Card [redacted]

5/6

Card [redacted] 6/6

KUDINOV, V.A.; LISITSYN, N.M.

Basic factors affecting the regularity of displacements of machine-tool beds and carriages at combined friction. Stan. i instr. 33 no.2:1-5 F '62. (MIRA 15:1)
(Machine tools)
(Friction)

KUDINOV, V.A.; VOROB'YEVA, T.S.

Testing the vibration resistance of general-purpose machine tools during machining. Stan.i instr. 33 no.8:8-12 Ag '62. (MIRA 15:8)

(Machine tools--Vibration)

ANDRUSHEVICH, Yu.M.; GULYACHKIN, K.N., inzh., retsenzent; KUDINOV, V.A., kand. tekhn. nauk, red.; SEMENCHENKO, V.A., red. izd-va; DEMKINA, N.F., tekhn. red.

[Designs of drives for medium-size lathes; the various types and their effect on the dynamics of speeding up and reversing] Konstruktsii privodov srednikh tokarnykh stankov; varianty, ikh vliianie na dinamiku razgona i reversirovaniia. Moskva, Mashgiz, 1963. 88 p. (MIRA 16:6)
(Lathes--Electric driving)

KUDINOV, V.A.

Dynamic characteristics of metal cutting. Stan. i instr. 34 no.10:1-7 O '63. (MIRA 16:11)

KUDINOV, V.A.; SHMUTER, S.L.

Dynamic system and errors of program controlled machine tools.
Stan. i instr. 35 no.11:3-6 N '64. (MIRA 18:3)

ACHERKAN, Naum Samoylovich, zasl. deyatel' nauki i tekhniki RSFSR, doktor tekhn. nauk, prof.; GAVRYUSHIN, A.A.; YERMAKOV, V.V.; IGNAT'YEV, N.V.; KAKOYLO, A.A.; KUDINOV, V.A.; KULKYASHOV, A.A.; LISITSYN, N.M.; MIKHEYEV, Yu.Ye.; PUSH[illegible]; TROFIMOV, O.N.; FEDOTENOK, A.A.; KHOMYAKOV, V.S.; ABANKIN, V.I., inzh., retsenzent

[Metal-cutting machines in two volumes] Metallorezhushchie stanki. [v dvukh tomakh]. Pod red. N.S.Acherkana. Moskva, Mashinostroenie. Vol.2. 2. perer. izd. 1965. 628 p. (MIRA 18:12)

ACHERKAN, N.S., doktor tekhn. nauk, prof., zasl. deyatel' nauki i tekhniki RSFSR; GAVRYUSHIN, A.A., kand. tekhn. nauk; YERMAKOV, V.V., kand. tekhn. nauk, dots.; IGNAT'YEV, N.V., kand. tekhn. nauk, dots.; KAKOYLO, A.A., inzh.; KUDINOV, V.A., kand. tekhn. nauk; KUDRYASHOV, A.A., kand. tekhn. nauk, dots.; LISITSYN, N.M., kand. tekhn. nauk, dots.; MIKHEYEV, Yu.Ye., dots.; PUSH, V.E., doktor tekhn. nauk, prof.; TRIFONOV, O.N., kand. tekhn. nauk, dots.; FEDOTENOK, A.A., doktor tekhn. nauk, prof.; KHOMYAKOV, V.S., kand. tekhn. nauk; ABANKIN, V.I., inzh., retsenzent

[Metal cutting machines] Metallorezhushchie stanki. Moskva, Mashinostroenie. Vol.1. 1965. 764 p. (MIRA 18:10)

L 4875-66 EWT(1) IJP(c)
ACCESSION NR: AP5019841 UR/0181/65/007/008/2309/2317 //

AUTHORS: Kudinov, V. A.; Moyzhes, B. Ya.

TITLE: Effect of random inhomogeneities of the measurement of the thermal emf and the Nernst coefficient in a strong magnetic field

SOURCE: Fizika tverdogo tela, v. 7, no. 8, 1965, 2309-2317

TOPIC TAGS: crystal imperfection, cubic crystal, single crystal, thermal emf, Nernst effect, electric conductivity, thermal conductivity

ABSTRACT: The analysis in the article is confined to inhomogeneities which have dimensions that are small compared with the sample size, but are large compared with the characteristic dimensions such as the Debye length or the mean free path. The analysis is first developed for carrier concentration inhomogeneities in single cubic crystals. It is shown that the relative influence of the random inhomogeneities increases with increasing field and measurement of the Nernst co-

Card 1/2

L 4875-66

ACCESSION NR: AP5019841

15

efficient, but does not increase with increasing field in measurements of the longitudinal and transverse thermal emf. A formula is derived relating the corrections for the inhomogeneity in measurements of the transverse resistance and the Nernst coefficient in a strong field. Asymptotic expressions for the kinetic coefficients are then used to extend the results to include polycrystalline samples. The influence of inhomogeneities on the measurements of electric conductivity, thermal conductivity, and thermal emf without a magnetic field, for materials having a high thermal electric efficiency, is briefly analyzed and the contributions of the eddy currents connected with the temperature gradients resulting from the inhomogeneities of their thermal emf are estimated. 'The authors thank S. V. Ayrapetyants, I. V. Mochan, Yu. I. Ravich, and S. S. Shalyt for useful discussions.'
Orig. art. has: 1 figure and 51 formulas

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad (Institute of Semiconductors, AN SSSR)

SUBMITTED: 13Feb63 ENCL: 00 SUB CODE: SS

NR REF SOV: 004 OTHER: 002

Card 2/2

KUDI[illegible], V.A.

Natural vibrations caused by cutting with an unstable node.
Stan. i instr. 36 no.7:2-7 Jl '65. (MIRA 18:8)

PANFILOV, Yu.B., inzh.; CHUBUKOV, Yu.F., inzh.; KUDINOV, V.G., inzh.

System for testing electric motors with low power ratings.
Elektrotekhnika 36 no.10:40-43 O '65. (MIRA 18:10)

EWT(m) WW/JW/JHD

ACC NR: AP6011506 SOURCE CODE: UR/0414/65/000/004/0078/0082

AUTHOR: Batsanov, S. S. (Novosibirsk); Deribas, A. A. (Novosibirsk); Dulepov, Ye. V. (Novosibirsk); Yermakov, M. O. (Novosibirsk); Kudinov, V. M. (Novosibirsk)

ORG: none

TITLE: Effect of an explosion on a substance. Dynamic compression of potassium nitrate

SOURCE: Fizika goreniya i vzryva, no. 4, 1965, 78-82

TOPIC TAGS: explosive compression, potassium nitrate, hexogen

ABSTRACT: The explosion compression of polycrystalline KNO_3 specimens was studied to compare the effectiveness of various explosion compression techniques. The first series of experiments were conducted in the previously described (S. S. Batsanov, A. A. Deribas. Nauchno-tekhnicheskiye problemy goreniya i vzryva, 1965, 1, 103) standard steel ampoule, 5 mm in diameter and 40 mm high, in which 0.7—1.2 g samples of KNO_3 were subjected to hexogen explosions (70—150 g). The second series of experiments were carried out in a similar steel ampoule, which was attached to a massive steel plate for a rapid cooling. The third series were conducted in a device consisting of a 20-mm thick steel plate with a recess for the KNO_3 sample. A thin plate, propelled by a

Card 1/2 UDC: 532.593

L 23284-66

ACC NR: AP6011506

charge toward the sample, generates a shock wave which compresses the sample; the wave then reflects from the recess bottom to relieve the pressure on the plate and thus reduce the compactness of the sample. Chemical and physical changes were studied by infrared spectrography, x-ray, and chemical analyses. No chemical changes were observed in the compression by the first and second methods; formation of metallic K was observed in the flat compression method. The density ρ, dielectric constant ε, and refractive index remain practically unchanged in the first series of experiments, but in the second series, ρ decreased from 2.106 g/cm^3 to 2.098 g/cm^3 and ε, from 4.5 to 4.2. The most significant chemical changes in the KNO_3 occurred during the flat compression experiments. The refractive index increased from 1.45 to 1.98 and ε from 4.5 to 8.5, which confirms the formation of metallic K. Spectroscopic studies indicate the appearance of chemical defects in the specimen compressed in the flat ampoule. Orig. art. has: 3 figures and 1 table.

[PS]

SUB CODE: 19/ SUBM DATE: 14Jul65/ ORIG REF: 005/ OTH REF: 001/
ATD PRESS: 4230

Card 2/2 VLR

ANDREYEV, V.P.; BUTKOVSKIY, N.I.; KOMAROV, L.A.; KUDINOV, V.S.; MASHANSKIY, G.S.; MERKIN, R.M.; MERKULOV, V.A.; ZEMLYANIKIN, S.A.; SOLOMIN, V.V.; SHOLOKHOV, Ye.I.; PEREPELITSKAYA, A.G., red.; AVDEYEVA, V.A., tekhn. red.

[Toward the new achievements; the Russian Federation in 1963, concise handbook] K novym rubezham; Rossiiskaia Federatsiia v 1963. godu. Kratkii spravochnik. Moskva, Sovetskaia Rossiia, 1963. 284 p. (MIRA 16:10)
(Russia--Economic policy--Handbooks, manuals, etc.)

KUDINOV, V.V., kand. tekhn. nauk

Thermal characteristics of an arc metallizing plasma. Svar. proizv. no.1:6-10 Ja '64. (MIRA 17:1)

1. Institut metallurgii im. A.A. Baykova.

EWT m EPF(n)-2/EPR/EWP(k)/EWP ... APFTR/ESD ... /ESD ... JD

... NR: AP4043926

... Glazin, I. D. (Moscow), Kudinov, ... Petruni-

Refractory and active metal powders with globular particles

AN SSSR. Izv. Metallurgiya i gornoye delo, no. 4, 1964,

TAGS: metal powder, refractory metal powder, active metal powder, globular particle powder, powder particle size, plasma jet, ... plasma jet, plasma jet atomizing, plasma jet metal atomizer

ABSTRACT: A method for making refractory and active metal powders with globular particles which are suitable for making ... parts ... under conditions of high temperature, high gas velocities, ... corrosive media is suggested. Equipment was designed on the ... experiments with tungsten, molybdenum, tantalum, niobium, ... and tungsten-hafnium alloys ... melted and atomized by a plasma jet ... particles blown ... jet acquire, under the effect of surface tension, the shape ... sphere. This method yields powders which contain 18% of par-

... 1/2

L 6617-65
ACCESSION NR: AP4043926

ticles of a size 400—315 μ: 41%, 315—250 μ: 30%, 250—160 μ: 10%, [illegible]—63 μ; and 1%, under 63 μ. Density of loose powder is 58% and [illegible] increased to 61—64% by shaking. Chemical composition of [illegible] corresponds to that of the wire used. [illegible] refrac- [illegible] it is possible to obtain globular [illegible] of a size [illegible] from tenths of a micron to dozens [illegible] under certain [illegible] it was found possible to prod[illegible] particles. [illegible] particles in a [illegible] at least [illegible] of powders produced in argon plasma is not inferior [illegible] the initial metal. Orig. art. has [illegible]

[illegible] None

SUBMITTED: 05Mar64 ATD PRESS: 3094 [illegible]

[illegible]: MM NO REF SOV: 000 OTHER: 000

ACCESSION NR: AP4039767 S/0125/64/000/006/0033/0038

AUTHOR: Kudinov, V. V.; Kulagin, I. D.

TITLE: Stability of constrained arc discharge in the channel of an electro-conducting nozzle

SOURCE: Avtomaticheskaya svarka, no. 6, 1964, 33-38

TOPIC TAGS: metal cutting arc, double arc, plasma arc, arc cutting, cutting arc stability

ABSTRACT: In an "open-anode" metal-spraying device (see Enclosure 1), two arcs may strike when the voltage drop across arc 1 becomes higher than or equal to the sum of voltage drops across closed arc 3 and open arc 2. Among other factors, the drop in arc 3 depends on the argon rate-of-flow. Double arcing usually results in the destruction of the nozzle because of a sharp rise in the current. It is shown that the maximum permissible arc length in the nozzle

Card 1/3

ACCESSION NR: AP4039767

channel depends on the arc-voltage gradient (16 v for copper). External and current-voltage characteristics of the arc were studied on an IMET-108 flame-metal-spraying outfit. It was found that a reduction in the nozzle diameter to 2-3 mm tends to raise the voltage gradient (up to 10 v/mm) along the arc situated in the nozzle channel, which may result in double arcing. The experimental data obtained permits designing a plasma torch not liable to double arcing. Orig. art. has: 5 figures, 2 formulas, and 3 tables.

