

ORLOV, K.S., inzh.

Monindependent multisectional air conditioners with an
output of 2500 - 5000 m³/hr. Vod. i san. tekhn. no.10:37-38
0 '65. (MIRA 18:1)

KANTOR, S.A., doktor tekhn.nauk, prof.; ORLOV, K.V., kand.tekhn.nauk;
POTAPOV, A.I., inzh.

Testing of a control system taking into account additional load
impulses. Izv. vys. ucheb. zav.; energ. 6 no.10:61-67 0 '63.
(MIRA 16:12)

1. Leningradskiy politekhnicheskii institut imeni M.I.Kalinina.
Predstavlena kafedroy turbinostroyeniya.

YEVSTYUKHIN, A.I.; ORLOV, K.V.

Investigating a fluoride-chloride electrolyte as a zirconium
bath. Met. i m. approved. chist. met. no. 4:11-17 '63.

(MIRA 17:5)

89662

S/149/61/000/002/008/017
A006/A001

5 2300

AUTHORS: Yagodin, G.A., Orlov, K.V.

TITLE: Investigating Zirconium and Hafnium Separation on Anion-Exchanging Resins

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, 1961, No. 2, pp. 92 - 96

TEXT: The use of anion-exchanging resins for separating zirconium and hafnium is of interest, since fluoro-zirconate solution may be directly used, which is a technical product of the fluoro-silicate method of zircon decomposition. There are several literature data available on the separation of zirconium and hafnium using Dowex-1 and amberlite IRA-400 resins (Ref. 1 - 5). The authors of the present article used domestic anion-exchanging resins such as HO(NO) ЭДЭ -100 (EDE-10P), ММГ -1 (MMG-1) AB-16 (AV-16) and TH (TN). The American IRA-400 resin was used as comparison element. V.V. Novikov participated in the experiments, which were conducted to determine the full exchange capacity of the aforementioned ion-exchanging resins in respect to ZrF_6^{2-} ions by the following method. A batch of 3 g dry resin of $-0.25+0.15$ mm grain size, was subjected to triple treatment

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8/149/61/000/002/008/017
A006/A001Investigating Zirconium and Hafnium Separation on Anion-Exchanging Resins X

during mixing 500 ml of K_2ZrF_6 solution saturated at $18^\circ C$. Each contact lasted 3 hours. K_2ZrF_6 concentration during the second and third contact was checked by the weight method and was equal to the initial concentration. The resin was then filtrated and washed until a negative reaction on fluoro-zirconate ions took place. The sorbed fluoro-zirconate ions were washed out of the resin with 2 n. sulfuric acid. Zirconium hydroxide was precipitated from the solution by ammonia, roasted to ZrO_2 , and weighed. The full exchange capacity in respect to ZrF_6^{2-} per gram of dry resin (in sulfate form) was (in grams of ZrO_2): 0.074 for TN; 0.0093 for MMG-1; 0.142 for NO; 0.260 for AV-16; 0.262 for EDE-10P; 0.193 for IRA-400; and 0.149 for AN-9F. Zirconium and hafnium separation was investigated on columns of 45 m length and 1 cm diameter and 1.7 m length and 2.5cm diameter. The resins were preliminarily converted into sulfate form and washed up to $pH=4.5$. A certain amount of K_2ZrF_6 solution of 18.4 g/l concentration was passed through the column at a rate of 1 ml/cm² per minute. Subsequently the column was washed and 1 n. sulfuric acid was passed through it, at a rate of 1 ml/cm². The solution flowing out was divided into fractions. After completed washing-out of zirconium and hafnium the column was washed with 1.5 liters of distilled water to $pH=4.5$. The summary content of Zr and Hf in each fraction was determined by weight analysis

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S/149/61/000/002/008/017
A006/A001

Investigating Zirconium and Hafnium Separation on Anion-Exchanging Resins

on the λ C Π -22 (ISP-22) spectrograph. Table 2 shows the results of one of the experiments, which was performed under the following conditions: resin weight 11.5 g; height of layer - 43 cm; amount of ZrO_2 equivalent to the sorbed amount of ZrF_6^{2-} - 0.448 g; content of HfO in ZrO_2 4%; desorption rate 1 ml/cm² per minute. It was found that all the anion-exchanging resins can be used to obtain partial separation of Zr and Hf during one cycle. EDE-10P resin was found to be the most effective one. During washing of sorbed ions with n. H_2SO_4 at a rate of 0.5 ml/cm² per minute, the hafnium content in the initial fraction was 30% with 52% yield of hafnium oxide; in the subsequent fractions zirconium oxide of high purity was obtained ($< 0.05\% HfO_2$). It was found that the order of washing Zr and Hf with sulfuric acid changed in the presence of KCl in the solution (Table 4). This is apparently connected with the formation of mixed fluoride-chloride Zr and Hf₂ complexes. When washing the sorbed ions with 0.5 n. H_2SO_4 at a rate of 0.5 ml/cm² per minute, the HfO_2 content in the last fraction was 40 - 50% with 60 - 90% yield. On the basis of results obtained the EDE-10P anion-exchanging resin can be recommended for the partial separation of Zr and Hf and for the relatively simple production of Zr-Hf concentrates with up to 50% HfO_2 content in relation to MeO_2 .

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8/149/61/000/002/008/017
 A006/A001

X

Investigating Zirconium and Hafnium Separation on Anion-Exchanging Resins

Table 2:

Separation of zirconium and hafnium on EDE-10P resin during desorbition with mononormal sulfuric acid

Volume of fractions by the order of washing, ml	Amount of washed out MeO ₂		HfO ₂ content in MeO ₂ %	HfO ₂ yield in % from sorbed on resin
	g	% from sorbed on resin		
50 - 130	0.0663	15	14	52
130 - 170	0.1271	20	1,5	7
210 - 410	0.1507	35	0,7	6

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S/149/61/000/002/008/017
A006/A001

Investigating Zirconium and Hafnium Separation on Anion-Exchanging Resins

Table 4:

Dependence of full exchanging capacity of EDE-10P resin on the presence of KCl in the solution

K_2ZrF_6 , g/l	KCl, g/l	Full exchanging capacity of 1 g dry resin (in grams of ZrO_2)
5,45	35	0,116
13,4	35	0,217
13,4	23	0,262
13,4	--	0,267

There are 5 tables and 5 references: 3 Soviet and 2 non-Soviet.
ASSOCIATIONS: Moskovskiy khimiko-tekhnologicheskii institut (Moscow Chemico-Technological Institute). Kafedra tekhnologii redkikh elementov (Department of Technology of Rare Elements).

SUBMITTED: February 19, 1960

Card 5/5

ORLOV, K. V.

Dissertation: "Investigation of the Dynamics and Regulation of Gas Turbine Installations." Cand Tech Sci, Leningrad Polytechnic Inst, Leningrad, 1954. (Referativnyy Zhurnal--Mekhanika, Moscow, Aug 54)

SO: SUM 393, 28 Feb 1955

SOV/112-59-12-33 30

Translation from: Referativnyy zhurnal, Elektrotehnika, 1959, Nr 16, p 2 (USSR)

AUTHORS: Bulant, V.I., Orlov, K.V.

