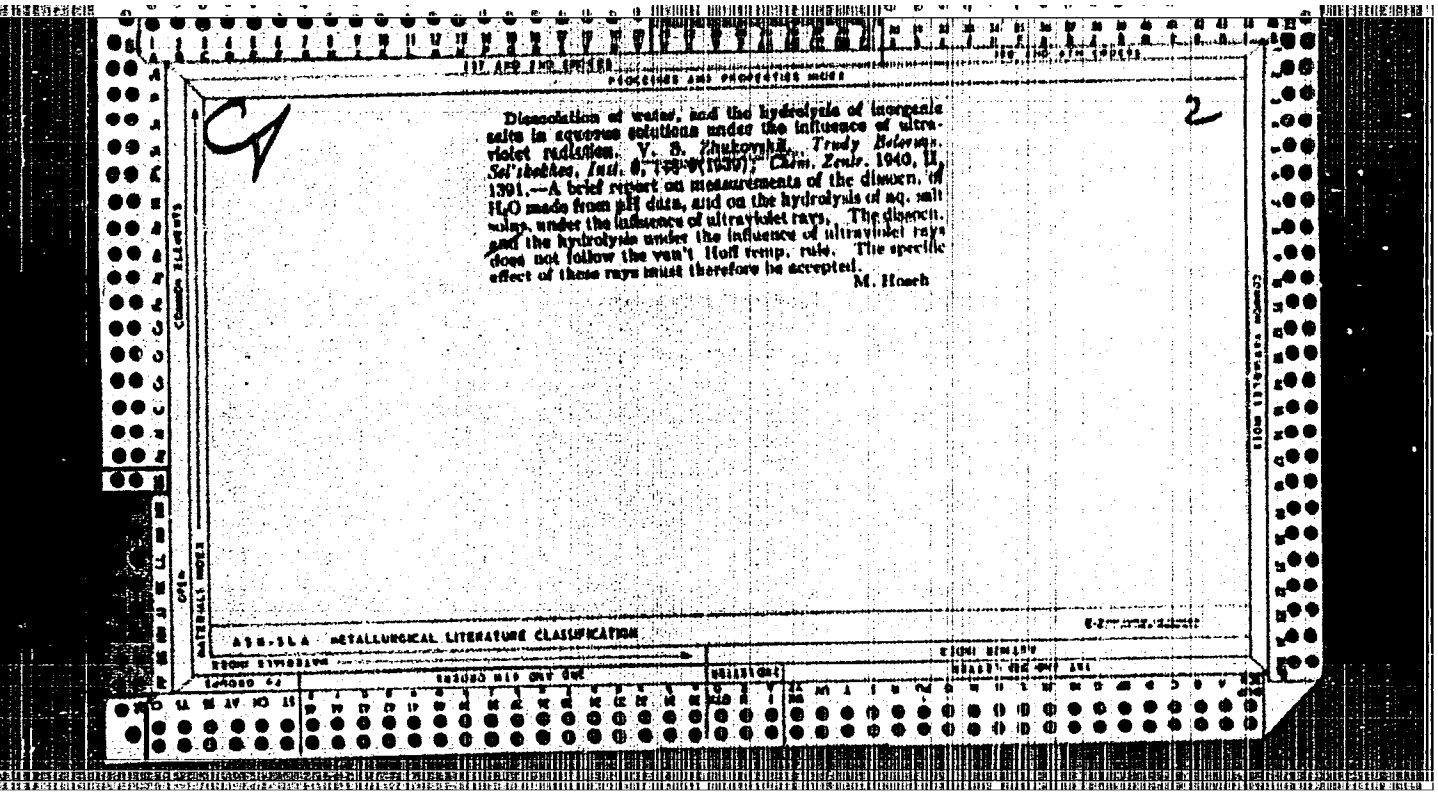


CA

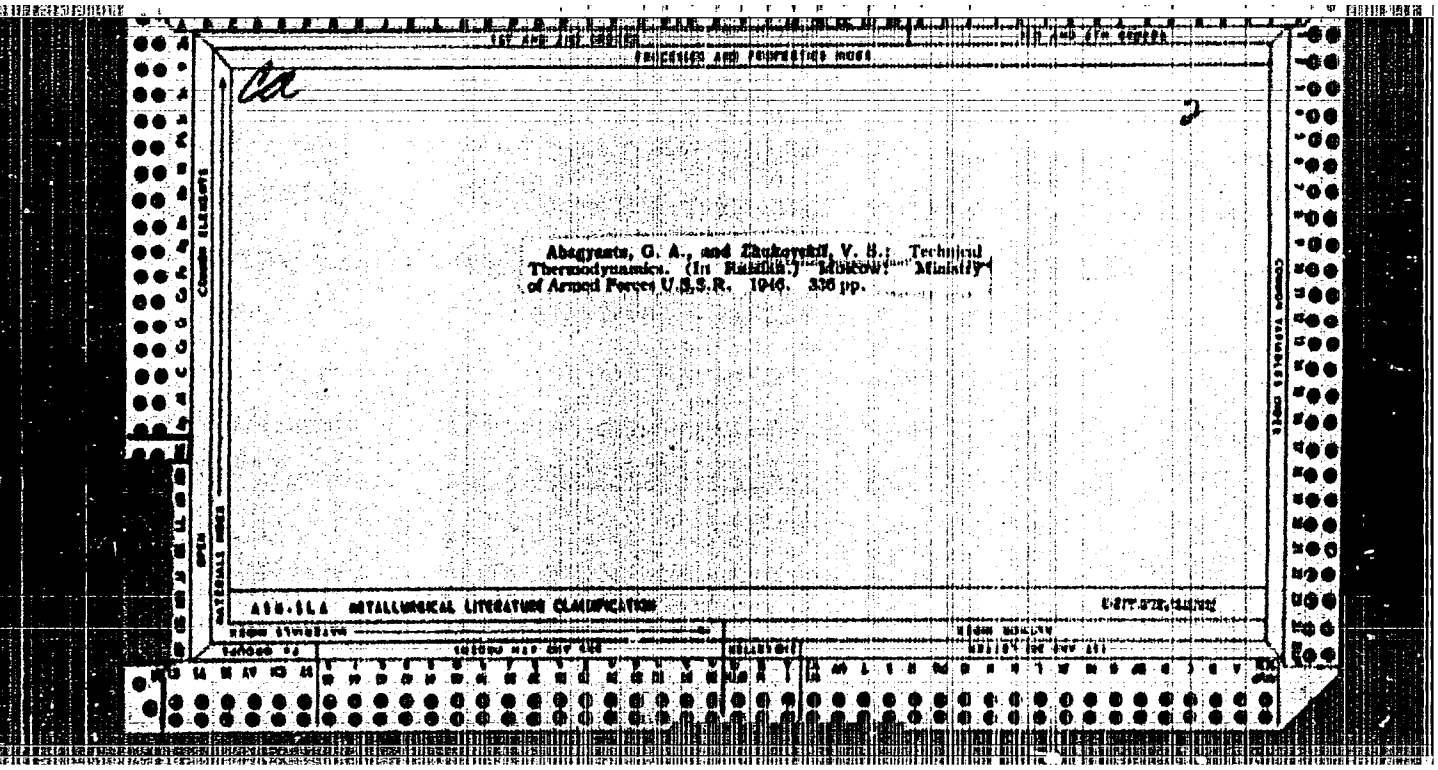
110

Photosynthesis of formaldehyde from carbon dioxide and water under the effect of infrared radiation. V. N. Zhukovskii. *Trudy Belorussk. Sel'sko-Khoz. Inst.* No. 3 (30), 183-2(1939); *Herbage Abstracts* 9, No. 4, 311 (1939).—The quantity of CH_2O obtained increases with the duration of radiation, the radiation energy being the same.
S. Soloveichik

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Dissociation of water, and the hydrolysis of inorganic salts in aqueous solutions under the influence of ultraviolet radiation. V. B. Zhukovskiĭ. *Trudy Leningr. Sel'skokhoz. Inst.* 8, 155-9(1939); *Chem. Zentr.* 1940, II, 1391.—A brief report on measurements of the dissocn. of H_2O made from pH data, and on the hydrolysis of aq. salt solns. under the influence of ultraviolet rays. The dissocn. and the hydrolysis under the influence of ultraviolet rays does not follow the van't Hoff temp. rule. The specific effect of these rays must therefore be accepted.
M. Hasch



Abagyants, G. A., and Zhukovskii, V. S.: Technical Thermodynamics. (In Russian.) Moscow: Ministry of Armed Forces U.S.S.R. 1946. 336 pp.

ZHUKOVSKIY, V.S.

PHASE I

BOOK Call No.: AF551088 00000043

Author: ZHUKOVSKIY, V.S.
Full Title: TECHNICAL THERMODYNAMICS (3rd ed.)
Transliterated Title: Tekhnicheskaya Termodinamika.

Publishing Data
Originating Agency: None
Publishing House: State Publishing House of Technical-Theoretical Literature.
Date: 1952 No. pp.: 408 (text) and 29 tables No. copies: 15,000
Editorial Staff
Editor: None. Technical Editor: None
Editor-in-Chief: None. Appraiser: None.

Text Data
Coverage: The third revised edition is supplemented by the following new subjects: tendency of isolated systems to the state of equilibrium; differential thermodynamic equations; thermodynamic potentials; cycles of gas turbine-and refrigerating installations. In the chapters on technical application of thermodynamics only essential information is given and details are referred to specific courses.