ASSOCIATION: IMET im. A. A. Baykova (Institute of Metals)

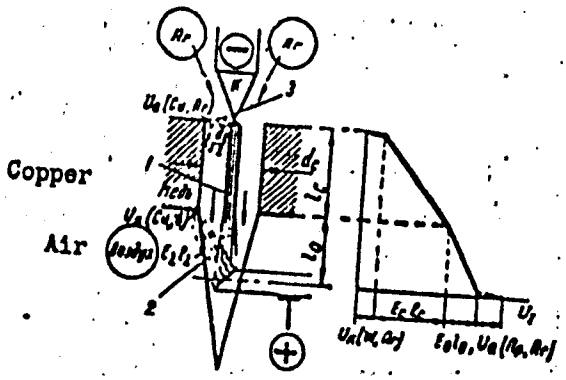
SUBMITTED: 15Jul63 DATE ACQ: 24Jun64 ENCL: 01

SUB CODE: MM NO REF SOV: 005 OTHER: 003

Card 2/3

ACCESSION NR: AP4039767

ENCLOSURE: 01



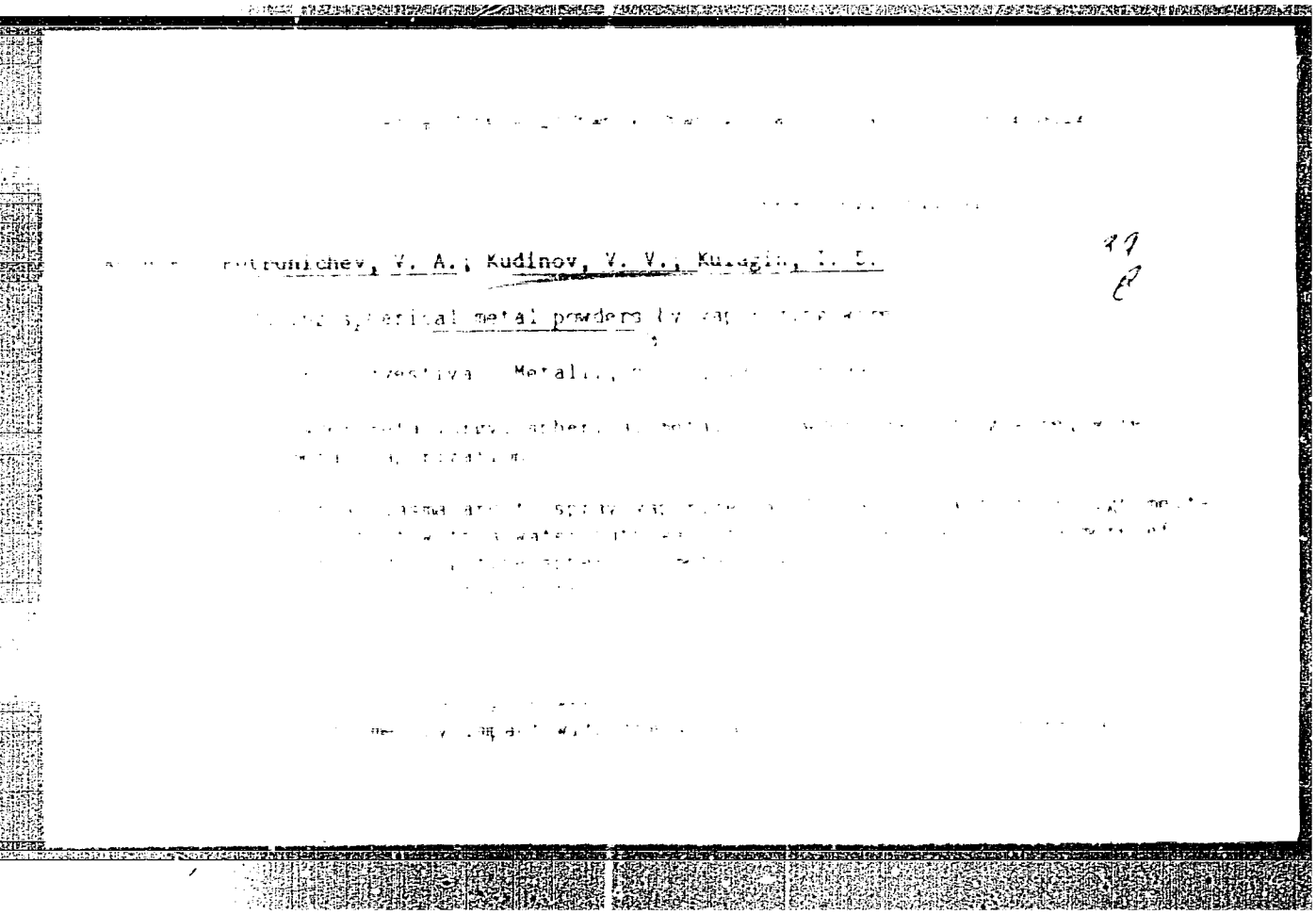
The arc column is situated in the conducting channel and the anode spot, on the wire ("open-anode" metal spraying). Left - double arcing; right - arc voltage drop diagram

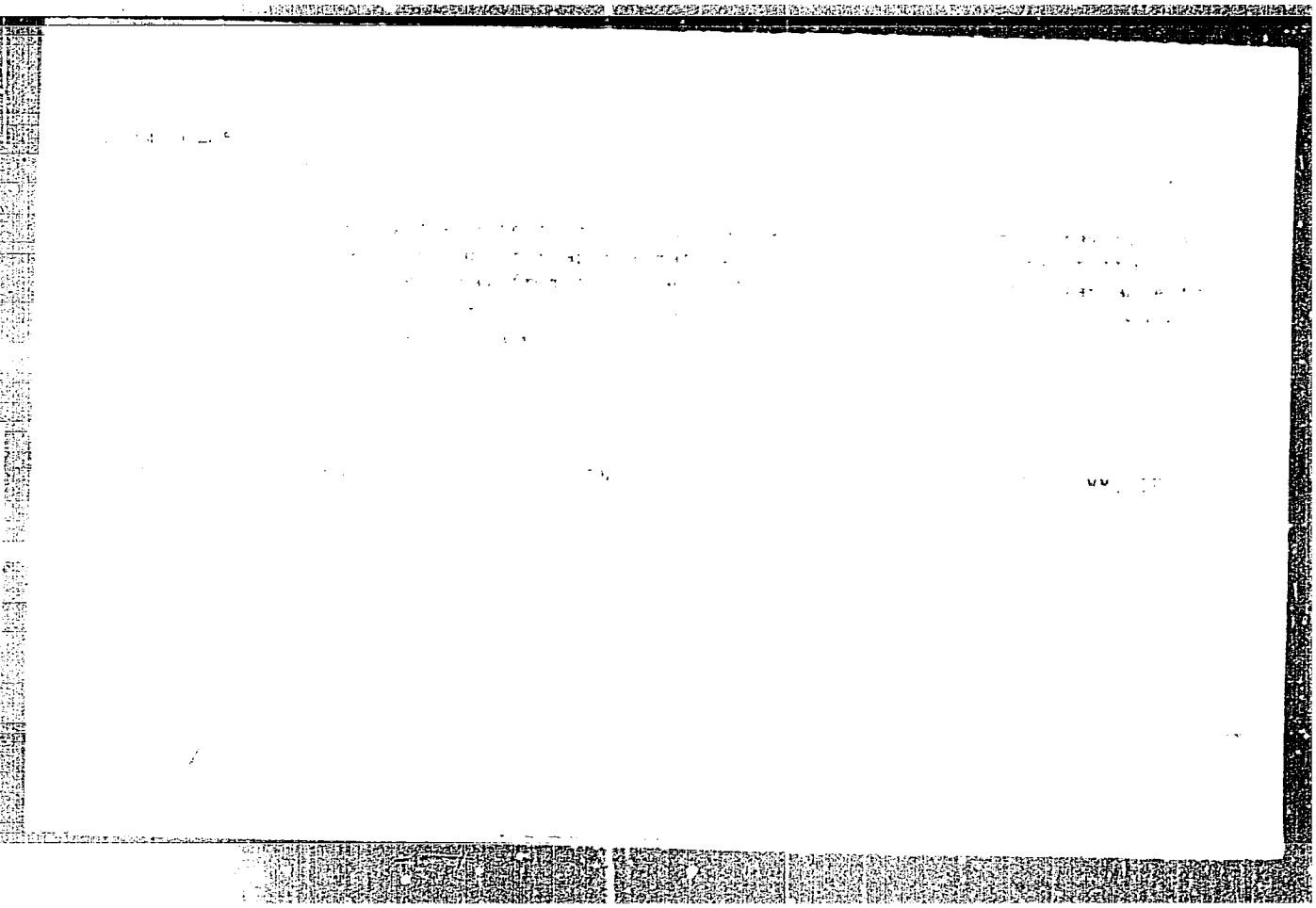
Card 3/3

RYKALIN, N. N. Prof, Dr. Tech Sci; KUDINOV, V. V. Cand Tech Sci; KULAGIN, I. D. Cand Tech Sci

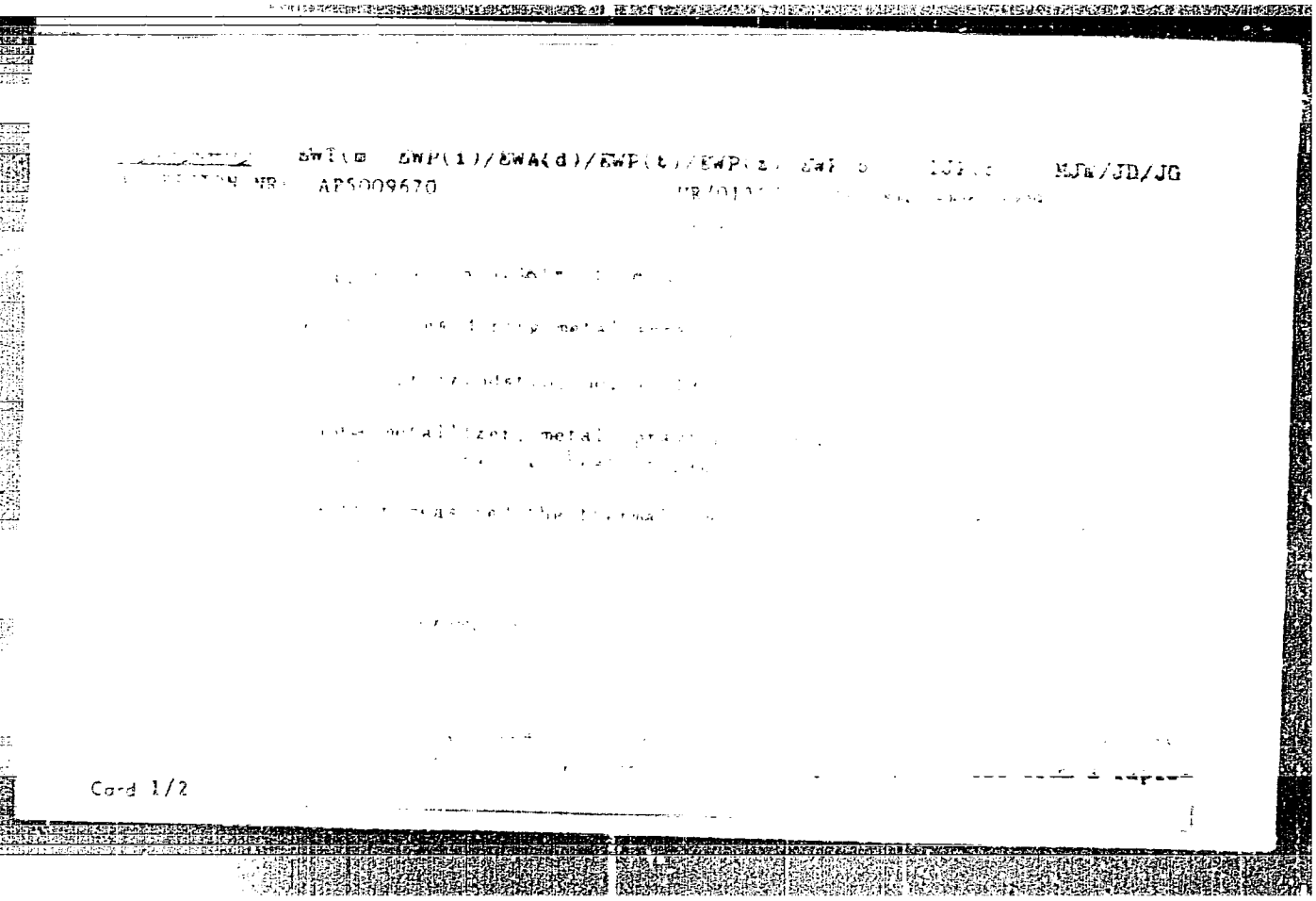
"Heat efficiency of smelting process by plasma arc and plasma jet cutting"

report presented at 18th Annual Assembly, Intl Inst of Welding, Paris, 5-10 Jul 1965.