TITLE: Investigation of the Operating Conditions of Two-Shaft Gas Turbine Installations at Partial Loads (Preliminary Information)

PERIODICAL: Nauchn.-tekh. inform. byul. Leningr. politekh. in-t, 1958, Nr 3, pp 130 - 131

ABSTRACT: The calculation results for variable conditions of two layouts of two-shaft gas turbine installations of 25 Mw with two combustion chambers for liquid fuel, intermediate cooling between two compressors and with low-pressure turbine for the drive of the generator. The calculations were carried out by employing the linearization method of equations, describing the operation of the installation and the characteristics of the single aggregates. The resulting curves of the change in performance, coefficient of useful capacity, air consumption, and the number of revolutions for regeneration degrees of 0.5 and 0.8 are stated. For both of the chambers: ✓

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SOV/112-59-18-3932

Investigation of the Operating Conditions of Turbo-Shaft Gas Turbine Installations at Partial Loads (Preliminary Information)

Minimum fuel consumption is taken (1,000 kcal/sec) which makes it necessary at partial loads to depart from the optimum control program. The characteristics of both these outputs are analyzed, with references.

V.D.S. ✓

Card 1/2

ORLOV, K. V.

KANTOR, S.A., doktor tekhn.nauk, prof.; ORLOV, K.V., kand.tekhn.nauk

Improving the control system for power installations by means
of a secondary load pulse. Energomashinostroenie 4 no.2:14-17
P '58. (MIRA 11:4)

(Automatic control)

L 27776-65 EPR/ENG(v)/ENG(s)-2/EWT(d)/EWT(1)/EWT(m)/EPA(bb)-2/T-2/EWA(d)/EWP(w)/
EWP(g) P-5/Pg-4/Pw-4 EM/WW S/2563/64/000/232/0026/0030
ACCESSION NR: AT5003385

AUTHOR: Arsen'yev, L. V.; Kantor, S. A.; Orlov, K. V.

TITLE: Improvement of the static and dynamic properties of a transportable gas turbine motor using a controllable nozzle devices within the power turbine 2) 4/4
4/3
BT-1

SOURCE: Leningrad, Politekhicheskiy institut. Trudy, no. 232, 1964. Turbomashiny (Turbomachines), 26-30

TOPIC TAGS: gas turbine, movable gas turbine, variable load gas turbine, variable compression gas turbine, constant temperature gas turbine, gas turbine efficiency

ABSTRACT: Movable gas turbines in the Soviet Union are still in the experimental phase, and the greatest difficulties are encountered in connection with the poor efficiency of engines operating against variable loads. The article presents the variable operating characteristics of a movable gas turbine designed according to the block diagram shown in Fig. 1 of the Enclosure. All calculations of the turbine flows were carried out at the average vane radii. Mechanical and gas losses were taken care of by the appropriate efficiencies which were assumed constant under all operating conditions. The effect of the incident angle on vane energy losses

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ACCESSION NR: AT5003385

was taken into account by utilizing only that component of the exit velocity from the compressor turbine which coincides with the tangent to the mean line of the profile at the entrance edge of the nozzle blades. Finally, the heat capacity of the working parts under all loads was assumed constant and independent of temperature. The calculations of the variable load operation assumed a constant angle setting of the nozzle blades of the power turbine, a constant rotational frequency of the turbo-compressor block (as a result of the rotational adjustment of the pertinent nozzle blades), and the constancy of the initial gas temperature (achieved, again, by rotating the nozzle blades of the power turbine). The constant gas temperature, maintained even during partial loads, makes the engine very economical although at the expense of its pick-up response. This last drawback can be eliminated by operating the turbocompressor at constant rotational frequency. However, this, in turn, reduces the efficiency of the device. Orig. art. has: 4 figures.

ASSOCIATION: Leningradskiy politekhnicheskii institut imeni M. I. Kalinina (Leningrad Polytechnic Institute)

SUBMITTED: 00

ENCL: 01

SUB CODE: PR

NO REF SOV: 000

OTHER: 000

Card 2/3

L 27776-65
ACCESSION NR: AT5003385

ENCLOSURE: 01

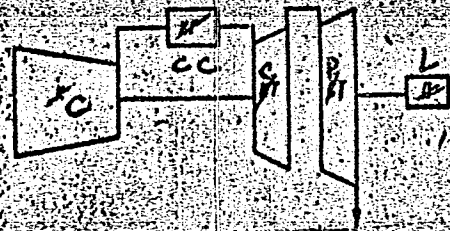


Figure 1. Block diagram of a transportable gas-turbine engine; C - compressor; CC - combustion chamber; CT - compressor turbine; PT - power turbine; L - consumer (load)

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L 04532-67 EWT(1)/EWP(w) EM/WW/JR/GD

ACC NR: AT6029308

SOURCE CODE: UR/0000/66/000/000/0045/0050

AUTHOR: Orlov, V. K.; Tselishchev, P. A.; Ch'iu Li-chien

ORG: none

TITLE: ²¹Heat transfer and hydraulic resistance of bundles with smooth and finned rods ¹¹⁰

SOURCE: Moscow. Energeticheskiy institut. Teploobmen v elementakh energeticheskikh ustanovok (Heat exchange in power installation units). Moscow, Izd-vo Nauka, 1966, 45-50 ²⁶

TOPIC TAGS: convective heat transfer, hydraulic resistance, nuclear reactor technology

ABSTRACT: The cylindrical fuel elements of a water-water power reactor ¹⁷ are spaced in the cells by special lattices or by the spiral fins of the jackets, which exert an effect on heat transfer and hydraulic resistance in the movement of the heat transfer medium in the active zone of the reactor. In the present work the experimental seven-tube bundles, made of copper tubes with a diameter of 10 x 1.5 mm and a length of 1200 mm, were placed in a round tube with a diameter of 60 x 3 mm. The tubes of the smooth bundle were spaced by three four-level lattices with a height of 36 mm, 360 mm apart. At each level, the tube bundle was in contact with only one lattice strip, which had a height of 4 mm and a thickness of 2 mm. In the finned bundle, the tubes were spaced by spiral fins made of copper ²⁷ wire with a diameter of 2 mm. The windings

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ACC NR: AT6029308

had a length of 30-40 mm and were spaced 300 mm apart. Four bundles were made, with a fin spacing of 300, 600, 900, and 1200. A detailed drawing of the apparatus is given. The tube bundles were heated with hot water at an inlet temperature of $100 \pm 2^\circ$. Wall and water temperatures were measured with conventional thermocouples. The flow rate of the hot water inside the tubes varied from 4-5 meters/sec. The experimental data are exhibited in graphic form. The data were plotted as a function of the fin spacing and, with a scatter of $\pm 3\%$, fall on straight lines corresponding to $Re^{0.8}$. In comparison with smooth tubes, with a fin spacing of 300 mm, heat transfer increased by approximately 27% and, with a spacing of 1200 mm, it increased by 7%. The coefficient of hydraulic resistance for smooth tubes with spacing lattices was found to be approximately two times greater than for finned bundles with fin spacings from 300 to 1200 mm. Thus, from the viewpoint of heat transfer and hydraulic resistance, finned bundles are more efficient than smooth bundles. Orig. art. has: 6 formulas and 4 figures.