The main object of the is primarily to bring a clear understanding of the basic subject of the problem under consideration, the specific methods of its solution, and interrelation of the given method of scientific analysis with other methods.

Purpose: A textbook for students in institutions of higher learning and in thermochemical institutions.

1/2

Card 2/2

Call No.: AF551088 C0000043

Full Title: TECHNICAL THERMODYNAMICS (3rd ed.)

Facilities: None
No. Russian and Slavic references: None.
Available: A.I.D., Library of Congress.

ZHUKOVSKIY, V. S.

AID P - 1256

Subject : USSR/Engineering

Card 1/1 Pub. 110-a - 17/17

Authors : Zhukovskiy, V. S., Doc. of Tech. Sci., et. al.

Title : Deych, M. Ye., Technical Gas Dynamics. Gosenergoizdat, 1953. (Review)

Periodical : Teploenergetika, 1, 62-64, Ja 1955

Abstract : The book of M. Ye. Deych outlines the principles of gas dynamics of the sections of turbines between the inlet and outlet valve through which steam passes. It touches also upon the theory of turbines. It is intended as a textbook for students.

Institution : None

Submitted : No date

AID P - 1333

Subject : USSR/Engineering

Card 1/1 Pub. 110-a - 15/19

Authors : Kazavchinskiy, Ya. Z., Kand. of Tech. Sci. and Martynovskiy, V. S., Doc. of Tech. Sci.

Title : Zhukovskiy, V. S., Engineering Thermodynamics. (Review)

Periodical : Teploenergetika, 2, 57-59, F 1955

Abstract : The textbook on engineering thermodynamics of Zhukovskiy, V. S., 3 rd. ed., revised, published by Gostekhizdat in 1952, is reviewed.

Institution : None

Submitted : No date

ZHUKOVSKIY, V.S., prof., retsenzent; KNORRE, G.F., red.; BORISHANSKIY, V.M., red.; ZABRODINA, A.A., tekhn. red.

[Problems of aerodynamics and heat transmission in boiler furnace processes] Voprosy aerodinamiki i teploperedachi v kotel'no-topochnykh protsessakh; sbornik statei. Moskva, Gos. energ. izd-vo, 1958. 329 p. (MIRA 11:10)
(Furnaces--Aerodynamics) (Heat--Transmission)

ZHUKOVSKIY, Valentin Semenovich; BORISHANSKIY, V.M., red.; SOBOLEVA, Ye.M., tekhn.red.