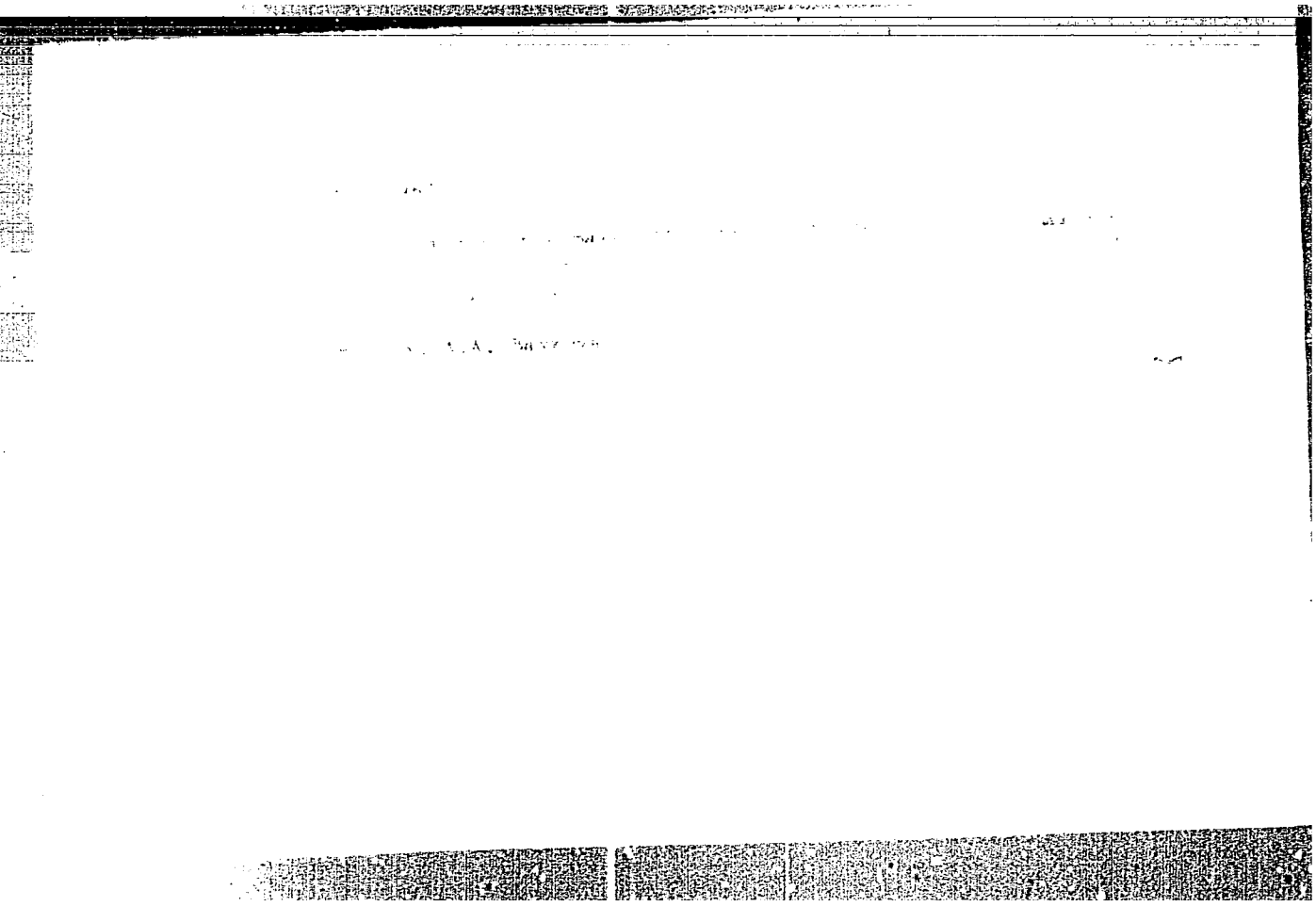




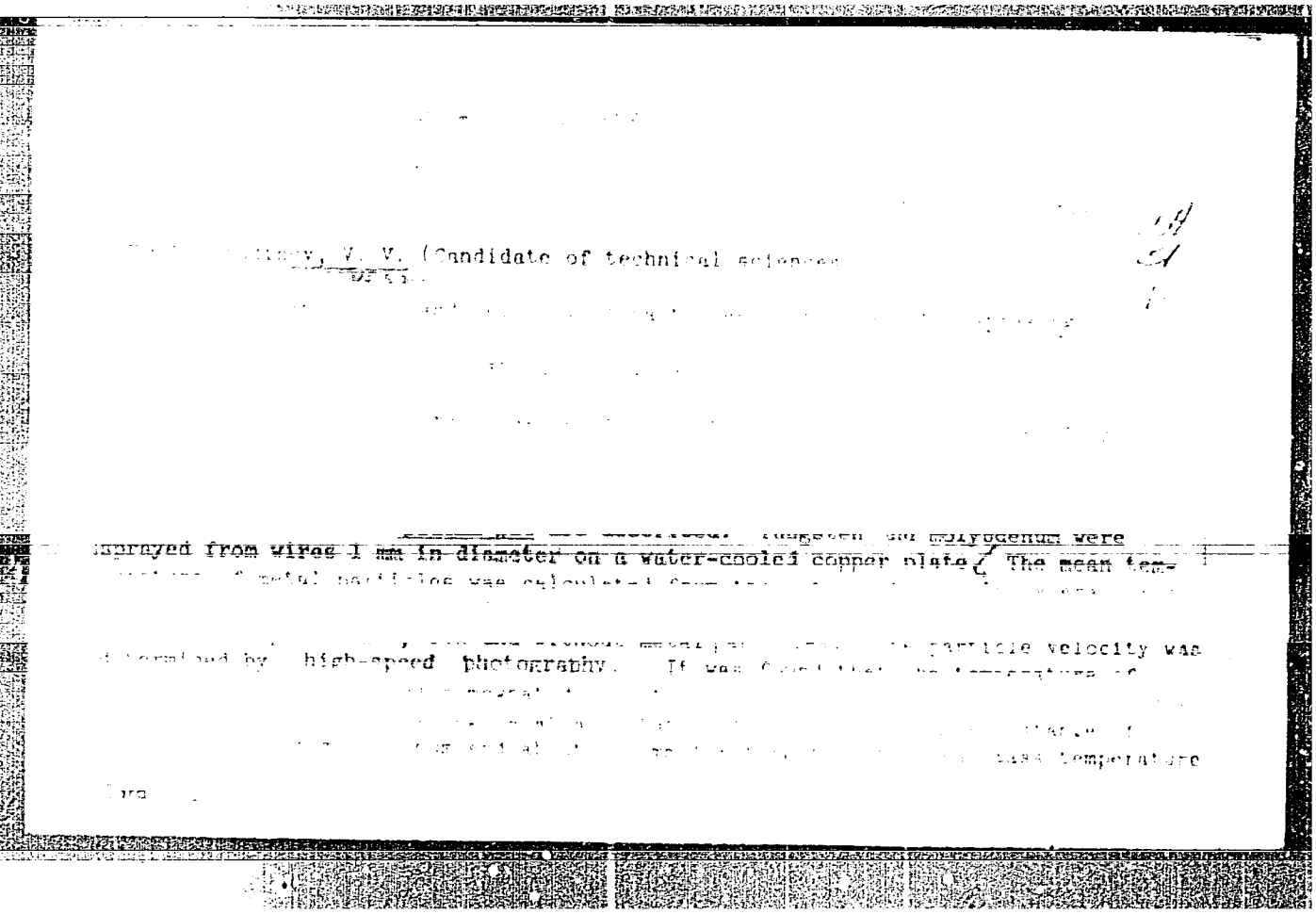
APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000827120008-3"



Card 1/2



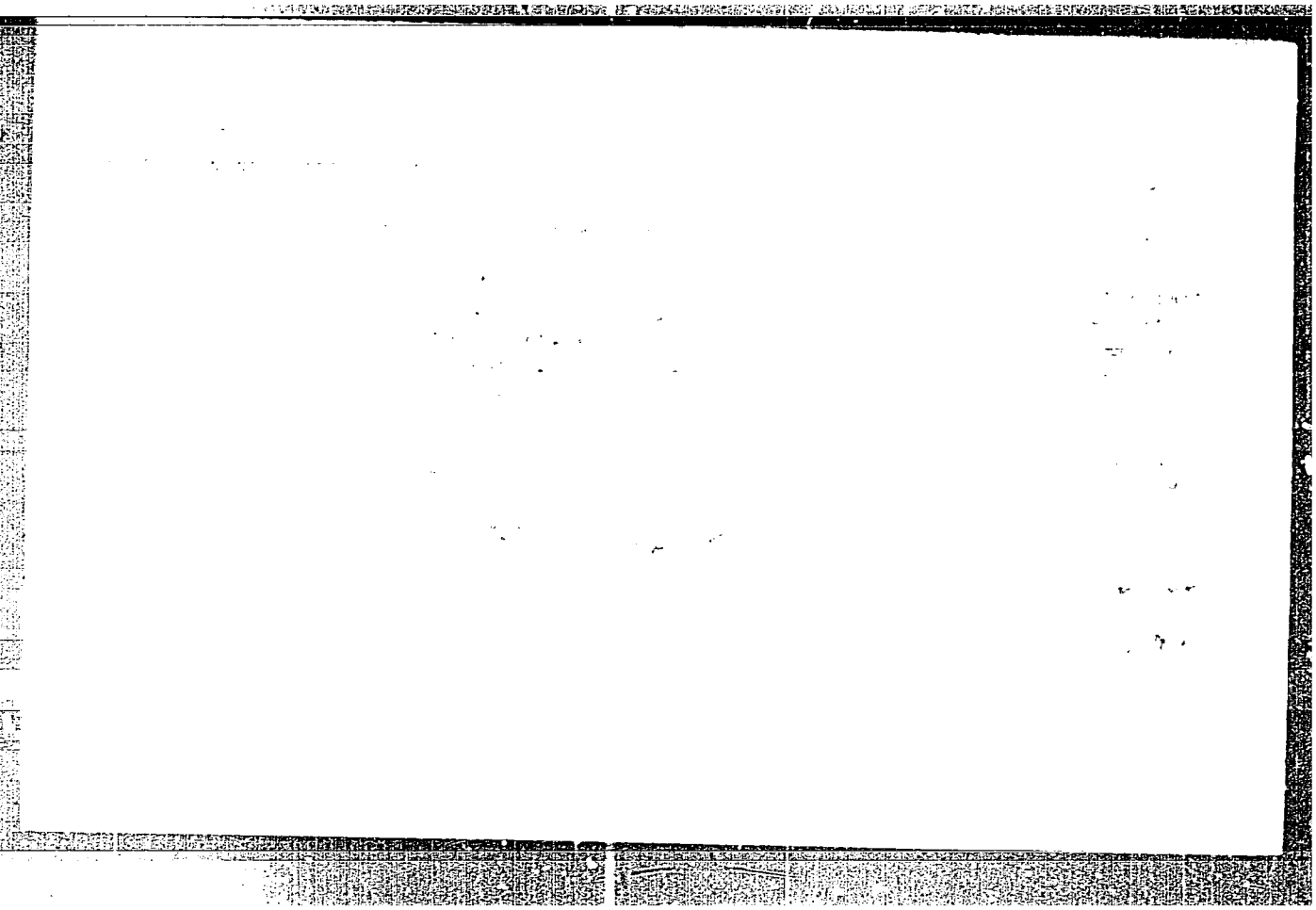
APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000827120008-3"



[illegible] V. V. (Candidate of technical sciences)

[illegible] sprayed from wires 1 mm in diameter on a water-cooled copper plate. The mean tem-

[illegible] particle velocity was [illegible] high-speed photography. [illegible] base temperature



APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000827120008-3"

KUDINOV, V.V.; KULAGIN, I.D.