SUB CODE: 18/ SUBM DATE: 05Apr66/ ORIG REF: 002

Card

2/2 *gd*

ORLOV, Kh. Ya. Cand Chem Sci -- (diss) "Isomerization on N-paraffins of
C₁₅-C₁₈ composition in the presence of sulfide catalyzers." Mos, 1959. 11 pp
(Inst of ^{Petrochemical}~~Petrochemical~~ Chemistry Synthesis, Acad Sci USSR), 150 copies (KL, 46-59,135)

PAUSHKIN, Ya.M.; ORLOV, Kh.Ya.; KATSOBASHVILI, Ya.R.

Isomerization of n-paraffinic hydrocarbons ($C_{15}-C_{18}$). Izv.
vys.ucheb.zav.; neft' i gaz 2 no.9:57-62 '59.
(MIRA 13:2)

1. Moskovskiy institut neftekhimicheskoy i gasovoy promyshlennosti
imeni akademika I.M.Gubkina, Institut neftekhimicheskogo sinteza
AN SSSR.

(Isomerization) (Hydrocarbons)

5 (3a)
AUTHORS:

Topchiyev, A. V., Academician, Orlov,
Kh. Ya., Paushkin, Ya. M.

SOV/20-127-6-25/51

TITLE:

Isomerization of Normal Paraffin Hydrocarbons of the Composition
 $C_{15}-C_{18}$ on Sulphide Catalysts

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 6, pp 1235-1238
(USSR)

ABSTRACT:

The authors have been concerned for years with the isomerization of the higher paraffins of the petroleum- and diesel-oil fractions. This is of considerable interest since the isoparaffins have a low melting point ($-40-60^{\circ}$) (Refs 1-3). The investigation of this isomerization is complicated by an intense cracking and other secondary reactions. The authors found, however, catalysts and conditions which make possible an isomerization practically without cracking and with satisfactory yields. The isomerization proceeded at 20 atm. The mixture of the n-paraffins with hydrogen was heated up to $160-180^{\circ}$. Industrial catalysts were used: WS_2 , $WS_2-NiS-Al_2O_3$, $WS + alumosilicate$. 3% benzene was added to inhibit the cracking. The principal results are shown in tables 1 and 2. The optimum reaction conditions were found for WS_2 :

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Isomerization of Normal Paraffin Hydrocarbons of the
Composition C₁₅-C₁₈ on Sulphide Catalysts

SOV/20-127-6-25/51

380-400°. Volume velocity of the raw material: 1.5 l/l·h. At a molar ratio of 1:7.5 between hydrogen and paraffins, the catalyzate contained: about 30% isoparaffins, 26% untransformed n-paraffins, and 44% cracking products (the fraction boiling out up to 240°). with an increase in the molar ratio between hydrogen and paraffins up to 15.8, the content of isoparaffins in the catalyzate rose to 35%, whereas the cracking products fell to 30%. A further increase in the said molar ratio inhibited both the cracking and the isomerization (Tables 1, 2; Figure 1). The isomerization on WS₂-NiS-Al₂O₃ is accompanied by much less

cracking. This makes possible an isomerization at higher temperatures with satisfactory (nearly double the) yields (Fig 2) of isoparaffins. Table 3 shows that the isomerization on sulphide catalysts brings about the formation of mono- and dimethyl-substituted isomers. Mainly the former are produced if the reaction is inhibited by high molar ratios (Experiment Nr 4). - There are 2 figures, 3 tables, and 7 references, 3 of which are Soviet.

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Isomerization of Normal Paraffin Hydrocarbons of the
Composition $C_{15}-C_{18}$ on Sulphide Catalysts

SOV/20-127-6-25/51

ASSOCIATION: Institut neftekhimicheskogo sinteza Akademii nauk SSSR
(Institute of Petroleum-chemical Syntheses of the Academy of
Sciences, USSR)

SUBMITTED: July 1, 1959

Card 3/3

PAUSHKIN, Ya.M.; ORLOV, Kh.Ya.

Isomerization of higher n-paraffins, C₁₅-C₁₈. Izv.AN SSSR Otd.khim.
nauk no.4:657-663 Ap '61. (MIRA 14:4)

1. Institut neftekhimicheskogo sinteza AN SSSR.
(Paraffins) (Isomerization)

ORLOV, Kh.Ya.; MARTYNOV, A.A.; BULYCHEV, V.P.

Catalytic conversions of high molecular weight paraffins. Report No.1:
Isomerization of n-octadecane in the presence of commercial catalyst
WS₂-NiS-Al₂O₃. Izv. AN SSSR. Ser.khim. no.9:1636-1641 S '63.
(MIRA 16:9)

1. Institut organicheskoy khimii AN SSSR, Kazan'.
(Octadecane) (Isomerization) (Catalysis)

ORLOV, Kh.Ya.; MARTYNOV, A.A.; BILYCHEV, V.P.

Catalytic conversions of high-molecular weight paraffins. Report No.2:
Isomerization of n-octadecane in the presence of WS₂ and WS₂ + aluminosilicates industrial catalysts. Izv. AN SSSR. Ser. khim. no.5:792-796 '65. (MIRA 18:5)

1. Institut organicheskoy khimii AN SSSR, Kazan'.

ORLOV, Kh.Ya.; MARTYNOV, A.A.

Catalytic conversions of high-molecular weight paraffins. Report No.3:
Effect of benzene addition on the isomerization of n-octadecane in the
presence of the industrial catalyst WS2. Izv. AN SSSR. Ser. khim. no.5:
796-800 '65. (MIRA 18:5)

1. Institut organicheskoy khimii AN SSSR, Kazan'.

Name : ORLOV, L.

Title : Engineer

Remarks: Orlov is one of the authors of the articles appearing in "Flight to the Moon", Moskva, 1955, portraying a fictitious flight to the moon.

Source : M: Polet na Lunu (Flight to the Moon), by various authors, Moskva, 1955

OR/ov, L.

USSR/Nuclear Physics - Particle counters

Card 1/1 Feb. 89 - 9/29

Authors : Levin, V., and Orlov, L.

Title : Computation of radioactive radiations

Periodical : Radio 9, 20-23, Sep 1954

Abstract : The specific characteristics of alpha-, beta- and gamma-rays, and their utilization in measuring instruments used in radiometry are described. Several types of measuring devices, for counting radioactive particles, are presented. Six references (1949-1953). Diagrams (including block and circuit diagrams).

Institution : ...

Submitted : ...

Orlov, L.

USSR/ Electronics - Car radios

Card 1/1 Pub. 89 - 18/27

Authors : Levin, V., and Orlov, L.

Title : Automobile radio receiver

Periodical : Radio 8, 37-39, Aug 1955

Abstract : A detailed description is given of a new 6-tube superheterodyne e-wave range radio receiver intended for installation in the Moskvich passenger car. Diagram; illustration.

Institution :

Submitted :

CDV, I.A., Inzh.

wide-range of direct injection systems for diesel engines, as mentioned in the report.