[Principles of the theory of heat transfer] Osnovy teorii teploperedachi. Moskva, Gos.energ.izd-vo, 1960. 211 p. (MIRA 13:12)

(Heat--Transmission)

GUKASOVA, Yekaterina Aleksandrovna; ZHUKOVSKIY, Mikhail Isaakovich; ZAVADOVSKIY, Anatoliy Mikhaylovich; ZYSINA-MOLOZHEN, Larisa Mikhaylovna; SKNAR', Nikolay Akimovich; TYRYSHKIN, Vsevolod Georgiyevich; ZHUKOVSKIY, V.S., prof., doktor tekhn.nauk, red.; KUTATELADZE, S.S., prof., doktor tekhn.nauk, red.; ZHITNIKOVA, O.S., tekhn.red.

[Aerodynamic improvement of bladed apparatus of steam and gas turbines] Aerodinamicheskoe sovershenstvovanie lopatochnykh apparatov parovykh i gazovykh turbin. Pod red. V.S.Zhukovskogo i S.S.Kutateladze. Moskva, Gos.energ.izd-vo, 1960. 340 p. (MIRA 13:7)

(Steam turbines) (Gas turbines)

38604
S/170/62/005/007/005/010
B104/B112

26.5200

AUTHOR: Zhukovskiy, V. S.

TITLE: Isothermal flow of gas through pipes

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 5, no. 7, 1962, 45-51

TEXT: The hypothesis of L. A. Zalmanzon (Protochnyye elementy pnevmaticheskikh priborov kontrolya i upravleniya - Flowing elements of pneumatic control instruments, Izd. AN SSSR, 1961) and S. A. Khristianovich et al. (Prikladnaya gazovaya dinamika - Applied gas dynamics, 1948) that the Mach number of an isothermal flow of gas in a pipe can approach unity, and some conclusions derived therefrom, are refuted. Under conditions of convective heat transfer an isothermal flow of gas in a pipe can occur in a completely determined relationship of Mach number M_1 at the input of the pipe and Mach number M_2 at the output: $M_2^2/M_1^2 = (4+(2-r)\xi\tilde{l})/(4+r\xi\tilde{l})$, where r is the reduction factor, and

$$\xi\tilde{l} = \frac{1}{kM_1^2}\left[1-\left(\frac{p_2}{p_1}\right)^2\right]+\ln\left(\frac{p_2}{p_1}\right)^2. \qquad (11).$$

Card 1/2

Isothermal flow of gas through pipes

As this relationship is close to unity, the interval of possible Mach numbers that fulfill this relation becomes extremely narrow. Hence, an isothermal flow of gas in a pipe can be obtained only if the pressure drop is very small. There is 1 figure.

ASSOCIATION: Vysshaye voyenno-morskoye inzhenernoye uchilishche imeni F. E. Dzerzhinskogo, g. Leningrad (Higher Naval Engineering School imeni F. E. Dzerzhinskiy, Leningrad)

SUBMITTED: October 25, 1961

Card 2/2

ZHUKOVSKIY, V.S., kand. tekhn. nauk, dotsent

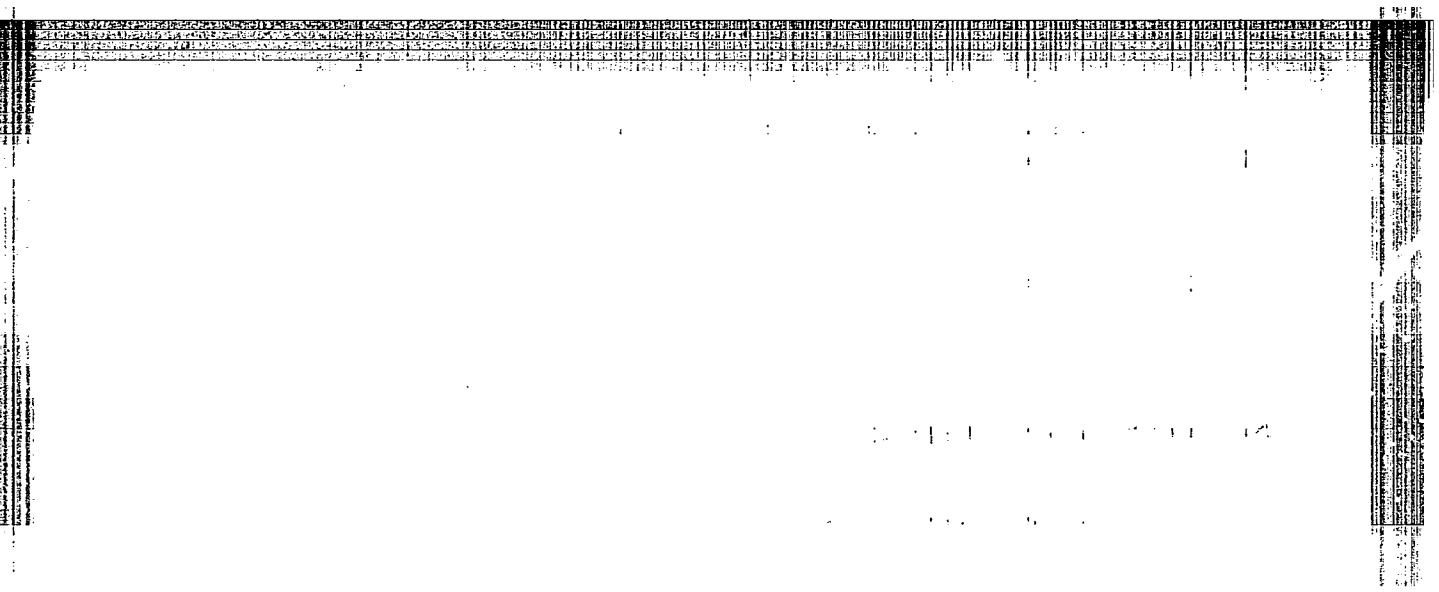
Solution of problems on stress concentration in flat parts by the method of lattices. Izv. vys. ucheb. zav.; mashinostr. no.2:46-54 '64. (MIRA 17:5)