Thermal effectiveness of the melting process during enclosed arc cutting. Avtom. svar. 18 no.8:1-5 Ag '65. (MIRA 18:11)

1. Institut metallurgii imeni Baykova, Moskva. Submitted November 27, 1964.

L 28866-66 EWP(k)/EWT(m)/T/EWP(v)/EWP(t)/ETI IJP(c) JD/HM/JG

ACC NR: AP6011534 SOURCE CODE: UR/0135/66/000/004/0011/0013

AUTHOR: Kudinov, V. V. (Candidate of technical sciences)

ORG: IMET im. A. A. Baykov

TITLE: Heating of current-carrying wire by compressed arc

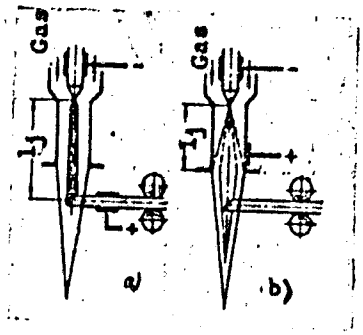
SOURCE: Svarochnoye proizvodstvo, no. 4, 1966, 11-13

TOPIC TAGS: optic pyrometer, heat transfer, plasma arc, plasma heating, fine wire, tungsten, molybdenum / OPPIR-017 optic pyrometer

ABSTRACT: The intensity of compressed-arc heating varies sharply depending on whether the heated body is or is not a discharge electrode. To determine how the heat transfer is affected in either case, the heating of 1-mm thick tungsten wire by plasma-arc guns was investigated. Tungsten was selected because, by virtue of its high melting point and nearly rectilinear temperature dependence of its specific heat, it is an excellent reference material for calorimetry up to 3300°K (and possibly higher). Molybdenum wire was used as the control in the experiment. The melting of the wire in a plasma arc or plasma jet was investigated. It is shown that the power balance on the wire-anode heated by the plasma arc (Fig. a) may be represented by the equation

$$q_{h.t.} + q_e + q_j = q_m + q_{ev}$$

Card 1/3 UDC: 621.793.7:533.9



where $q_{h.t.}$ is the power transmitted to the wire owing to radiative and convective transfer of heat from the jet of gas: q_e is the power transmitted to the wire by electrons; q_j is the power released over the wire during the passage of current; and $q_m + q_{ev}$ is the power expended on the heating, melting and evaporation of the wire. The quantitative determination of this balance requires knowledge of: 1) amount of the melted and evaporated metal of the wire; 2) temperature of wire in the melting zone; 3) mean mass temperature of the plasma jet (in our experiments, argon); 4) the coefficient $\alpha_{h.t.}$ of total transfer of heat from the gas to the wire. The plasma-jet temperature was calculated, while the other quantities were experimentally determined.

ACC NR: AP6011534

Thus, point 1) was determined by collecting the particles of atomized wire in water; point 2), with the aid of an OPPIR-017 optical pyrometer; and point 4)(the coefficient $\alpha_{h.t.}$) by proceeding from the regime of heating and the melting rate of the neutral wire (cf. Fig. b). Thus, e.g. when the mean mass temperature of the argon plasma jet is of the order of 8000°K, $\alpha_{h.t.}$ = ~4200 w/m^2-deg for W wire and ~6300 w/m^2—deg for Mo wire. In this way the heat balance was calculated for the heating of W and Mo wire-anode by means of a 13-kw arc. It is found that the principal source of the heating of wire-anode by the plasma jet is the current electrons, which account for ~80-90% of the entire power transmitted to the wire. Further, the heating efficiency of the plasma arc is found to be much higher than that of the plasma jet (10% vs. 2-3%): this is attributed to the replacement of the heat-transfer mechanism of plasma-jet heating by the electron-bombardment mechanism of the plasma arc. Orig. art. has: 4 formulas, 2 tables, 1 figure.

SUB CODE: 20,09,11 / SUBM DATE: none/ ORIG REF: 003/ OTH REF: 001

Card 3/3

KUDINOV, Ye.A.

Case of Reiter's syndrome complicated by a kidney lesion. Klin. med. 40 no.10:126-128 O '62. (MIRA 15:12)
(REITER'S DISEASE) (KIDNEYS--DISEASES)

ARISTOV, V.S., kand.tekhn.nauk; KUDINOV, Ye.D.; SERBIN, N.G., inzh.

Checking the weldability of heat-treated 20C carbon steel. Sudostroenie 29 no.1:51-54 Ja '63. (MIRA 16:3)
(Steel—Welding)

KUDINOV, V.F.

Ways of mechanizing and wholly automatizing coal preparation plants.
Ugol' Ukr. 3 no.2:16 F '59. (MIRA 12:3)

1. Glavnyy mekhanik tresta Ugleobogashcheniya.
(Coal preparation--Equipment and supplies)
(Automatic control)

KUDINOV, V.M.; PUKHOV, A.P.; LISOGURSKIY, I.Z.; TERMER, V.Yu.

Experimental assembly for the automatic weighing of powdered components for rubber mixtures at the Yaroslav Tire Factory. Kauch.i rez. 19 no.3:45-49 Mr '60. (MIRA 13:6)

1. Nauchno-issledovatel'skiy institut shinnoy promyshlennosti i Yaroslavskiy shinnyy zavod.
(Yaroslavl--Tires, Rubber) (Weighing machines)

KUDINOV, V.S.; SHAKHNIN, N.P., red.

Mechanizing the removal of ashes from the central boiler house. Obm.tekh.opyt.[MLP] no.20:34-36 '56.
(MIRA 12:11)

(Ash disposal)

AUDIMOV, V. V. DECEASED 1963/1

c. 1962

ELECTRONICS
(Communication)

see ILC

KUDINOV, V.Ye.; BOYEVA, A.D.; MOROZOVA, L.A., normirovshchik

Spinners operating without helpers. Tekst.prom. 20 no.6: 58-59 Je '60. (MIRA 13:7)

1. Glavnyy inzhener khlopchatobumazhnoy fabriki "Krasnyy Pereval" (for Kudinov). 2. Nachal'nik otdela organizatsii truda i zarabotnoy platy khlopchatobumazhnoy fabriki "Krasnyy Pereval" (for Boyeva).
(Yaroslavl—Spinning)

SOV/137-59-4-8170

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 4, p 120 (USSR)

AUTHOR: Kudinov, Ye.D.

TITLE: A Torch for Semi-Automatic Welding in Carbon Dioxide

PERIODICAL: Byul. tekhn.-ekon. inform. Sovnarkhoz Stalinskogo ekon. adm. r-na, 1958, Nr 5, pp 26 - 27

ABSTRACT: The author describes the design of a torch for semi-automatic welding in CO_2 which does not require water-cooling. Partial cooling of the torch is accomplished directly by the gas medium. Sticking of splashes is reduced to a minimum on account of polishing the internal and external built-up surfaces. A screening shield is being used to protect the welding operator's hands against burns. Industrial tests showed that operation on 300 - 400 a current was possible; for short seams the current can be increased up to 500 a.

A B.

Card 1/1

KUDINOV, Ye.D., inzh.; ARISTOV, V.S., kand.tekhn.nauk

Semiautomatic welding of low-carbon steel in an atmosphere of carbon dioxide. Svarka 2:203-213 '59. (MIRA 14:5)
(Steel alloys—Welding) (Protective atmospheres)

KRASIL'SHCHIKOV, Z.N., kand.tekhn.nauk (g. Zhdanov); NECHEPURENKO, S.Ye., inzh. (g. Zhdanov); SHVACH, Ye.N., inzh. (g. Zhdanov); Prinimali uchastiye: ANDREYEV, I.I.; VASILEVSKAYA, Z.I.; KUDINOV, Ye.D.

Investigation of pipes made of heat-hardened carbon steel. Stroi. truboprov. 7 no.2:12-14 F '62. (MIRA 15:3)
(Pipe, Steel)

S/229/63/000/001/002/004
E202/E192

AUTHORS: Aristov, V.S., Candidate of Technical Sciences, Kudinov, Ye.D., Engineer, and Serbin, N.G., Engineer

TITLE: Inspection of normalized carbon steel 20C (20S) welds

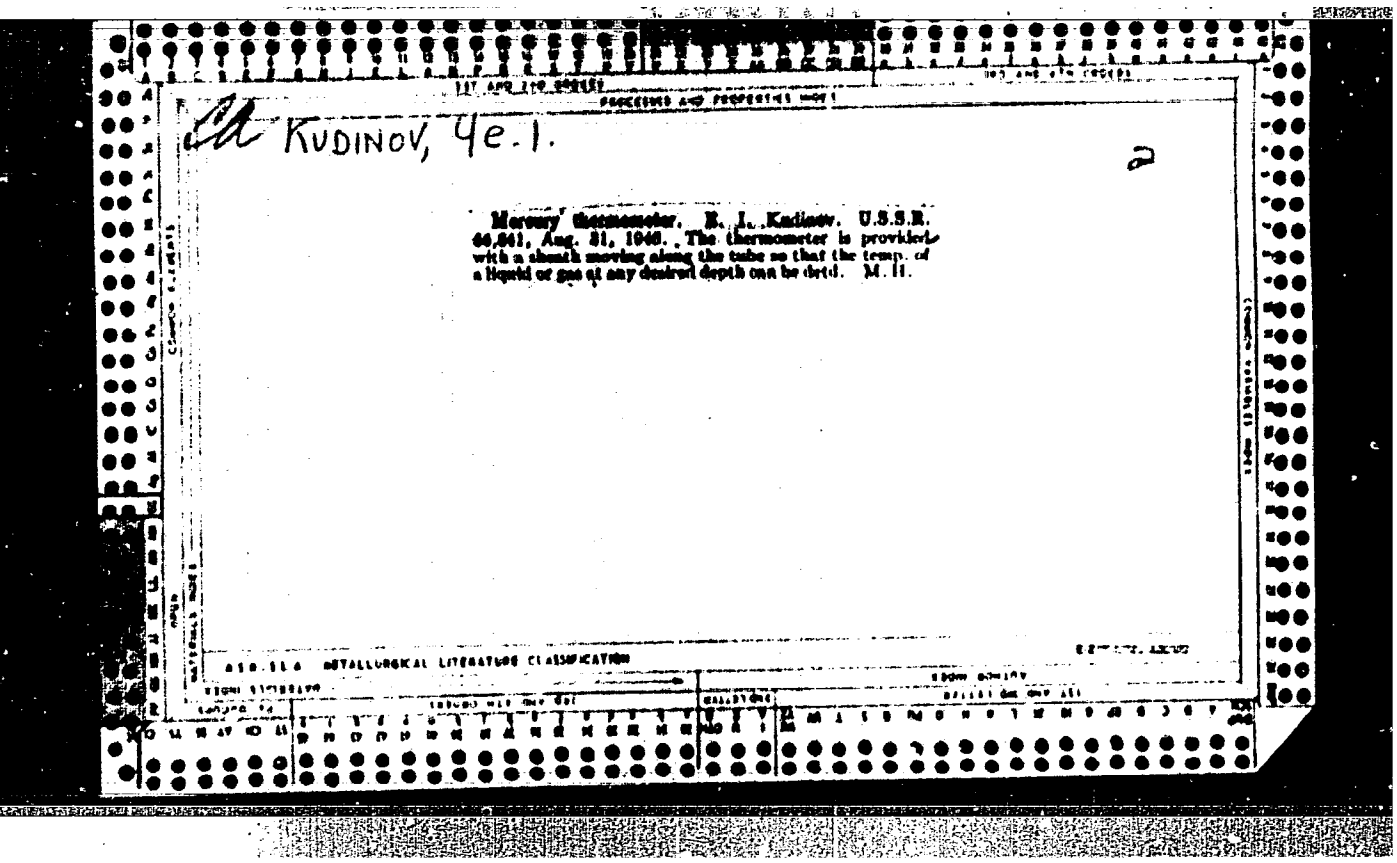
PERIODICAL: Sudostroyeniye, no.1, 1963, 51-54

TEXT: This cheap steel of not less than 35 kg/mm^2 yield strength was investigated for weldability and its potential use in ship building. The investigation included: determination of the mechanical properties of the seam on Gagarin samples and the weld joint using destructive bending tests; determination of the impact strength of the seam metal as well as the zone of thermal penetration at temperatures above and below freezing point; macro- and micro-studies of the seam metal and the zone of thermal penetration; determination of the brittleness temperature of the seam metal; bending tests on samples with a longitudinal bead; tests for cracking using the method of K.G. Nikolayev (Svarochnoye proizvodstvo, no.9, 1956); and testing of welded beams for dynamic loads. Hardness tests were also carried out through the zone of thermal penetration, seam and the parent metal for

Card 1/2

manually and automatically welded samples. It was concluded on the basis of the above tests that using automatic welding o.. the above steel with a welding electrode СВ -08А (Sv-08A) [according to ГОСТ 2246-60 (GOST 2246-60)] combined with a flux mark ОСЦ -45 (OSTs-45), and in the case of manual welding using electrodes УОНИ 13/45 (UONI 13/45), secures welds of good strength properties at static load and withstanding well the effects of dynamic loads. It was further concluded that this steel does not show any crack forming tendencies during welding in conditions of temperatures down to -25 °C. The welding did not cause any lowering of the metal strength in the zone of thermal penetration nor did it reduce the impact strength as a result of the thermal cycle of welding. There are 4 figures and 3 tables.