KRINETSKIY, I.I., doktor tekhn. nauk; OKLOW, L.A.

Hydraulic speed governor for marine diesels. Trudy TSNIIMF
no. 62:74-81 '65. (MIRA 18:12)

L 05298-67 EWT(d)/EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AR6031905

SOURCE CODE: UR/0058/66/000/006/H043/H044

AUTHOR: Babenko, S. P. ; Blagosklonskaya, L. Ye. ; Gershenson, Ye. M. ;
Orlov, L. A. ; Litvak-Gorskaya, L. B.

16
E

TITLE: SHF semiconductor modulators

SOURCE: Ref. zh. Fizika, Abs. 6Zh304

REF SOURCE: Tr. I-y Mezhvuz. konferentsii ped. in-tov po radiofiz. i spektro-
skopii. M., 1965, 175-186

TOPIC TAGS: shf semiconductor modulator, injection, exclusion,
magnetoconcentration effect, modulator

ABSTRACT: Control of ^{↑↑}Ge conductivity through the variation of the minority
carrier concentration during injection, exclusion, and in the magnetoconcentration
effect is investigated. To achieve adequate efficiency for a modulator using the
increased carrier-concentration effect, resulting from the introduction of carriers
through a p-n junction (injection), it is necessary to use a pure high-impedance
material (~50 ohm. cm). Moreover, carrier concentration should vary in it
15--20 times, which corresponds to variations in resistivity from 50 to 3.5--2.5
ohm, cm. When use is made of the phenomenon of exclusion, which means that

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L 05298-67

ACC NR: AR6031905

the specimen is deficient in minority carriers, a substantial variation in the impedance of high-resistance Ge can be produced by direct SHF-power heating. It is calculated that with the use of the magnetoconcentration effect with the specimen resistivity of over 45 ohm. cm, a diffusion length of 2-3 mm and recombination rates on the faces of $S_2 \approx 100$ cm/sec and $S_1 \approx 10^4 - 10^5$ cm/sec, the impedance is expected to vary by factors of 10-20 (with an increase in the total quantity of carriers) and by factors of 2-3 (with a decrease in the quantity of carriers). All these above-mentioned effects are recommended for use in the development of waveguide-type SHF modulators which, in principle, are absorption devices. Diagrams of the arrangement of thin Ge specimens in waveguides, as well as a block diagram of an experimental system, are given in the original article. A description is given of the methods of measuring the basic parameters of a modulator. G. Slobodenyuk. [Translation of abstract]

SUB CODE: 20/

Card 2/2 *egk*

ACC NR: AR6022394 (N)

SOURCE CODE: UR/0398/66/000/003/VO10/VO10

AUTHOR: Krinetskiy, I. I.; Orlov, L. A.

TITLE: Hydraulic speed governor for a marine diesel

SOURCE: Ref. zh. Vodnyy transport, Abs. JV78

REF SOURCE: Tr. Tsent. n.-i. in-ta morsk. flota, vyp. 62, 1965, 74-81

TOPIC TAGS: internal combustion engine component, marine engine, diesel engine, marine engineering, mechanical engineering, speed regulator, ~~propulsion research facility~~, engine reliability, hydraulic device

ABSTRACT: Hydraulic governors (GR) are divided into two groups: hydrostatic or volumetric, and hydrodynamic or centrifugal. The principal of operation of the first group is considered in the Nastenko governor design. All types of GR have deficiencies of varying degrees of seriousness; instability, the dependence of the governor adjustment on the temperature, or on the viscosity of the working fluid. Instability of the GR in the first group is 15-20%, which is the primary obstacle to their widespread use. The faculty of the OVIMU [Odessa Higher Marine Engineering School] has developed a design and conducted theoretical research on an indirect acting GR with a loaded centrifugal sensitive element for high-powered marine

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UDC: 621.438-522

ACC NR: AR6022394

diesels. The design of this governor is described. Characteristics of GR statics, the system of differential equations for the dynamics of automatic governing of operation, the stability, and quality of governing, are reviewed. The desirability of further development of the design, and the creation of an experimental installation, is noted. 6 figures. S. Korzh. [Translation of abstract].

SUB CODE: 13

Card 2/2

ACC NR: AT7002852

(N)

SOURCE CODE: UR/3239/66/000/003/0047/0055

AUTHORS: Krinetskiy, I. I.; Orlov, L. A.

ORG: none

TITLE: A study of an indirect action rpm regulator

SOURCE: Nikolayev. Korablestroitel'nyy institut. Sudostroyeniye i morskoye sooruzheniya, no. 3, 1966. Sudovyye energeticheskiye ustanovki (Ship power equipment), 47-55

TOPIC TAGS: speed regulator, engine control system, model, automatic control system, centrifugal force, diesel, hydraulic device/ MN-7 electronic model device, 7DKRN 74-160 diesel

ABSTRACT: An indirect action hydraulic regulator with a flyweight centrifugal sensing element was developed, studied, and tested by the Odessa Advanced Marine Engineering College (Odesskogo vysshego inzhenernogo morskogo uchilishcha). Although designed for high power marine diesels, it is also usable on steam and gas turbines, AC and DC shaft generators, and on other similar equipment. The centrifugal force on the weight is balanced by the pressure of the fluid in the casing and is proportional to the square of the rotor angular velocity. The control action is accomplished by a linkage from the regulator piston to the fuel feed. The speed is

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ACC NR: AT7002852

set by varying the tension on the regulator spring. This regulator has all the advantages of a mechanical regulator plus additional stability which results from the following features: the restoring force is linear; the unbalance is a function only of the regulated speed and varies more slowly; the periodic movement of the weight rotating around the horizontal axis creates periodic hydraulic pulses, reducing the regulator insensitivity to zero. The dynamics of the system is analyzed with the differential equations of the components, and typical values for the diesel TDKRN 74/160 are given. The transient process in this nonlinear system is studied by generating a harmonic linearization of the nonlinear elements of the system and by applying a Laplace transformation with zero initial conditions. The static and dynamic characteristics, as revealed by both theoretical studies and tests on the electronic model device MN-7, show that the regulator is suitable for wide application. Orig. art. has: 7 figures and 15 formulas.

SUB CODE: 13, 21/ SUBM DATE: none/ ORIG REF: 006

Card 2/2

ORLOV, L. G.

USSR/Physics - Energy levels

Card 1/1

Pub. 22 - 24/54

Authors : Kramnikov, A. I.; Sotnikova, L. I., and Orlov, L. G.

Title : Transition of the deep energetic levels of ferrous atoms during cold metal deformations

Periodical : Dok. AN SSSR 102/5, 943 - 945, June 11, 1955

Abstract : A study of the displacement of the deep energy levels, L_{II} & L_{III} of ferrous atoms is described. Effect of cold deformations on the displacement of deep energy levels of ferrous atoms is discussed. Three USSR references (1939-1946). Table.

Institute : The Institute of Metallography and the Physics of Metals of the Scientific Research Institute of Ferrous Metallurgy

Presented by : Academician G. V. Kurdyumov, February 23, 1955

NOV/120-58-4-11/10

AUTHORS: Orlov, L. G., Sakvashvili, D. G., Usovskiy, E. M.