1. Vsesoyuznyy zaochnyy energeticheskiy institut.

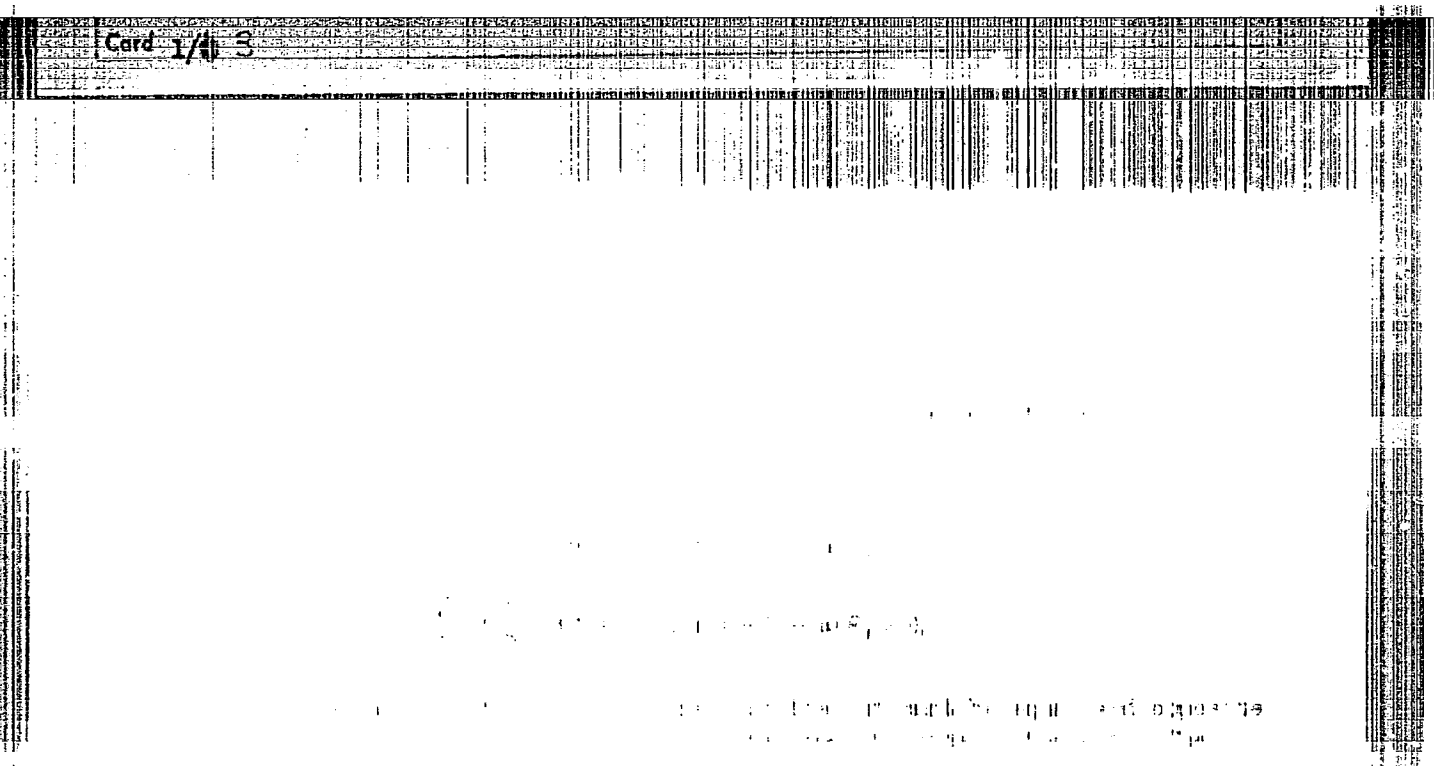
ZHUKOVSKIY, V.S. (Moskva)

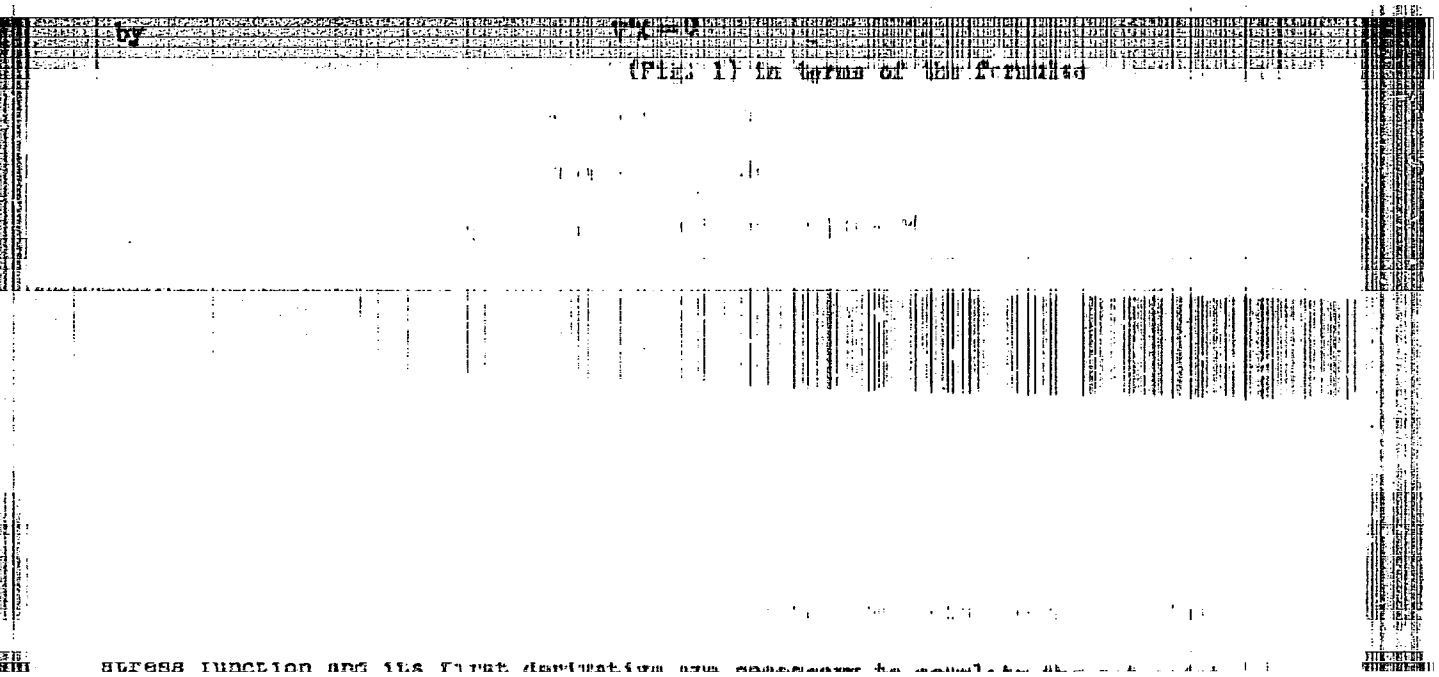
Solution of the plane problem in the theory of elasticity for a multiply connected area by means of the net method. Prikl. mekh. 1 no.5:47-51 '65. (MIRA 18:7)