Card 2/2



KUDINOV, Ye. I.

2

Mercury thermometer. K. I. Kudinov. U.S.S.R. 66,661, Aug. 31, 1946. The thermometer is provided with a sheath moving along the tube so that the temp. of a liquid or gas at any desired depth can be detd. M. H.

[illegible] Ye. I.

[illegible] Ye. I. and Sy[illegible] N. N., Hy[illegible]metric [illegible], [illegible]. [illegible], No 1[illegible] ([illegible]), 19[illegible] ([illegible]-1[illegible])

SO: U-303[illegible], 11 Mar 19[illegible]

KUDINOV, Ye.I.

Piston core sampler equipped with a vibrator. Trudy Inst. okean. 25:143-152 '57. (MIRA 11:2)

(Ocean bottom)

KUDINOV, Ye.I.; PETELIN, V.P.

Equipment and methods used in taking samples of bottom sediments and their primary processing. Biul.Okean.kom. no.2:34-30 '58. (MIRA 12:5)

(Deep-sea deposits)

KUDINOV, Ye.I.

Grab with DB-57 bathometers. Trudy Inst. okean. 35:175-177 '59.
(MIRA 13:3)
(Oceanographic instruments)

KUDINOV, Ye.I.

Use of trawlgraphs during the 24th cruise of the research ship "Vitiaz'". Trudy Inst. okean. 35:178-181 '59.

(MIRA 13:3)

(Oceanographic instruments) (Trawls and trawling)

KUDINOV, Ye.K.

Energy spectrum of holes in Bi_2Te_3. Fiz.tver.tela 1 no.12: 1851-1853 D '59. (MIRA 13:5)

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Bismuth telluride)

KUDINOV, Ye. K.

Investigating the valency spectrum of Bi_2Te_3. Fiz.tver.tela 3 no.2:317-325 F '61. (MIRA 14:6)

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Bismuth telluride--Electric properties)

24.7900 1482, 1395, 1163, 1144

30665
S/048/61/025/011/005/05
B108/B138

AUTHORS: Kudinov, Ye. K., and Samoylovich, A. G.

TITLE: The energy spectrum of carriers in ferro- and antiferromagnetics

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 25, no. 11, 1961, 1339-1342

TEXT: Some antiferromagnetics show semiconductor mechanism of conduction below their Curie point, and metal conduction above it. This peculiar behavior is due to the magnitude of the activation energy ΔE_a which means that the s-electrons do not participate in conduction. This activation energy is explained with the aid of a polar conduction model. The activation energy will change with the magnetization of the sublattice if the width of the band of polar states depends on magnetic ordering. The width of the band of the singly excited polar states as a function of magnetization is determined for a crystal with one excess electron. It is assumed that the orbit of this electron is

Card 1/3

The energy spectrum of carriers.

somewhat above the orbits of the atomic electrons and that the atomic shell is filled up. The splitting of the excited level in the band is considered by means of the Hamiltonian

$$\hat{H} = \sum_{\alpha\alpha';\sigma} F_{\alpha\alpha'} a^{+}_{\alpha\sigma} a_{\alpha'\sigma'}$$

where σ is the spin index. The α's indicate the rest of the quantum numbers describing the electron. In approximation to the nearest neighbors, the energy band is obtained as $\Delta E_a \frac{F_{\beta_1;\beta_2}}{\sqrt{2S-1}} f(\vec{k})$ where the function $f(\vec{k})$ depends only on the geometrical structure of the lattice. $F_{\beta_1;\beta_2} = F_{f_n\beta_1;f_n\beta_2}$, f_n denotes the radius vector of the n-th lattice site. The analogous formula for ferromagnetic ordering in a ferromagnetic consisting of two equal sublattices is $\Delta E_F = F_{\beta_1;\beta_2} f(\vec{k})$. In the paramagnetic case, the energy band is

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30061
S/048/61/025/011/005/031
B108/B138

The energy spectrum of carriers...

$$\Delta E_{n} = \frac{F_{g_1 g_2}}{(2S+1)^3}\left\{\left(\sum_{S_i=-S}^{+S}\sqrt{S+S_i+1}\right)^2 + \left(\sum_{S_i=-S}^{+S}\sqrt{S-S_i}\right)^2\right\} f(\mathbf{k}). \quad (6)$$

When the lower edge of the band of the polar states overlaps the lower edge of the non-polar band, the conduction mechanism will be of a metallic character. The results of the above considerations show that the band width increases in transition from the antiferromagnetic to the paramagnetic state, making possible the change from semiconductor to metal-type conductivity. A change from semiconductor to metal-type conductivity is possible in transition from the ferromagnetic to the paramagnetic state. There are 2 tables.

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors of the Academy of Sciences USSR)

Card 3/3

35573
S/056/62/042/003/032/049
B102/B138

24.2700

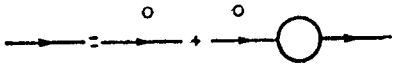
AUTHORS: Kudinov, Ye. K., Pavlov, S. T.

TITLE: Single-particle excitation in a non-degenerate electron gas

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 3, 1962, 839 - 845

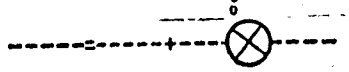
TEXT: The single-particle function is calculated in Born's approximation for a non-degenerate electron gas. For this purpose the Dyson equation

$$G_p(\tau'-\tau) = G_p^{(0)}(\tau'-\tau) + \int_0^\beta d\tau_1 \int_0^\beta d\tau_2 G_p^{(0)}(\tau_1-\tau)\Sigma_p(\tau_2-\tau_1)G_p(\tau'-\tau_2) \quad (1)$$



and the equation of the modified interaction potential

$$W_q(\tau'-\tau) = V_q\delta(\tau'-\tau) + V_q\int_0^\beta \Pi_q(\tau_1-\tau)W_q(\tau'-\tau_1)d\tau_1. \quad (2)$$



Card 1/6

Single-particle excitation in...

are solved. The thick line in (1) stands for

$$\mathcal{G}_p(\tau'-\tau) = -\operatorname{Sp}\{e^{\beta(\Omega+\mu N-H_0)}\, T\,(a_p(\tau')\, a_p^+(\tau)\, S(\beta))\} = \\ = -\langle T\,(a_p(\tau')\, a_p^+(\tau)\, S(\beta)\rangle_0.$$

$$S(\beta) = T\exp\left(-\int_0^\beta H_I(\tau)\, d\tau\right),$$

and the thin one for

$$\mathcal{G}_p^{(0)}(\tau'-\tau) = -\operatorname{Sp}\{e^{\beta(\Omega+\mu N-H_0)} T\,(a_p(\tau')\, a_p^+(\tau))\} = -\langle T a_p(\tau')\, a_p^+(\tau)\rangle_0;$$

$$\hat{A}(\tau) = e^{\tau(H_0-\mu N)}\,\hat{A}\, e^{-\tau(H_0-\mu N)}.$$

Card 2/6

Single-particle excitation in...

$\sum_p$ takes account of the graphs Fig. 1, a, б, в. The Dyson equation can be written as

$$\mathfrak{G}_p(i\omega_n) = \mathfrak{G}_p^{(0)}(i\omega_n) + \mathfrak{G}_p^{(0)}(i\omega_n)\,\Sigma_p(i\omega_n)\,\mathfrak{G}_p(i\omega_n),$$

$$\mathfrak{G}_p^{(0)}(i\omega_n) = (i\omega_n + \mu - \varepsilon_p)^{-1},\ \omega_n = (2k+1)\,\pi/\beta,\ (k = 0;\ \pm 1, \ldots), \quad (4)$$

$$\mathfrak{G}_p^{-1}(i\omega_n) = \mathfrak{G}_p^{(0)-1}(i\omega_n) - \Sigma_p(i\omega_n). \quad (5)$$

if the Green function is expanded into a Fourier series

$$\mathfrak{G}_p(i\omega_n) = \frac{1}{2}\int_{-\beta}^{+\beta} \mathfrak{G}_p(\tau)\, e^{i\omega_n\tau}\, d\tau,$$

$$\mathfrak{G}_p(\tau) = \frac{1}{\beta}\sum_n e^{-i\omega_n\tau}\,\mathfrak{G}_p(i\omega_n),\ \omega_n = n\pi/\beta. \quad (3).$$

(2) cannot be directly given in Fourier representation. From

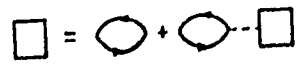
$$W_q(\tau_2 - \tau_1) = V_q\,\delta(\tau_2 - \tau_1) + V_q^2\,K_q(\tau_2 - \tau_1), \quad (6)$$

Card 3/6

Single-particle excitation in...

where K_q is the solution of

$$K_q(\tau_2-\tau_1) = \Pi_q(\tau_2-\tau_1) + V_q\int_0^\beta \Pi_q(\tau-\tau_1)\, K_q(\tau_2-\tau)\,d\tau. \qquad (7)$$



a transition to Fourier representation is, however, possible:

$$W_q(\tau) = V_q\delta(\tau) + \frac{1}{\beta}\sum_n e^{-i\omega_n\tau}\,\frac{V_q^2\Pi_q(i\omega_n)}{1-V_q\Pi_q(i\omega_n)} \equiv V_q\delta(\tau) + \tilde{W}_q(\tau). \qquad (9)$$

$$\Pi_q(\tau) = \frac{1}{V}\sum_p \mathfrak{G}^{(0)}_{p-q/2}(\tau)\,\mathfrak{G}^{(0)}_{p+q/2}(-\tau), \qquad (10)$$

$$\tilde{W}_q(i2k\pi/\beta) = -\frac{4\pi e^2\varkappa^2\varphi_k(\sqrt{\beta\varepsilon_{q/2}})}{q^2(q^2+\varkappa^2\varphi_k(\sqrt{\beta\varepsilon_{q/2}}))} = 4\pi e^2\left(\frac{1}{q^2+\varkappa^2\varphi_k}-\frac{1}{q^2}\right); \qquad (14)$$

$$\tilde{W}_q(i(2k+1)\pi/\beta) = 0;$$

$\varkappa^2 \equiv r_D^{-2} \equiv 4\pi e^2\beta n_0$

Card 4/6

Single-particle excitation in...

r_D - Debye radius. The first two terms of the mass operator $\Sigma_p(\tau)$, $\Sigma_p^{(1)}(i\omega_n) = -(\hbar^2\kappa^2/2m)\varphi_0(\sqrt{3\varepsilon_p})$ and

$$\Sigma_p^{(2)}(i\omega_n) = -\frac{1}{(2\pi)^3}\int d^3q\,\frac{V_q^2\Pi_q(0)}{1-V_q\Pi_q(0)}\,\frac{1}{i\omega_n+\mu-\varepsilon_{p-q}} - \frac{1}{(2\pi)^3}\int d^3qV_q^2\times$$
$$\times\frac{\Pi_q(0)-\Pi_0(0)}{i\omega_n+\mu-\varepsilon_{p-q}} - \frac{1}{(2\pi)^3}\int d^3qV_q^2\sum_{n_1\neq 0}\frac{\Pi_q(i\omega_{n_1})}{i\omega_n+\mu-\varepsilon_{p-q}-i\omega_{n_1}}. \qquad (18)$$

are analyzed and the analytical properties of $\Sigma_p^{(2)}(i\omega_n)$ are determined. The contribution of the residual terms of the mass operator is small if $r_D \gg r_B$ ($r_B = \hbar^2/me^2$, the Bohr radius). The time behavior of the Green function is studied and equations are given for the distribution function and the chemical potential. The results show that if Coulomb interaction is taken into account, single-particle interactions (plane waves) are distorted due to damping as well as modulation of the unperturbed wave in time. V. L. Gurevich, Yu. A. Firsov and A. G. Samoylovich are thanked for advice and discussions. There are 2 figures and 7 references: 6 Soviet

Card 5/6

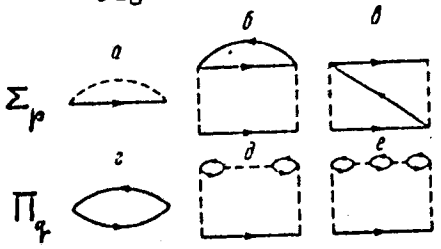
Single-particle excitation in...

and 1 non-Soviet. The reference to the English-language publication reads as follows: T. Matsubara. Progr. Theor. Phys., 14, 351, 1955.