TITLE: Local X-Ray Analysis by Photographing [Taking spectrogram of] Reflected X-Rays (Lokal'nyy rentgenospektral'nyy analiz pri elektronograficheskoy s"yemke "na otrazheniye")

PERIODICAL: Pribyor i tekhnika eksperimenta, 1955, No 4, pp. 1-10 (USSR)

ABSTRACT: A method is described for the analysis of the chemical composition of very thin surface layers. Simultaneously with this the structural phase pattern may be obtained "by reflection" in the EM-4 electronograph, using a specially designed spectral camera. The X-ray radiation which is studied when an electron beam grazes the surface of the specimen is the diffraction pattern is produced by a surface layer about 10^{-6} cm thick. The X-ray radiation which results during this process may be used for the X-ray analysis of the chemical composition of the surface of a specimen under investigation. The geometrical conditions in the "by reflection" case (grazing electron beam) make it possible to study

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30V/120-58-4-11/70

Local X-Ray Analysis by Photographing [Taking Spectrogram of] Reflected [X-Rays]

out not only a general but also a local analysis of the structural components of the specimen for various parts of its surface. The chamber used for this purpose is shown in Fig. 1. The X-ray spectrum is analysed by a fixed calcite crystal. The method has been used to study changes in the chemical composition of surface layers of ferrite and various kinds of steel. There are 2 figures and 9 references of which 5 are Soviet and 4 English.

ASSOCIATION: Institut metallovedeniya i fiziki metallov TsNIChernet
(Institute of Metallography and Physics of Metals of
TsNIChernet)

SUBMITTED: October 25, 1957.

Card 2/2

SOV/137-58-9-19825

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 245 (USSR)

AUTHORS: Maksimova, O.P., Ponyatovskiy, Ye.G., Rysina, N.S.,
Orlov, L.G.

TITLE: Changes in the Kinetics of Martensite Transformation as a
Function of the Position of Martensite Point and the Composi-
tion of the Alloy (Izmeneniye kinetiki martensitnogo prevra-
shcheniya v zavisimosti ot polozheniya martensitnoy tochki i
sostava splava)

PERIODICAL: Sb. tr. In-t metalloved. i fiz. metallov Tsent. n.-i. in-ta
chernoy metallurgii, 1958, Vol 5, pp 25-40

ABSTRACT: The effect of the position of the martensite point, T_M , on the
kinetics of martensite transformation was studied on a number
of Mn-alloyed steels (85G2, T_M 155°C; 95G3, T_M 85°C; 70G6,
 T_M -40°C) as well as on a series of carbon-free alloys of the
Fe-Ni-Mn system containing approximately 23% Ni and 3% Mn.
A time-temperature transformation curve for the alloy N24G3
was plotted on the basis of experimental data. As the position
of the T_M is lowered, the initial transformation rate is reduced

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SOV/137-58-9-19825

Changes in the Kinetics of Martensite Transformation (cont.)

throughout the entire temperature range; this is particularly apparent in the alloys of the Fe-Ni-Mn system in which the temperature curves of the transformation rate possess a maximum regardless of the position of the T_M and exhibit no tendencies toward limiting the temperature interval of the ascending branch. In the case of Mn steel the ascending branch of the rate curve is gradually lowered as the temperature interval is reduced; at temperatures of approximately -50° it disappears entirely. It is assumed that the difference in behavior of alloys and steels is attributable to the difference in elastic-plastic properties of austenite contained in these materials.

1. Martensite--transformations 2. Manganese steel--Phase studies V. R.
3. Martensite--temperature factors 4. Austenite--Metalingical effects

Card 2/2

SOV/137-58-7-15772

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 267 (USSR)

AUTHORS: Orlov, L.G., Utevskiy, L.M.

TITLE: Electron-microscopic Investigation of the Surface of Fractures in Relation to the Phenomenon of Anneal Brittleness of Steel
(Elektronnomikroskopicheskoye issledovaniye poverkhnosti izlomov v svyazi s yavleniyem otpusknoy khрупkosti stali)

PERIODICAL: Sb. tr. In-t metalloved. i fiz. metallov Tsent. n.-i. in-ta chernoy metallurgii, 1958, Vol 5, pp 277-286

ABSTRACT: In connection with the phenomenon of anneal brittleness an electron-microscopic investigation of unetched surface of fractures in Mesnager impact test specimens of three types of steel was carried out. Impact tests were carried out at temperatures of -196 to + 150°C. 03KhG2 and 20Kh2N2 steels exhibited a high susceptibility towards annealed brittleness in contrast to the 20KhNZM steel. It was established that the brittle fracture in steels brought to the state of anneal brittleness is practically always intercrystalline, whereas a low-temperature brittle fracture of the same steels reduced to a "ductile" condition (High annealing with a rapid cooling) has

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SOV/137-58-7-15772

Electron-microscopic Investigation of the Surface (cont.)

the character of a mixed one. The brittle fracture of high-annealed 2KhN2M steel in which anneal brittleness is not manifest is always transcrystalline (intracrystalline). Bibliography: 16 references.

T. F.

1. Steel--Fractures 2. Heat--Metallurgical effects 2 Electron
microscopes--Applications

Card 2/2

SOV 1958 8 17776

Translation from: Referativnyy zhurnal Metallurgiya 1958, Nr 8, p. 276 (USSR)

AUTHORS: Orlov, L. G. Sakvarelidze, I. G. Utesky, I. M.

TITLE: A Study of the Surface Layers of Ferrite Grains in Steel (Izuchenie poverkhnostnykh sloev zern termita v stali)

PERIODICAL: Sb. tr. Inst. metalloed. i fiz. metallov Tsentr. n. o. ta chernoy metallurgii 1958, Vol. 5, pp. 287-293

ABSTRACT: A presentation of certain data obtained during studies on surface phenomena in Fe alloys and low carbon steel performed by means of electron diffraction study and electron microscopy. It is established that the surface layers of ferrite grains differ from their central regions only with regard to their chemical composition and not in their phase composition. After high tempering or annealing, no austenite interlayers were observed in Fe or in structural steels. Statements made by other researchers to the effect that such layers are present are erroneous and were, apparently, caused by the presence of Cu impurities which produce their own diffraction patterns upon the electron diffraction picture. T.F. 1. Iron alloys--Surface properties 2. Steel alloys--Surface properties 3. Grains (Metallurgy)--Analysis 4. Electron diffraction analysis 5. Electron microscopes

Card 1/1

Central Sci Res Inst of Ferrous Metallurgy, Leningrad, USSR

SOV/126-6-4-31/34

AUTHORS: Koshelevskiy, R. M., Orlov, L. G. and Utevskiy, L.M.