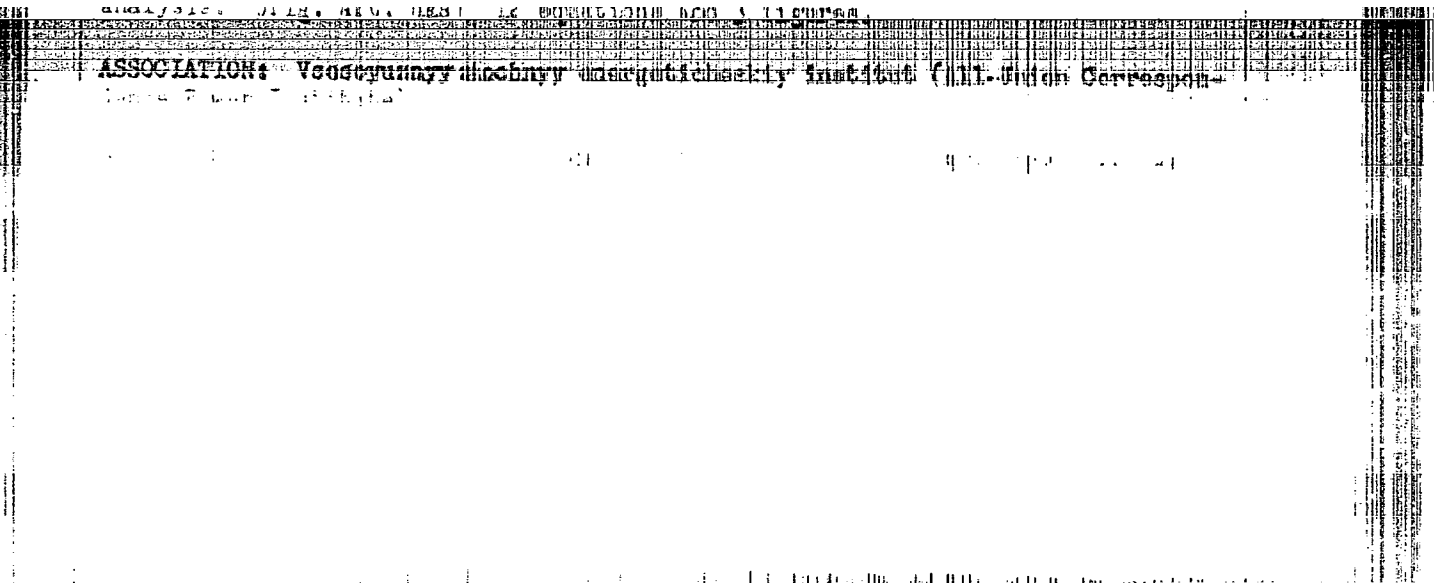
1. Vsesoyuznyy zaochnyy energeticheskiy institut.



APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065010015-1"







ZIBROVSKIY, V.S., kand. tekhn. nauk, dotsent

Stress concentration caused by flat bending of a strip having a double-sided notch. Izv. vys. ucheb. zav.; mashinostr. no.9: 57-67 '64. (MIRA 17:12)

1. Vsesoyuznyy zaochnyy energeticheskiy institut.

ZHUKOVSKIY, V.S., kand.tekhn. nauk

Strained state and the strength of flat notched bars of arbitrary thickness. Rasch. na prochn. no.9:231-252 '63
(MIRA 16:12)

ZHUKOVSKIY, V.S., doktor tekhn. nauk, prof.

Letter to the editor. Izv. vys. ucheb. zav.; energ. 7 no.2:114 F '64. (MIRA 17:3)

S/068/62/003/000/022/029
A059/A126

AUTHORS: Zhukovskiy, V.S., Remnikovich, K.I. (Leningrad)

TITLE: Heat and mass transfer in air coolers with spiral-finned tubes

SOURCE: Teplo- i massoperenos. t. 2: Teplo- i massoperenos pri fazovykh i khimicheskikh prevrashcheniyakh. Ed. by A.V. Lykov and B.M. Smol'skiy. Minsk, Izd-vo AN BSSR, 1962. 206 - 214

TEXT: With respect to the coefficient of heat transfer from the air side, spiral-finned tubes produced by rolling-on differ only little from circular-ribbed tubes with wound-on spirals under the conditions of good contact of the ribs with the supporting surface. Stability of the heat contact independently of the operating conditions is an advantage of the rolling-on method. The coefficient of heat transfer can be calculated from the dependence:

$$Nu = 0.077\ Re^{0.7} \qquad (3)$$

developed by the authors. The mass-transfer coefficient at initial-volume moisture contents up to 10% should be determined on the assumption of a similarity

Card 1/3

Heat and mass transfer in air coolers ....