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors of the Academy of Sciences USSR)

SUBMITTED: October 5, 1961

Fig. 1



Card 6/6

ACCESSION NR: AP4039673 S/0181/64/006/006/1813/1817

AUTHORS: Devyatkova, Ye. D.; Golubkov, A. V.; Kudinov, Ye. K.; Smirnov, I. A.

TITLE: The effect of spin phonon interaction on the thermal conductivity of MnTe

SOURCE: Fizika tverdogo tela, v. 6, no. 6, 1964, 1813-1817

TOPIC TAGS: Neel temperature, spin phonon interaction, phonon phonon collision, thermal conductivity, magnon, manganese telluride

ABSTRACT: The authors have measured the thermal conductivity, the thermoelectromotive force, and the resistivity of a number of MnTe samples, both above and below the Néel temperature. The samples were prepared at a pressure of 8000 kg/cm^2 and then annealed in argon at 650C for 60 hours. The temperature dependence of the thermal resistance may be represented by two straight lines, one for temperatures below the Néel temperature (100-200K) and one for temperatures above (310-480K). Between these occurs a transition zone. At the lower temperatures, thermal resistance is determined by phonon interaction, and it increases normally with temperature. Transfer of heat by magnons may also contribute to heat conduction.

Card 1/2

ACCESSION NR: AP4039673

At temperatures considerably greater than the Néel temperature, phonon-magnon scattering is ineffective, and thermal conductivity is determined by phonon-phonon collisions. The thermoelectromotive force and the resistivity both increase sharply in the temperature region of 200-300K. The cause of the increase in thermoelectromotive force is not clear. It may be due to complex structure or it may be due to entrainment of electrons by magnons. Orig. art. has: 2 figures.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors, AN SSSR)

SUBMITTED: 15Jan64 DATE ACQ: 19Jun64 ENCL: 00

SUB CODE: EC, SS NO REF SOV: 004 OTHER: 006

Card 2/2

DEVYATKOVA, Ye.D.; GOLUBKOV, A.V.; KUDINOV, Ye.K.; SMIRNOV, I.A.

Effect of spin-phonon interaction on the heat conductivity of MnTe. Fiz. tver. tela 6 no.6:1813-1817 Je '64. (MIRA 17:9)

1. Institut poluprovodnikov AN SSSR, Leningrad.

L 14029-65 EWT(1)/EWG(k)/T/EWA(h) Pz-6/Peb IJP(c)/AFWL/...

AP4043637

...dinov, Ye. K.; Firsov, Yu. ...

...and optical transitions ...

...Zhurnal eksper. i teor. fiz., v. ..., ... 1964

... electron transition, electron ... interaction, ab-... lent, refractive index, ...

ABSTRACT: Optical phenomena connected with the transition of electrons from inner shells into low-mobility bands are considered, and ... contribution to the dielectric constant is calculated. A ... technique for the analysis of ... phonon in-... developed for the calculation of the complex admittance. ... calculation of this contribution makes it possible to evaluate ... absorption coefficients and the change in the refractive index, ... which in turn can be measured experimentally for compari-

Card 1/2

ACCESSION NR: AP4043637

... Change in the complex admittance is related to the change in ... dielectric constant and is easier to evaluate. The location of ... the absorption curve is found to depend on the polaron ... the width of the ... the width of the peak is not related ... the initial ... appearing at low temperatures ... the frequency ... refractive index ... the ...

... Inst. ...

... N: Institut poluprovodnikov Akademii nauk SSSR (Institute ... nauctora, Academy of Sciences SSSR)

... 19Feb64

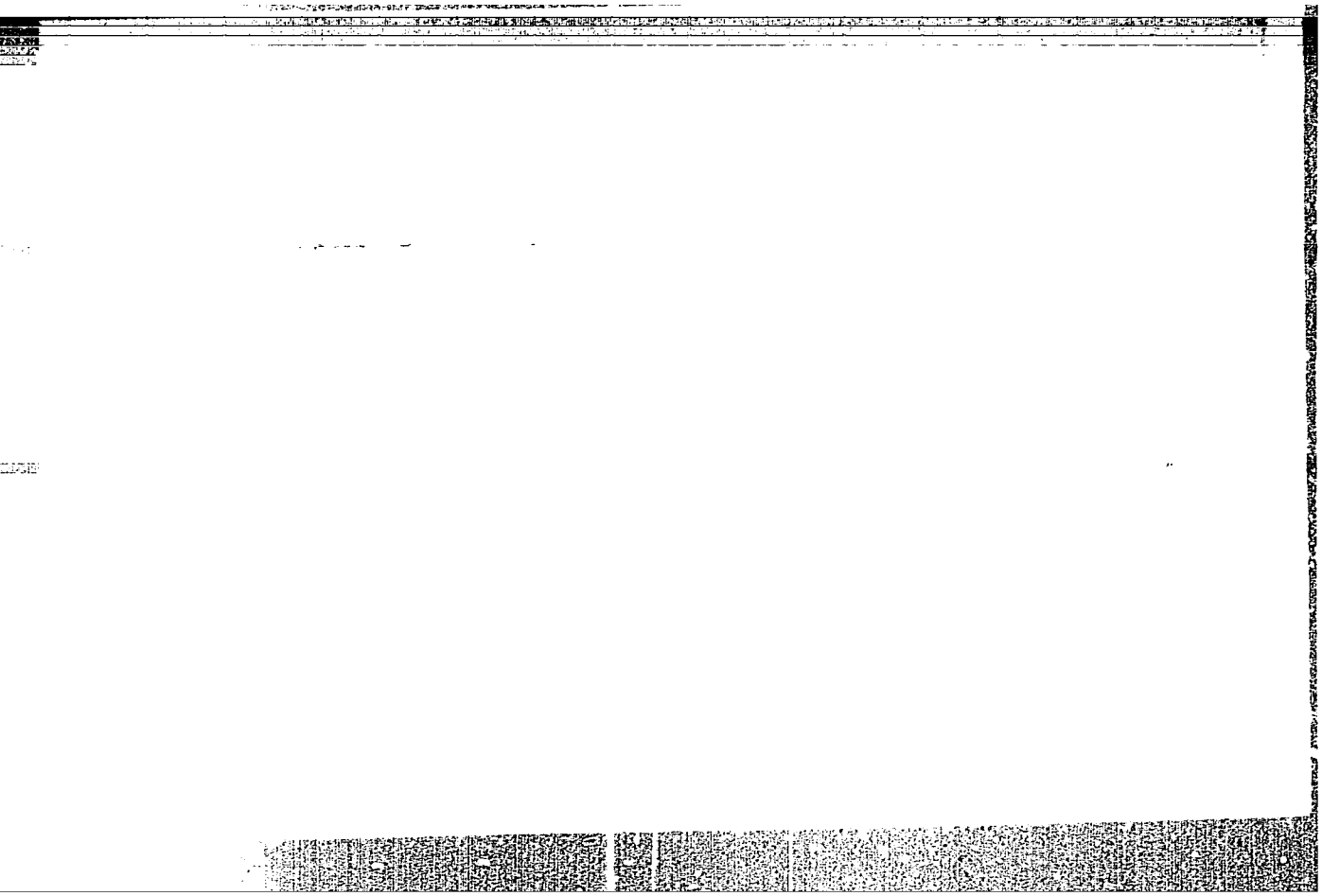
... UP, SS NO REF SOV: 003 OTHER: 004

... 2/2

KUDINOV, Ye.K.; FIRSOV, Yu.A.

Inter-band optical transitions in low-mobility semiconductors. Zhur. eksp. i teor. fiz. 47 no.2:601-614 Ag '64. (MIRA 17:10)

1. Institut poluprovodnikov AN SSSR.



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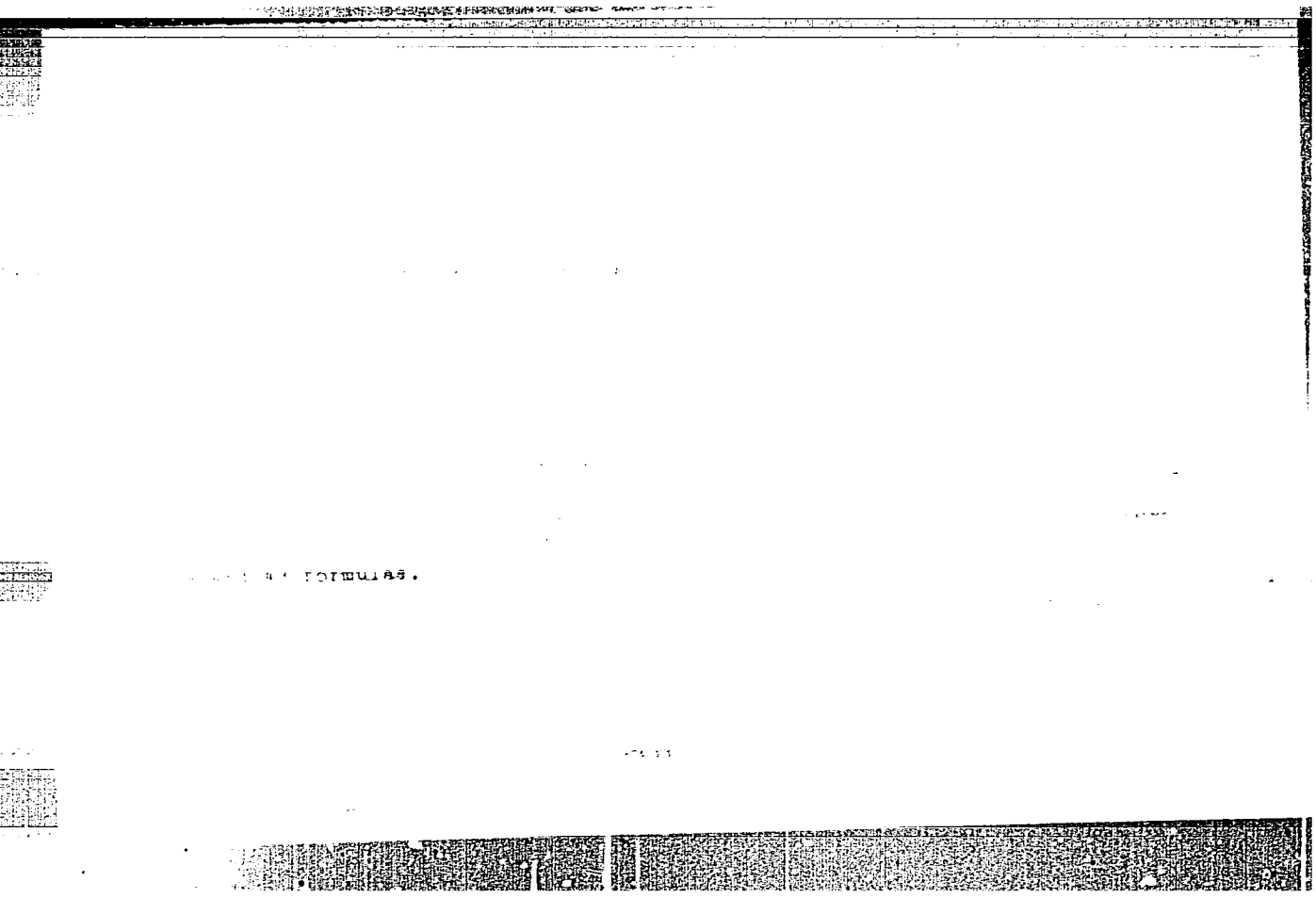

L 12082-66 EWT(d)/EWT(1)/T/EWA(m)-2 IJP(c) AT

ACC NR: AP5024709 SOURCE CODE: UR/0056/65/049/003/0867/0884

AUTHORS: Kudinov, Ye. K; Firsov, Yu. A.