TITLE: On the Causes of Appearance of "Austenite" Lines on Electron Diffraction Patterns of Ferritic Specimens (O prichinakh poyavleniya liniy "austenita" na elektronogrammakh ferritnykh obraztsov)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 4, pp 764-765 (USSR)

ABSTRACT: To establish the causes of this phenomenon a series of heats were produced using electrolytic iron which was preliminarily purified in hydrogen. In a vacuum high frequency furnace pure iron and binary, ternary and quaternary alloys of iron with (up to 2%) Cr, (up to 2%) Mn, (up to 2%) Ni, (up to 1%) Mo, 0.4% Si, 0.1% P, 0.1% Sn were used. It can be seen from the reproduced photographs, Fig.1, that none of the obtained electron diffraction patterns contained "austenite" lines, not even after carburising and nitriding. Only introduction into the alloys and into the pure iron of 0.1% Cu resulted in an appearance on the electron diffraction patterns of continuous, bright, slightly blurred lines of the face centred cubic lattice with a

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SOV/126.6-4-31/3^a

On the Causes of Appearance of "Austenite" Lines on Electron
Diffraction Patterns of Ferritic Specimens

period of 3.62 Å, Fig.2. The authors assume that copper, from the section of the specimens dissolved during etching, deposits on the specimen and covers it a thin layer. To verify this assumption, a specimen of a pure alloy of iron (without copper addition) for which electron diffraction patterns show only the lines of the α -phase, were etched electrolytically under conditions which were standard for the given case in an electrolyte of a 1N solution of KCl saturated with citric acid; preliminarily copper was etched with the same solution. The electron diffraction pattern from the surface of the specimen showed, in addition to the lines of α -iron, very clear characteristic (austenite) lines. If the etching is prolonged with such a copper saturated electrolyte the specimen becomes coated with a reddish layer of copper which can be seen by the naked eye and the electron diffraction pattern will show only copper lines, Fig.3. Deposition of copper onto the specimen will take place even if a positive potential of 10 to 12 V is applied to it and

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SOV/126-6-4-31/34

On the Causes of Appearance of "Austenite" Lines on electron
Diffraction Patterns of Ferritic Specimens

the more so in the case of chemical etching. Spectral analysis of specimens of pure iron and of alloys the electron diffraction patterns of which do not show copper lines, show only traces (less than 0.01%) of "austenite". Thus, it was established that during etching of iron specimens containing even slight quantities of copper (hundredths of a percent) it can deposit on the surface of the specimen and then show up on the electron diffraction pattern at a rate depending on the content of copper in the specimen and in the etching solution. The lattice period, determined by electron diffraction, for copper deposited on the specimen surface, equalled in every case 3.62 \AA . Massive specimens of copper have a period of 3.65 \AA which is in agreement with the data of Shishakov and Pinsker (Refs 6 and 7), although they differ from the values determined by X-ray diffraction. It can be considered proved that there are no inter-layers of austenite (except for the ordinary residual austenite) in specimens of low carbon steel. Even if as a result

Card 3/4

SOV/180-59-3-24/43

AUTHORS: Orlov, L.G. and Utevskiy, L.M. (Moscow)

TITLE: The Differences in Carbide Formation at Grain Boundaries and within the Grains of a Quenched Steel During Tempering

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 3, pp 132-134 (USSR)

ABSTRACT: The steel 20Kh2N2 containing 0.2% C, 2% Cr and 2% Ni was investigated. An electronmicrograph is shown in Fig 1a. It can be seen that the size and shape of the particles in the grain boundaries and within the grains are different. The chemical composition was determined by microdiffraction in the electron microscope. The electronmicrograph and the diffraction pattern of the particle at the grain boundary are shown in Fig 1b and 1c and an electronmicrograph of particles within the grains in Fig 2. The particle in the grain boundary (after heating for 75 hours at 500°C) was Cr₇C₃. After heating at 650°C for 2 hours however, particles of (Cr,Fe)₇C₃ were detected. For these to form, diffusion of both carbon and chromium is necessary. No enriching of the

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The Differences in Carbide Formation at Grain Boundaries and
Within the Grains of a Quenched Steel During Tempering

SOV/180-59-3-24/43

surface layers of the grains by chromium was detected.
There are 2 figures and 7 references, 1 of which is
English and 6 Soviet.

ASSOCIATION: Institut metallovedeniya i fiziki metallov TsNIIChM
(Institute of Metals Technology and Metal Physics, TsNIIChM)

SUBMITTED: March 26, 1959

Card 2/2

18(7)

AUTHORS:

SOV/32-25-4-24/71
Yermanovich, N. A., Longinov, M. F., Orlov, L. G., Utevskiy, L.M.

TITLE:

Examination of Interdendritic Nonmetallic Streaks in Cast Steel
(Obnaruzheniye mezh dendritnykh nemetallicheskich prosloyek v
litoy stali)

PERIODICAL:

Zavodskaya Laboratoriya, 1959, Vol 25, Nr 4, pp 440-442 (USSR)

ABSTRACT:

Sites of fracture in some structural steels (40 KhNMA, 12Kh2N4A, 30KhVFYu, 30 KhGSA, 30 KhGSNA) pointed to a destruction of the metal along the boundary of the primary grain. On the strength of tests it is assumed that nitrides, especially aluminum nitride (I), accumulate at these boundaries and produce a weakening. This assumption was examined in the present case by means of an electron microscope and an electronograph. By an electrolytic heating, a thin coating layer was obtained at the site of fracture, which could be removed by the reagent according to Popova and examined. On the microphotograph of a fracture in the steel 40 KhNMA (Fig 1) one can well observe the inclusions, the forms of which are represented even better by the electron microscope (Fig 2). The phase composition of these inclusions was investigated by the X-ray structure- and electrographic method. In the X-ray picture (I) was observed in the

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SOV/32-25-4-24,71

Examination of Interdendritic Nonmetallic Streaks in Cast Steel

steel 38 KhVFYu (I), and (I) and VN in samples with big faults; (I) and $F_3Al_2(SiO_4)_3$ in the steel 12 Kh2N4A - (I), and (I) in the steel 40 KhNMA - (I). The electronograms (Fig 3 for 40KhNMA) corresponded to a crystal lattice of (I). In order to convert structural components from a disperse to a crystalline form, the samples were treated in the vacuum (at 800° for 2 hours); a fine formation of stains (Fig 4) was observed and the distinct electronogram of a polycrystal (Fig 5) was obtained with three phases - a spinel lattice, (I) and a phase which could not be identified. A test storing in the vacuum at room temperature for some days showed a crystallization, the electronogram of which is described (Table). There are 5 figures and 1 table.

ASSOCIATION: Zlatoustovskiy metallurgicheskiy zavod, Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (Zlatoust Metallurgical Works, Central Scientific Research Institute of Iron Metallurgy)

Card 2/2

9(7),18(7)
AUTHORS:

Orlov, L. G., Utevskiy, L. M.