of the partial pressure and temperature fields from the equality Nup = Nu, where Nup is the Nusselt diffusion criterion. The hydraulic resistance of spiral-finned tubes at which moisture condensation occurs is in excess of the resistance of circular-finned tubes in dry air, and is approximately determined by the formula:

$$Eu = 27.8\ n\ Re^{-0.417},$$

where n is the number of longitudinal rows of tubes in the direction of flow. The entrainment of moisture at velocities of flow exceeding 15 m/sec is extremely great and attains 60% of that condensed in the cooler. In this case, particularly efficient water separators should be used which, in addition to a scale-up of the device, results in a further increase of the resistances which were considerable also without this fact intervening. An appropriate upper limit of velocity is 10 - 12 m/sec which is usually recommended and at which a separation up to 80 - 90% of the supplied moisture is obtained with the most simple separators. Tubes with rolled-on ribs show a rough internal surface with alternating flat depressions and projections resembling the thread of a screw. Due to such an "artificial roughness", the coefficient of heat transfer from the water side is twice that calculated from the current dependences. This effect is particu-

Card 2/3

Heat and mass transfer in air coolers ....

larly useful for finned tubes. V.M. Antuf'yev, G.S. Beletskiy, and the Tsentral'nyy institut tekhnologii mashinostroyeniya (Central Institute of Technology of Machine Building) (TsNIITMASh) are mentioned. There are 4 figures and 1 table.

Card 3/3

ZHUKOVSKIY, V.P., inzh.

New circuit for the assembly of a section electric substation.
Ugol.prom. no.5:73 S-O '62. (MIRA 15:11)

1. Kombinat "Donetskugol'."
(Electricity in mining)

ZHUKOVSKIY, V.S.

PRIGOROVSKIY, N.I., doktor tekhn. nauk; PREYSS, A.K., kand. tekhn. nauk; ZHUKOVSKIY, V.S., inzh.; ZABUGINA, N.A., inzh.; BEZKHODARNYY, B.N., starshiy laborant.

Use of models to determine stresses and displacements of parts in the hub of hydraulic-turbine runners. [Trudy] LMI no.4:145-176 '57. (MIRA 11:4)

1. Institut mashinovedeniya AN SSSR.
(Hydraulic turbines) (Hydraulic models)

AUTHOR: Zhukovskiy, V.S. (Moscow). 24-7-19/28

TITLE: Distribution of stresses in notched rods during elastic-plastic deformation. (Raspredeleniye napryazheniy v nadrezannykh sterzhnyakh pri uprugo-plasticheskom deformirovanii).

PERIODICAL: "Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk" (Bulletin of the Ac.Sc., Technical Sciences Section), 1957, No.7, pp.132-136 (U.S.S.R.)

ABSTRACT: Solutions of the problem, published by Uzhik, G.V. (1), Grubin, A.N. and Likhachev, Yu. I. (2) and Likhachev, Yu.I.(3) of the distribution of the stress inside the narrow cross section of a deeply notched specimen under tensile stress in the case of elastic-plastic deformation are approximate and the importance of a number of the assumptions made is not quite clear. The results published in this paper aimed at clarifying some of the problems involved. Due to the existing analogy between the problems of plane and axis-symmetrical deformation, it is possible to verify certain conceptions relating to the elastic-plastic deformation derived by means of the axis-symmetrical problem by experimental results obtained on plane specimens. In a series of experiments the deformations were measured after

1/3

Distribution of stresses in notched rods during elastic-plastic deformation. (Cont.)

successive loading steps at various points along the axis BB, Fig.1 (axis connecting the roots of the notches) of the front surface of the specimens subjected to tensile stresses in a test machine. The shape and the dimensions of the notches were the same as those used by Uzhik (1). In the graph, Fig.1, the stress distribution in the narrow cross section of a deeply notched tensile specimen is compared for axis-symmetrical deformation and for plane deformation. Fig.2 gives the dependence on the specimen thickness of the increase of the curvature radius, of the axial deformation and the stresses at the apex of the notch at the instant preceding failure. Fig.3 gives the dependence of the axial deformation, the stresses and curvature radii relations at the apex of the notch of a thick specimen on the nominal stress in the narrow cross section. Fig.4 gives the stress distribution in the case of plane deformation calculated by various methods; Fig.5 gives calculated values of the stress distribution for the case of axis-symmetrical deformation, using the same solutions as were used to determine the curves of Fig.4.
2/3 The available results are compared. For the case of plane deformation the results are considered which were obtained

Distribution of stresses in notched rods during elastic-plastic deformation. (Cont.)

24-7-19/28

by B. P. Kishkin in his dissertation "Stress concentration in the case of plane deformation and failure of a beam with deep notches", who used the theory of small elastic-plastic deformations for determining the stress state of a tensile stressed steel rod under plane deformation with a specimen configuration similar to that shown in Fig.1, p.132; the stress epures in the narrow cross section obtained by this author for the fracturing load are plotted in Fig.4. For the axis-symmetrical deformation the results of Likhachev, Yu.I. (2 and 3) are discussed, who gave an approximate solution and considered the large plastic deformations and the increase in the curvature radius at the apex of the notch; the stress epures obtained by him are plotted in Fig.5 and relate to cylindrical steel specimens with a deep notch of hyperbolic profile subjected to tensile stresses. Grubin, A.N. and Likhachev, Yu.I. (2) did not take adequately into consideration the change in the curvature radius at the apex of the notch at the instant of beginning of failure. The author thanks G. V. Uzhik for his advice in carrying out the here described work. There are 5 figures and 9 references, all of which are Slavic.