ORG: Institute of Semiconductors, Academy of Sciences SSSR (Institut poluprovodnikov Akademii nauk SSSR)

TITLE: Stochastic aspects of low mobility theory

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 3, 1965, 867-884

TOPIC TAGS: electron mobility, electric conductivity, polaron, Boltzmann distribution, Markov process

ABSTRACT: A new method for calculating the electric conductivity is formulated in the Wannier (site) representation. An equation similar to the Boltzmann equation and describing electron motion in the space of lattice sites is derived by using the Kubo formula. The case of a small-radius polaron is analyzed by way of an example. It is shown that in this case the motion of an electron in the lattice can be regarded as comprising non-Markoffian random jumps between lattice sites. Under certain conditions this random walk process becomes Markoffian and the problem reduces to the calculation of the site-jump probabilities per unit time. It is claimed that the method provides a deeper

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L 12082-66

ACC NR: AP5024709 3

insight in the physical nature of the problem and can be useful in an analysis of kinetic problems under conditions of spatial inhomogeneity of microscopic scale. It can also be used in the microscopic theory of Brownian motion for the derivation of an equation for conditional probability function. A possible way of extending the limits of applicability of thepresent low-mobility theory is indicated. Authors are grateful to A. I. Anselm for a useful discussion. Orig. art. has: 3 figures and 97 formulas. 44,55

SUB CODE: 20/ SUBM DATE: 30Mar65/ NR REF SOV: 008/ OTH REF: 009

Card 2/2

L 22060-66 EWT(1)

ACC NR: AP6009641 SOURCE CODE: UR/0181/66/008/003/0666/0679

63
62

AUTHOR: Kudinov, Ye. K.; Firsov, Yu. A.

ORG: Institute of Semiconductors, AN SSSR, Leningrad (Institut poluprovodnikov AN SSSR)

TITLE: Some relations in kinetics and their stochastic interpretation

SOURCE: Fizika tverdogo tela, v. 8, no. 3, 1966, 666-679

TOPIC TAGS: irreversible process, electric conductivity, dipole moment, distribution function, stochastic process, physical diffusion, Brownian motion

ABSTRACT: This is a companion to an earlier paper by the authors (ZhETF v. 49, 867, 1965), dealing with the linear theory of irreversible processes, and particularly with the Kubo formula for the electric conductivity. In this paper a different approach is used, and the Kubo formula is recast in a form in which the conductivity is expressed in terms of the correlator of dipole moments. The problem is formulated in the k-representation and is reduced to a determination of the symmetrical part (with respect to k) of the distribution function in the presence of weak spatial dispersion. Such a formulation is not convenient for direct calculation of the mean square of the displacement and of the diffusion coefficient. For interpretation of the processes which occur in configuration space, the prob-

2

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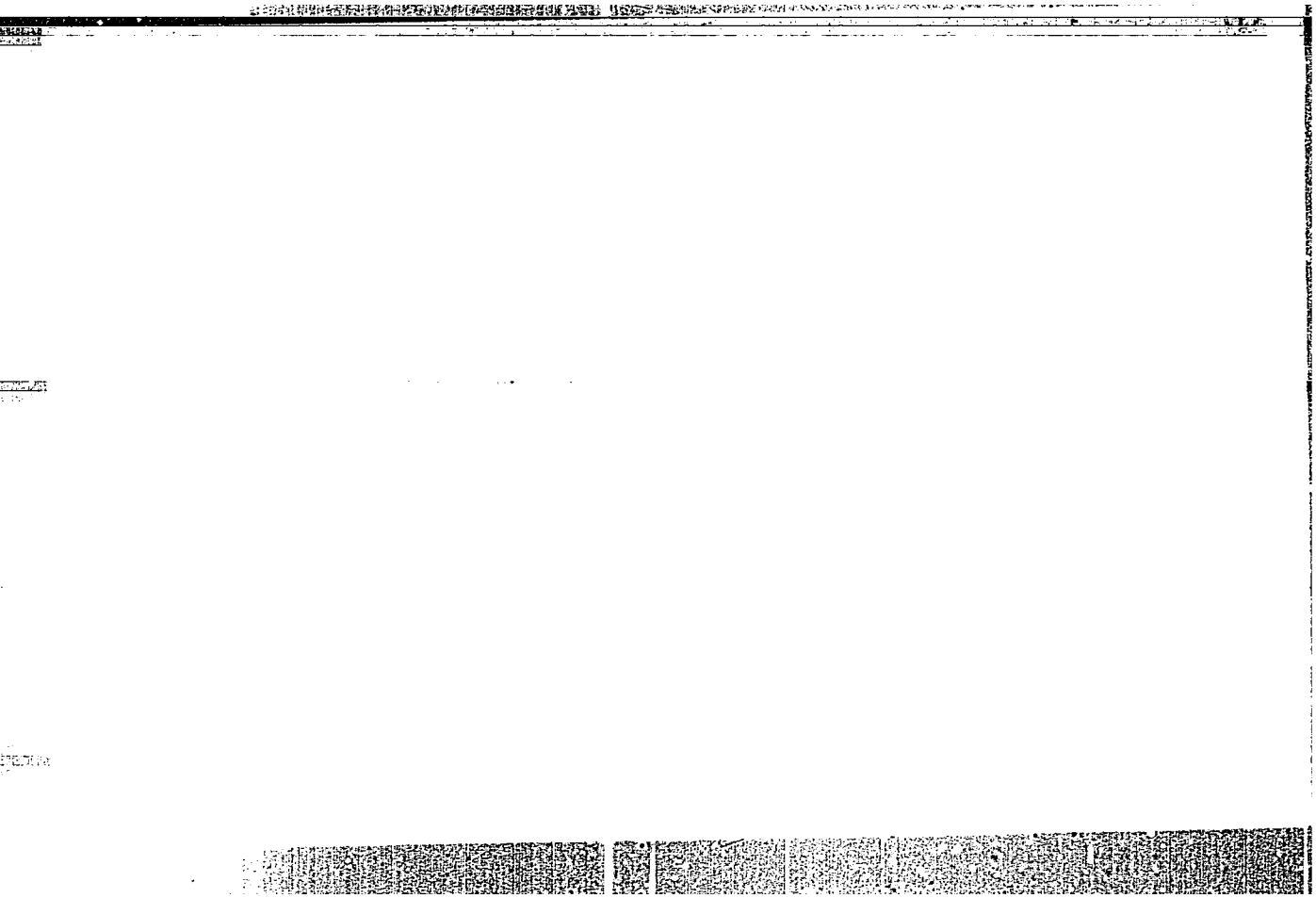
L 22060-66

ACC NR: AP6009641

lem is reduced to finding functions of the conditional-probability type, which are solutions of the corresponding integro-differential equations obtained by the method of O. V. Konstantinov and V. I. Perel' (ZhETF v. 39, 197, 1960), describing a stochastic process which may be Brownian motion of an object in phase space. It is shown that in the linear approximation in the concentration, the method of Konstantinov and Perel' admits of further improvement and yields new exact formulas for the electric conductivity, making it possible to trace many interesting analogies with the process of Brownian motion. In the case of narrow bands, the carrier motion is described by a stochastic equation of the Kolmogorov-Feller type. In the case of broad bands the motion is of the random-walk type. In the case of low current density it is shown that the conductivity formula no longer has the angular dependence characteristic of the solution of Konstantinov and Perel'. The authors thank Yu. N. Obraztsov for interesting critical remarks. Orig. art. has: 59 formulas.

SUB CODE: 20/ SUBM DATE: 28Jun65/ ORIG REF: 007/ OTH REF: 011

Card 2/2 MJ 5



APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000827120008-3"

KUDINOV, Yu.A., inzh.

Centrifugal cleaner for liquid fuels. Trudy MIIT no.130:212-220 '60. (MIRA 14:3)

(Liquid fuels--Cleaning)

BELYAVSKIY, I.Yu., inzh.; BRAY, I.V., inzh.; KUDINOV, Yu.A., inzh.
SAVEL'YEVA, O.V., inzh.

New lining and filtering materials. Zhel.-dor.transp 43 no.9:61-63 S '61. (MIRA 14:8)
(Railroads--Equipment and supplies)

KUDINOV, Yu.A., inzh.

Fuel filtration in diesel locomotive engines. Trudy MIIT no.141: 108-126 '61. (MIRA 15:2)

(Diesel engines--Oil filters)

KUDINOV, Yu.A., inzh.

Studying the possibility of using centrifugal fuel purification in diesel locomotive engines. Trudy MIIT no.141:127-155 '61. (MIRA 15:2)

(Diesel engines—Oil filters)
(Centrifuges)

BRAY, I.V.; KUDINOV, Yu.A.; BELYAVSKIY, I.Yu.; GRIGOR'YEV, M.A., kand. tekhn. nauk, retsenzent; GALANOVA, M.S., red.izd-va; DEMKINA, N.F., tekhn. red.

[Filters for fine purification of diesel fuel] Fil'try tonkoi ochistki dizel'nogo topliva. Moskva, Mashgiz, 1963. 126 p. (MIRA 16:6)
(Diesel fuels) (Filters and filtration)

MEDIOKRITSKIY, Ye.L.; KUDINOV, Yu.A.; KOROCHKIN, Ye.I.; GLADKIKH, B.Ya.

Aerodynamics of radiation recuperators. Izv.vys.ucheb.zav.; chern.met. 8 no.8:151-154 '65. (MIRA 18:8)

1. Sibirskiy metallurgicheskiy institut.

L 38377-66 EWT(m)/T DJ/WE

ACC NR: AP6021817 SOURCE CODE: UR/0413/66/000/012/0109/0109

INVENTOR: Kudinov, Yu. A.

ORG: none

TITLE: Jet centrifuge for filtering fuel or oil. Class 46, No. 182958

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 12, 1966, 109

TOPIC TAGS: gas filter, filtration, fuel contamination

ABSTRACT: An Author Certificate has been issued for a jet centrifuge for filtering fuel or oil, which consists of a packet of conical separating disks on a movable axle connected with a stationary axle through a step-up gear and a hydraulic-jet drive (see Fig. 1). To increase the rotor's RPM and improve fuel filtration, the hydraulic-jet drive is fed through annular grooves and radial and axial channels which are connected with them; these are on the stationary axle and are located uniformly along its diameter. In this way the separating portion of the centrifuge is connected to the intake line, and the hydraulic-jet drive to the hydraulic system's pressure line. In a

Card 1/2 UDC: 62-732:621.928.3

L 38377-66

ACC NR: AP6021817

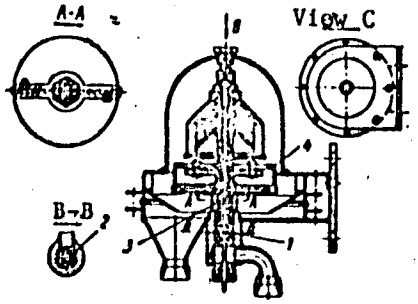


Fig. 1. Jet centrifuge for cleaning fuel or oil

1 - Radial channels; 2 - annular grooves;
3 - axial channels; 4 - step-up gear.

variant, the step-up gear, which transmits rotary motion from the hydraulic-jet drive to the centrifuge rotor, is made in the form of a toothed gear. Orig. art. has: 1 figure. [KT]

SUB CODE: 21/ SUBM DATE: 17Jul62/ ATD PRESS: 5043

Card 2/2

KUDINOV, Z.A., inzhener.

"The theory of centrifugal casting.". N.A.Gelinkevich. Reviewed by Z.A.Kudinov. Lit.proizv.no.4:30-31 Ap '56. (MLRA 9:7)
(Centrifugal casting) (Gelinkevich, N.A.)