SCV/32-25-9-21/53

TITLE:

On the Ways of Investigating the Surface of Fractures by the Aid of the Electron Microscope

PERIODICAL:

Zavodskaya laboratoriya, 1959, Vol 25, Nr 9, pp 1084-1087 (USSR)

ABSTRACT:

Electron microscopic investigations of fracture surfaces and ground sections of metal can be carried out by direct, indirect and semi-direct methods (Ref 1). The possibility of investigating the inter-crystalline fractures, the so-called micro-diffraction investigation, is particularly mentioned, and for this purpose the domestic industry has begun a series production of the electron microscopes EM-5 and UEMB-100. The production of the impressions is explained and some electron microphotographs (EM) are given to illustrate characteristic brittle and ductile fractures of steel samples obtained during shock- and tensile tests at different temperatures. The impressions were taken with coal dust followed by separation of the carbon film together with the inclusions with the reagent by N. M. Popova. By means of the (EM) of a shearing surface of a steel low in carbon (Fig 1) the so-called "river design" is explained. The trans-crystalline corrosion of a tempered and drawn steel can

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On the Ways of Investigating the Surface of
Fractures by the Aid of the Electron Microscope

SOV/32-25-9-21/53

also take place along the surfaces of closely strewn carbide deposits (Fig 2, steel 20Kh2N2) Micro-diffraction tests carried out together with N. M. Popova (on a 400 kv microscope of his construction) showed that in brittle inter-crystalline fractures in which the spillies run along the contours of the carbide particles (Fig 4) the crystal lattice of these particles on the whole remained unchanged after the fracture. With the ductile fracture (Refs 15, 16) given in publications, the failure crack occurs at the grain boundary (around larger inclusions) as could be ascertained in the case under review (Fig 5). The extent of the plastic deformation can also be evaluated from the deformation type of the particles (Fig 6). There are 6 figures and 16 references, 10 of which are Soviet.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (Central Scientific Research Institute for Ferrous Metallurgy)

Card 2/2

18.9100

29703
S/18/61/003/010/035/036
B-25/B102

AUTHORS: Orlov, L. G., and Utevskiy, L. M.

TITLE: Electron microscopic observation of the motion of dislocations
in alpha iron

PERIODICAL: Fizika tverdogo tela. v. 3 no. 10. 1961, 3242 - 3246

TEXT: The present paper deals with an electron optical dark-field observation of a 50μ thick alpha-iron foil cut in parallel to the $\{111\}$ plane (chemical composition: 0.013 C, 0.03 Si, 0.04 Mn, 0.004 S, 0.002 P), which was made with a УЭМБ-100 (UEMB-100) electron microscope. An accelerating voltage of 75 kv was applied. Stresses arising in the electron-irradiated foil displace the dislocations in the thin film, and characteristic contrast tracks are left over as a result. In an annealed foil, dislocations are very difficult to displace by electron bombardment, evidently due to the absence of free dislocations. The tracks caused by the motion of dislocations, while looking roughly curvilinear, in reality consist of straightlined segments. This change in direction of the tracks is ascribed to dislocations which pass from one slip plane to another.
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29703

S/181/61/003/010/035/036

B125/B102

Electron microscopic observation...

The intersection between two slip planes, where screw dislocation passes from one plane to another, is the projection of the direction of Buerger's vector. The foil thickness was determined from the width of the projection of a known slip plane. It was found to be ~ 200 Å. It was experimentally proved that dislocations in iron also glide on planes of the types $\{110\}$ and $\{211\}$, and that they frequently pass over from one type to the other by transverse gliding. There are 3 figures and 7 references: 2 Soviet and 5 non-Soviet. The three most recent references to English-language publications read as follows: D. G. Brandon, J. Nutting, Journ. Iron a. Steel Inst., 196, 2, 160, 1960; W. Cannington, K. F. Hale, D. Mc Lean, Proc. Roy. Soc., A 259, 1297, 203, 1960; B. Gale, K. F. Hale, Brit. Journ. Appl. Phys., 12, no. 3, 1961.

ASSOCIATION: Institut metallovedeniya i fiziki metallov Moskva (Institute of Metallography and Physics of Metals, Moscow)

SUBMITTED: June 28, 1961

Card 2/2

S/032/61/027/012/005/015
B104/B108

AUTHORS: Orlov, L. G., Usikov, M. P., and Utevskiy, L. M.

TITLE: Use of microdiffraction for the electron-microscopic examination of metals

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 12, 1961, 1486 - 1490

TEXT: Structural analyses of small sections of metal foils can be conducted with the adjustable elements of a modern electron microscope (intermediate lens, variable aperture, and special microdiffraction diaphragm). The method of these structural analyses is described. The application of the microdiffraction method for various purposes is demonstrated by several examples. New results are not given. G. S. Zhdanov (Rentgenografiya metallov, ch. II., Gostekhizdat (1938)) is mentioned. There are 5 figures and 6 references: 5 Soviet and 1 non-Soviet. ✓

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii im. I. P. Bardina (Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin)

Card 1/1

S/717/62/000/007/004/010
D207/D303

AUTHORS: Orlov, L.G., and Utevskiy, L.M., Candidate of Technical Sciences

TITLE: Investigation of the micromechanism of the process of fracture of steel and iron using the method of electron-microscopic fractography

SOURCE: Dnepropetrovsk. Institut metallovedeniya i fiziki metallov. Problemy metallovedeniya i fiziki metallov, no. 7, Moscow, 1962, 156 - 174

TEXT: The authors discuss briefly the techniques of electron-microscopic study of the fracture surfaces. They also describe their own results on iron and steel. Replicas were obtained by deposition of carbon films on fracture surfaces which were then separated by electrolytic etching or by using a reagent suggested by N.M. Popova (Ref. 15: Karbidnyy analiz (Analysis of Carbides) Mashgiz, 1949). The replica micrographs (magnifications of 600 - 15,000) were examined in a stereocomparator or with a stereomicrometer. In this way, quantita-

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Investigation of the micromechanism ...

S/717/62/000/007/004/010
D207/D303

tive measurements of the surface relief were made. Reproductions of replicas are given in the article. They are discussed for iron and steels which suffered brittle fracture of transcrystalline (across grains) and intercrystalline (along the grain boundaries) types. The transcrystalline fracture occurred usually along cleavage planes and the intercrystalline fracture was observed in samples with temper brittleness (obtained by quenching, followed by 500°C tempering). The authors reproduce also and discuss the ductile fracture surfaces in iron and steel. There are 14 figures and 32 references: 13 Soviet-bloc and 19 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: C. Crussard, R. Borione, J. Plateau, J. Morillon and F. Maratray, J. Iron and Steel Inst., 183 146 - 177, 1956; G.T. Hahn, W.S. Owen, B.L. Averbach, and M. Cohen, Welding J., 38, 9, 1959; E. Wessel, J. Metals, 9, 930, 1957; J. Washburn, A.E. Gorum, and E.R. Parker, Trans. Met. Soc. AIME, 215, 2, 1959.

Card 2/2

31 82

S/126/62/013/002/013/019
E111/E135

18.1100
AUTHOR:

Orlov, L.G.