3/3

SUBMITTED: November 28, 1956.
AVAILABLE:

ZHUKOVSKIY, V.S., Cand Tech Sci--(diss) "~~Stability~~ Strength and plasticity of flat steel bars of arbitrary thickness upon ~~the presence of~~ concentration of tensions." Mos, 1958. 19 pp (Acad Sci USSR. Inst of Machine ~~Management~~ Science), 100 copies (KL,25-58,112)

AUTHOR: Zhukovskiy, V. S. (Moscow) SOV/24-58-5-21/31

TITLE: On the Coefficient of Strengthening and the Character of Propagation of Plastic Zones in Notched Bars (O koeffitsiente usileniya i kharaktere rasprostraneniya plasticheskikh zon v nadrezannykh sterzhnyakh)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 5, pp 116-120 (USSR)

ABSTRACT: The coefficient of strenthening f of a notched bar is the ratio P_{sk}/P_s, i.e. the ratio of the load at which plastic deformations in the weakened cross section are for the first time larger than the elastic deformations, to the yield point of a smooth bar, the cross section of which is equivalent to the narrow cross section of the notched bar. Study of this coefficient is of definite interest, since it provides additional possibilities of verifying experimentally certain assumptions of the theory of plasticity. Uzhik (Ref 2) has shown that, due to three-dimensional non-uniform tension which, in the case of a deep notch, takes place along the entire narrow cross section of the cylindrical or plane deformed bar, the development of plastic deformation which starts at the

Card 1/4

On the Coefficient of Strengthening and the Character of Propagation of Plastic Zones in Notched Bars

apex of the notch and extends towards the narrow cross section will be braked, whereby in the case of a sufficiently sharp notch the narrow cross section will be subjected to elastic-plastic deformation until the specimen fails. The deformation of tensile stressed bars in the case of a bilateral notch, Fig.1, was studied by Southwell and Allen (Ref 3) within the framework of the plane problem by means of the relaxation (numerical) method and, in the same way as in the other quoted theoretical work, they did not take into consideration work hardening. Hill (Ref 5) assumes that plastic deformation develops right across the narrow cross section of the bar and this prevents formation of an elastic core; according to the formula of Hill the respective numercial values are calculated and entered in a table, p.117 in which theoretical results are also given of Southwell and Allen (Ref 3), Jacobs (Ref 4) and Hill (Refs 5,6). The greatest divergence between the f values pertain to plane deformation which is also confirmed by the data of Jacobs; for the plane stress state when there is either

On the Coefficient of Strengthening and the Character of Propagation of Plastic Zones in Notched Bars

no elastic core at all or the elastic core is very small (Fig 2), the divergence in the f values is small. As the basic assumption which justifies the character of the propagation of the plastic zone, Hill considers the requirement that the notch should be sufficiently deep; this contradicts the results obtained by Jacobs (Ref 4) according to which the character of the deformation does not change right up to values of b/2a = 8. There is also a contradiction between the results of Hill and the data of Green (Ref 8). Equally, available experimental data do not confirm the views expressed by Hill; it can be assumed that the views of Hill are correct for certain types of notches, for instance, forvery obtuse-angled notches. In the latter part of the paper the author deals with the approximate nature of producing the plane state of deformation experimentally and refers the reader to the Candidate Dissertation of B. P. Kishkin "Stress Concentration in the Case of Plane Deformation and Failure in a Beam with Deep Notches", furthermore, he gives experimental results obtained for 70 mm long notched

specimens of various thicknesses with various characteristics as enumerated on p 118. The experimental results, graphed in Fig 5, show that for very thick specimens the transverse contraction is small, particularly in the case of sharp notches, which contradicts the results of Lee (Ref 11). The experimentally obtained values of f are shifted towards lower values as compared to those calculated by means of the Hill formulae; the greatest divergence is obtained for specimens with a sharp notch of considerable depth. It was found that the sharpness of the notch did not affect appreciably the values of f and this is in agreement with the results of Allen and Southwell (Ref 3). For thin specimens the data graphed in Fig 5 are in agreement with the data of Siebel and Hosang (Ref 19). There are 5 figures, 1 table and 19 references, 11 of which are Soviet, 7 English, 1 German.

SUBMITTED: December 2, 1957

ZHUKOVSKIY, U.S. PHASE I BOOK EXPLOITATION SOV/2566

Akademiya nauk SSSR. Institut mashinovedeniya

Problemy prochnosti v mashinostroyenii, vyp. 2 (Problems of Strength in Machinery Design, No. 2) Moscow, Izd-vo AN SSSR, 1959. 97 p. Errata slip inserted. 3,000 copies printed.

Resp. Ed.: N.I. Prigorovskiy, Doctor of Technical Sciences, Professor; Ed. of Publishing House: V. M. Klennikov; Tech. Ed.: O.M. Gus'kova.

PURPOSE: This collection of articles is intended for scientific research workers, engineers, and designers.

COVERAGE: This collection of articles deals with stress concentrations. The topics discussed include stress concentrations in holes of equal and unequal ratio, stress and strain distribution in flat notched bars, residual stresses during heat treatment, and stress distribution in a wide strip with a hole near the edge. No personalities are mentioned. References follow each article.

Card 1/4

TABLE OF CONTENTS:

The fore-going articles are discussions of investigations made by the author at the Laboratory of Dynamic Strength of Machine Parts, Institute of Mechanical Engineering, Academy of Sciences, USSR. In these articles the authors develop a method of linear superposition of known exact solutions for stress concentrations for each individual hole with approximate stress concentration due to mutual effect of neighboring holes. An experimental check showed full agreement with the approximate analytical solution.

oratory for Dynamic Strength of Machine Parts, Institute of Mechanical Engineering, Academy of Sciences, USSR. B. I. Rus'kin participated in the experiment. Determination of the lateral compression was obtained by a method of superposition involving the solutions for omnidirectional compression and longitudinal tension. An experimental check fully agreed with the results of the theoretical solution.