USSR/ Farm Animals. Swine. Q

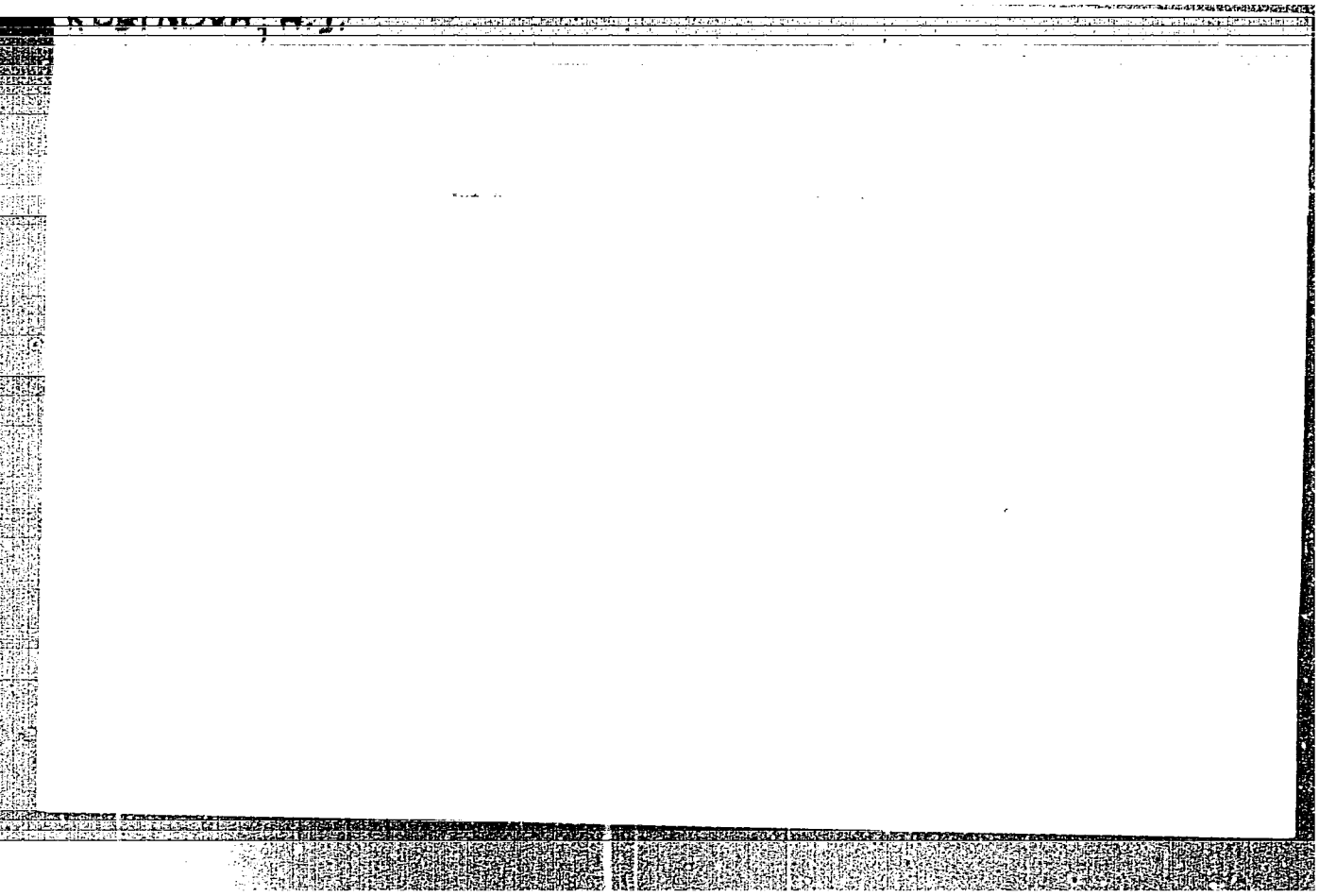
Abs Jour: Ref Zhur-Biol., No 9, 1958, 40486.

Author : Kudinova, A.
Inst : Not given.
Title : The Feeding of Green Corn Fodder to Swine.

Orig Pub: Svinovodstvo, 1957, No 9, 42-43.

Abstract: No abstract.

Card 1/1



APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000827120008-3"

BEKKER, Z.E.; RUBINSHTEYN, Yu.I.; LISINA, Yo.S.; KUDINOVA, G.P.

Distribution and properties of Eusarium strains from the sporotrichiella section and their anatgonists isolated in the areas of endemic Urov disease. Vop. pit. 18 no. 6:47-53 N-D '59. (MIRA 14:2)

1. In laboratorii antibiotikov Biologo-pochvennogo fakul'teta Moskovskogo gosudarstvennogo universiteta i otdela pishchevoy Instituta pitaniya AMN SSSR.
(ARTHRITIS) (SOILS—MICROBIOLOGY)

ZINOV'YEV, P.M., prof., nauchnyy red.; KUDINOVA, I.M., red.; MAL'KOVA, N.V., tekhn. red.

[Disability evaluation and the clinical aspects of psychopathy, neuroses, and reactive psychoses; works of the Central Research Institute for Disability Evaluation and Rehabilitation of Disabled Workers] Vrachebno-trudovaia ekspertiza i klinika psikhopatii, nevrozov, reaktivnykh psikhozov; nauchnye trudy instituta. Moskva, 1960. 93 p. (MIRA 14:11)

1. TSentral'nyy nauchno-issledovatel'skiy institut ekspertizy trudosposobnosti i organizatsii truda invalidov.
(DISABILITY EVALUATION) (MENTAL ILLNESS)

11 (7)

AUTHORS: Rafal'skiy, R. P., Kudinova, K. F. SOV/89-7-4-4/28

TITLE: The Experimental Investigation of the Conditions for the Reduction and Precipitation of Uranium by Minerals

PERIODICAL: Atomnaya energiya, 1959, Vol 7, Nr 4, pp 333-337 (USSR)

ABSTRACT: The present paper deals with the results obtained by an experimental investigation of the reduction- and precipitation processes of uranium by certain minerals which are widely spread in hydrothermal uranium deposits. For this purpose a plate of the precipitating mineral, which had a thickness of from 0.2 to 0.4 mm, was fitted into a quartz ampoule, after which several millimeters of a solution of UO_2SO_4 were introduced. The ampoule was evacuated, soldered, and heated. The uranium was precipitated with natural minerals with the exception of pyrrhotine, which was produced in the laboratory. At the increased temperatures the uranium was reduced, after which it was precipitated from the acid uranyl sulphate solutions by means of pyrite, pyrrhotine, galenite, chalcopyrite, siderite, smaltine, and native antimony (which, in its lowest valences, contains Fe, S, and As). As a result of the redox reactions,

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a vestige of UO_2 is produced on the precipitating mineral, and hematite is separated on the ampoule walls or in the mixture with UO_2, and on the surface of the solution an emulsion of elemental sulphur is separated. The character of the UO_2 produced depends mainly on the composition of the precipitating mineral and on the temperature. The influence exercised by the composition of the precipitating mineral is in some cases particularly marked. At 150°C, a very fine-grained unit forms after 120 hours on the pyrite, in which the presence of U_3O_8 was detected by X-ray analysis. Under similar conditions, a precipitate with the crystal lattice of UO_2 was produced in galenite. At 200 to 350°C, crystalline uraninite was obtained on pyrite and galenite. The strongest influence was exercised by temperature in the case of the precipitation of uranium by siderite. A table contains data concerning the dependence of the lattice constant of UO_2 upon the conditions of production. An increase of the duration

of the experiment from 6 to 113 hours (T = 250° C) caused no qualitative changes in the character of UO_2 in its precipitation on pyrite and galenite. The following conclusions may be drawn from the results obtained: (1) At increased temperatures and pressures, U(VI) is reduced in acid solutions by iron, sulphur, and arsenic (which are present in natural minerals). Uranium is precipitated as a result of the reduction as crystalline uraninite, "collomorphous" uranium resin, or as carbonblack-like vestiges of uranium-blacking. (2) The character of UO_2 depends on the composition of the precipitating mineral which determines the interaction of the solution with the mineral. (3) The character of UO_2 depends also on temperature, at the rise of which also the lattice constant UO_2 increases. With rising temperature the reduction of U(VI) becomes ever more complete. Crystalline uraninite can, by the way, form already at 100° C, whereas uranium resin and even uranium black precipitates at 250° C. (4) In the case of a considerable velocity of the interaction between the solution and the mineral

(precipitation on siderite) the character of UO_2 depends on the concentration of uranium in the original solution. The results obtained by these experiments in general confirm the possibility of the deposition of primary minerals by the reduction of U(VI) by the components of natural minerals under hydrothermal conditions. There are 2 figures, 2 tables, and 5 Soviet references.

SUBMITTED: February 18, 1959

POLONNIKOVA, G.A.; KUDINOVA, K.F.

Crystal hydrates of uranyl sulfite. Zhur. neorg. khim. 6 no.7: 1520-1522 Jl '61. (MIRA 14:7)
(Uranyl sulfite)

S/089/62/013/002/008/011
B102/B104

AUTHORS: Rafal'skiy, R. P., Vlasov, A. D., Kudinova, K. F.

TITLE: UO_2 synthesis by U(VI) reduction with elementary sulfur under hydrothermal conditions

PERIODICAL: Atomnaya energiya, v. 13, no. 2, 1962, 181-183

TEXT: U(VI) U(IV) reduction in uranyl sulfate solutions by sulfur vapor is described. Altogether 13 experiments were made under various conditions, and in particular with different periods of heating, at a molar ratio U:S = 1:1. The sulfur vapor pressure corresponded to the vapor saturation pressure. The heating temperatures in the autoclave were 360°C, or in 2 cases 200°C, and the heating periods varied between 1 and 72 hrs. U-concentration in the initial solution was 25, or in one case 100 g/l; pH was 2.3 (or in individual cases 0.5, 1.7, 0.8); the solution volume was 20-30 ml (3.5, 9); and the uranium concentration in the final solution was between 0.001 and 18.5 g/l. In all cases the synthesis products were studied using X-rays. It is shown that U(VI)-S interaction at 360°C during 20 hrs and more causes virtually complete uranium reduction (25 g/l

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solution volume 22 ml, pH 2.3). With heating periods of 1 and 4 hrs (360°C) (25 g/l, pH 2.3, volume of solution 21 and 9 ml) a precipitate of $UO_2 + U_3O_8$ was observed only at $t \geqslant 14$ hrs, and with 22-25 ml pure UO_2 was precipitated. At 200°C reduction proceeds more slowly is less complete. UO_2 precipitates in finely crystalline form (size 0.01 mm, lattice constant 5.45-5.46)U_3O_8, somewhat more coarsely crystalline at 200°C (0.01-0.2 mm). There are 2 figures and 1 table.

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RAFAL'SKIY, R.P.; KUDINOVA, K.F.

Experimental study of the deposition of uranium oxides from hydrothermal solutions. Geol.rud.mestorozh. no.6:46-53 N-D '62. (MIRA 15:12)

(Uranium oxides)

ACC NR: AR7005972 SOURCE CODE: UR/0277/66/000/011/0025/0025

AUTHOR: Golovin, S. A.; Baranova, V. I.; Kudinova, K. O.

TITLE: Relaxation and elastic characteristics of molybdenum

SOURCE: Ref. zh. Mashinostroitel'nyye materialy, konstruktsii i raschet detaley mashin. Gidroprivod, Abs. 11.48.161

REF SOURCE: Sb. Proiz-vo stali i splavov i vliyaniye obrabotki na ikh svoystva. Tula, 1965, 42-49

TOPIC TAGS: molybdenum, elasticity, relaxation process, metal deformation

ABSTRACT: The authors study the effects which refining conditions, deformation and annealing parameters have on the relaxation and elastic characteristics of molybdenum. An RKFMIS vacuum-tube relaxation oscillator was used for measuring internal friction and the square of the frequency of torsional vibrations as functions of temperature at a frequency of ~1 cps on a specimen 150 mm long and 1 mm in diameter. Deformation amplitude was $<10^{-6}$. Several maxima were observed on the curve for internal friction of molybdenum as a function of temperature in the regions from 40 to 80°C and from 120 to 180°C. The attenuation maxima on the temperature curve for internal friction in the regions from 40 to 80°C and from 120 to 180°C decreased as the annealing tempera-

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ture was raised to 400°C, and disappeared completely at temperatures from 400 to 700°C. The background and the amplitude of these peaks increased at 800°C due to recrystallization processes. All groups of molybdenum specimens showed an increase in the square of the frequency of torsional vibrations as the annealing temperature was raised, and a linear reduction in this parameter with heating to 400°C. 4 illustrations, 1 table.
[Translation of abstract]

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