AVAILABLE: Library of Congress

Card 4/4

GO/ec
12-10-59

ZHUKOVSKIY, V.S., kand.tekhn.nauk

Determining stresses in a thin-walled axisymmetrically loaded circular cylinder. Rasch.na prochn. no.4:224-242 '59.
(MIRA 13:4)

(Elastic plates and shells)

S/572/60/000/006/009/018
D224/D304

AUTHOR: Zhukovskiy, V. S., Candidate of Technical Sciences

TITLE: The stressed state and strength of a flat steel bar of considerable thickness in the presence of concentration of stresses

SOURCE: Raschety na prochnost'; teoreticheskiye i eksperimental'nyye issledovaniya prochnosti mashinostroitel'nykh konstruktsiy. Sbornik statey. No. 6, Moscow, 1960, 145-154

TEXT: After static fracture of a flat steel bar having deep and sharp cuts on both sides, two different zones are observed on the surface, one of which (central) indicates failure of material in the elastic domain (brittle failure). It is of interest to compare the dimensions of the zones with the results of approximate calculation of stress distribution in the weakened cross-section. The author gives a graph of stress distributions calculated from experimental values of deformations, with reference to previous

Card 1/2

publications by himself and others. There are 6 figures and 17 references: 16 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: M. L. Fried and G. Sachs, Notched bar tension tests on annealed carbon steel specimens of various sizes and contours. Symposium on deformation of metals as related to forming and service. ASTM, Special Technical Publication N87, 1949.

L 40876-66 EWT(m) IJP(c) TCH/SAJ/GD

ACC NR: AT6021846 (N) SOURCE CODE: UR/0000/65/000/000/0317/0323

37
AUTHOR: Zhukovskiy, V. S.; Madiyevskiy, V. L; Reznikovich, K. I. 8+1

ORG: Higher Naval Engineering School im. F. E. Dzerzhinskiy (Vysshaye voyenno-morskoye inzhenernoye uchilishche)

TITLE: The true wall temperature in a stream of supersaturated vapor

SOURCE: Teplo- i massoperenos. t. III: Teplo- i massoperenos pri fazovykh prevrashcheniyakh (Heat and mass transfer. v. 3: Heat and mass transfer in phase transformations). Minsk, Nauka i tekhnika, 1965, 317-323

TOPIC TAGS: steam power plant, temperature measurement

ABSTRACT: The experimental unit employed was fed from an industrial boiler which produced slightly moist steam at a pressure of 16 to 20 atmospheres. After throttling, this steam, which was somewhat superheated, was led through a spray type humidifier into a horizontal tank to which was attached the experimental round nozzle, which had along its length seven outlets for sampling the pressure at the wall. The experimental results are presented in the form of a figure which shows the distribution of the relative temperature, $\beta = p/p_0$. Further

Card 1/2

L 40876-66

ACC NR: AT6021846 O

figures show the calculated distribution of the relative pressures along the length of the nozzle, and the distribution of the temperatures along the length of the nozzle. A final figure shows the change in the recovery coefficient as a function of the initial degree of saturation of the steam. Orig. art. has: 4 figures.

SUB CODE: 20/ SUBM DATE: 09Dec65/ ORIG REF: 004/ OTH REF: 005

Card 2/2 MLP

L 45671-66 EWT(1)/EWP(m) WW

ACC NR: AP6021217 SOURCE CODE: UR/0294/66/004/003/0399/0406

AUTHOR: Zhukovskiy, V. S. (Leningrad); Madiyevskiy, V. L. (Leningrad); Reznikovich, K. I. (Leningrad)

61
B

ORG: none

TITLE: On the characteristic temperature of a wall in a stream of supersaturated steam

SOURCE: Teplofizika vysokikh temperatur, v. 4, no. 3, 1966, 399-406

TOPIC TAGS: steam superheater, Laval nozzle, supersonic flow, liquid flow

ABSTRACT: The flow of a saturated steam in a Laval nozzle is investigated by determining the characteristic wall temperature and the temperature stagnation coefficient. The review of literature covering such flows indicates incomplete understanding of the problem which has been attacked by authors by developing a special apparatus allowing stagnation and wall temperature measurements to be made at any point in the flow. This system is described with special attention paid to the supersonic regime of the flow. The measurements have been tabulated for two-to-one relative pressure range and several superheating conditions. The results satisfy a simple relation for the temperature dependence of the stagnation coefficient. The characteristic wall temperature corresponds to the results of D. J. Riley in *Engineer*, 210, 1960. The divergence of results from the theoretical predictions is due to flow conditions where the steam is

UDC: 536.423.4:532.5

Card 1/2

L 45671-66

ACC NR: AP6021217

near the phase-transition state and such initial parameters as the degree of saturations are critical. This has been confirmed by observing the behavior of flow with artificially introduced liquid phase. It was established that the surface effects which determine the stagnation coefficient are also strongly dependent on the proximity of equilibrium transition point and influence the flow characteristics. Orig. art. has: 4 figures, 1 table.

SUB CODE: 20/ SUBM DATE: 05Jan65/ ORIG REF: 007/ OTH REF: 003

Card 2/2 fv

L 41330-66 EWT(d)/EWT(m)/EWP(w) IJP(c) EM

ACC NR: AP6019926 (N) SOURCE CODE: UR/0122/66/000/006/0018/0021

AUTHOR: Zhukovskiy, V. S. (Candidate of technical sciences, Lecturer); Surkov, A. I. (Candidate of technical sciences); Morozov, B. A. (Doctor of technical sciehces)

ORG: None

TITLE: Using the net-point method for determining stresses in parts with complex shapes

SOURCE: Vestnik mashinostroyeniya, no. 6, 1966, 18-21

TOPIC TAGS: stress analysis, stress concentration, stress distribution

ABSTRACT: Expressions are given for calculating stresses in parts of various configurations. The net-point method is used for calculating stresses in flat parts. An example is given for using this method to calculate stresses in a blooming mill frame. The frame was assumed to be loaded only vertically, horizontal forces being disregarded as insignificant. The stress curves obtained by the net point method are compared with results for a flat frame model studied by the photoelastic method. The two methods show satisfactory agreement. Although the net-point method is normally used for calculations where the parts are uniform in thickness, it may be used for approximate stress determination in parts of nonuniform thickness as well. Orig. art. has: 6 figures, 1 table, 8 formulas.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 001

Card 1/1 11b

ZHUKOVSKIY, V.S.

Isothermal gas flow in pipes. Inzh.-fiz. zhur. 5 no.7:45-51 Jl '62.
(MIRA 15:7)

1. Vysheye voyenno-morskoye inzhenernoye uchilishche imeni F.E. Dzerzhinskogo, Leningrad.
(Gas flow) (Thermodynamics)