TITLE:

Electron microscopic investigation of the
dislocation structure of alpha-iron

PERIODICAL:

Fizika metallov i metallovedeniye, v.13, no.2, 1962,
288-293 (+ 4 plates)

TEXT:

The author describes, with the aid of electron photo-micrographs, dislocation structures obtained with 0.05-mm thick foil of vacuum-melted iron (0.013% C, 0.03 Si, 0.04 Mn, 0.004 S, 0.002 P). Some of the foil was studied in the highly work-hardened state produced by cold rolling (about 80% deformation). Another part was annealed or normalized at 1100 °C in vacuum for one hour. Average grain size in annealed iron was about 150 microns. Annealed specimens were deformed by extension (1.5, 3 and 10%). Both sides were then subjected to electro-polishing. Dislocation distribution in annealed iron is irregular, that in normalized iron being generally similar but with some special features, e.g. indications of movement and

Card 1/3

X

Electron microscopic investigation... 5/126/62/013/002/013/019
E111/E135

crossing of dislocations and presence of dislocation loops. At 1.5% deformation some grains contained irregular accumulations and individual dislocations whose slip occurs preferentially alone one system; in other grains effects were different, e.g. dislocations intersected. At 3% deformation some observed dislocations are attributable to local bending of the foil, but a characteristic feature is the presence of regions with higher deformation density than elsewhere. This high concentration can act as a barrier to the movement of other dislocations. When deformation is increased to 10% these barriers divide the metal into volumes (average size 1.5-2 microns) with relatively low internal dislocation concentrations. At 80% deformation (after rolling) the size of these subgrains falls to 0.5-1.5 microns and their internal dislocation density rises. Electron diffraction methods showed that at 80% deformation the average size of blocks is about 5×10^{-6} cm. From observations of the dislocation structure after annealing and normalization the author concludes that this structure depends on the heating temperature above A_{c3} , the holding time and the cooling rate.

Card 2/3

X

S/053/62/076/001/003/004
B117/B101

AUTHORS: Orlov, L. G., Usikov, M. P., Utevskiy, L. M.

TITLE: Electron-microscopic examination of dislocations in metals

PERIODICAL: Uspekhi fizicheskikh nauk, v. 76, no. 1, 1962, 109 - 152

TEXT: This is a survey on results achieved by applying electron microscopy to the observation of dislocations in metals. First, the principles of the investigation method are dealt with: Type of specimens to be used, procedure of observation, electron-microscopic representation of defects in crystalline structure, formation of diffraction contrasts. In the following, the principal results obtained as to the formation of dislocations, their motion and interaction, structure of deformed metal and solidification, dislocations and point defects, general and specific data as to the structure of thin foils are given. The authors point out that the theory of dislocations and numerous predictions as to particular properties of defects have been confirmed experimentally during the last 5 years by using transmission beam microscopes for the direct examination of the dislocation structure. In this connection, it is stressed that
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Electron-microscopic examination of ...

S/053/62/076/001/003/004
B117/B101

the development of the contrast theory and further improvements in the design of electron microscopes are of utmost importance. The improvements referred to involve: fitting the microscope with a goniometer stage for determining the direction of Burgers vectors; improving the methods of heating, cooling and deforming the specimens during observation; use of electrons of more than 100 kev for the observation of dislocations in specimens made as thick as possible; fitting the microscope with an ion gun housed in the camera for periodic or continuous purification of the specimen during the examination. V. G. Kudryumov is mentioned. There are 38 figures, 2 tables, and 111 references: 7 Soviet and 104 non-Soviet. The four most recent references to English-language publications read as follows: J Washburn, G. W. Croves, A Kelly and G. K. Williamson, Philos. Mag., 1 (1961); P. B. Price, Philos Mag. 6, 449 (1961); N. F. Mott, Trans. Met. Soc. AIME 218, 962 (1960); H. Fujita, J. Phys Soc Japan, 16, 397 (1961).

Card 2/2

ORLOV, L.G.; UTEVSKIY, L.M.

Microtwins in iron deformed at low temperatures. Fiz. met. i
metalloved. 16 no.4:617-619 0 '63. (MIRA 16:12)

1. Institut metallovedeniya i fiziki metallov Tsentral'nogo
nauchno-issledovatel'skogo instituta chernoy metallurgii.

ORLOV, L.G.

Device for the deformation of an object in the UEMB-100 electron microscope. Zav.lab. 29 no.11:1386-1387 '63. (MIRA 16:12)

1. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii im. I.P.Bardina.

L 59636-65 EWT(m)/EWA(d)/EWP(v)/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(s) Pf-4
ACCESSION NR: AP5002205 MJW/JD/HM 3/0096/65/000/001/0066/0069

AUTHORS: Masel', B. Ye. (Candidate of technical sciences); Utevskiy, L. M. 29
(Doctor of technical sciences); Orlov, L. G. (Candidate of technical sciences) 27
B

TITLE: Investigation of welded joints in steam conducting tubes made from heat-resistant austenitic steels 1

SOURCE: Teploenergetika, no. 1, 1965, 66-69 12

TOPIC TAGS: austenite steel, welding defect, steel, electron microscope, carbide, chemical composition/ EP 184 steel, EI 695R steel, EP 17 steel, 1Kh18N12T steel, 1Kh16N9M2 steel 15

ABSTRACT: The submicroscopic characteristics and the local composition around the weld joints were investigated and compared to the weld itself and to the metallic structure of steam conduits made from types EP-184, EP-17 and EI-695R (Nos. 1,2,3) steels. In addition, three more commercial austenitic steels were studied after being subjected to a thermal cycle (1340-1360C). A lowering of plastic characteristics was also noted. The investigations were conducted with electron microscopes (using carbon replicas), x-ray analyses, and with microgascons as well as carbide tests. The chemical compositions of the weld joints for types 1, 2, and 3 steels
Cord 1/2

L 59636-65

ACCESSION NR: AP5002205

2
were tabulated. The results show inhomogeneous gas saturation in the various weld zones, as in the vicinity of the weld a much larger oxygen content was observed than in the metal proper. The carbide test showed that tungsten was present exclusively as a solid solution. The electron-microscope showed the presence of large amounts of precipitation along the grains in the vicinity of the weld joint as well as in the fused boundaries. Some of these depositions are believed to be at least partly oxides. Along the weld boundaries coarse deposits could also be observed in the form of plane dendrites. Microdiffraction analysis showed these to be (Re,Cr)-C₃ type carbides. These results underscore the necessity of welding in a protective atmosphere (e.g., argon) to reduce the oxygen content in the weld boundaries. Orig. art. has: 6 figures and 3 tables.

ASSOCIATION: VTI-TANIICHM

SUBMITTED: 00

EXCL: 00

SUB CODE: M4

NO REF SOV: 002

OTHER: 000

Card 2/200P

VRUBLEVSKAYA, Z.V.; IVANOVA, G.I.; ORLOV, I.G.

regularities of the formation of a dislocation structure in Fe and Mo during cold plastic deformation. Fiz. met. i metalloved. 20 no.3:448-454 S '65.

(MIRA 18:11)

1. Institut metallovedeniya i fiziki metallov Tsentral'nogo nauchno-issledovatel'skogo instituta Chernoy metallurgii im. Bardina.

L 26645-66 EWT(m)/T/EWP(t) IJP(c) JD/JG

ACC NR: AP5025332

SOURCE CODE: UR/0126/65/020/003/0448/0454

47
13

AUTHOR: Vrublevskaya, Z. V.; Ivanova, G. L.; Orlov, L. G.

ORG: Institute for Metallography and Metal Physics TsNIChYeRMYeT im.I. P. Bardin (Institut metallovedeniya i fiziki metallov TsNIChYeRMYeT)

TITLE: Some regularities of dislocation structure formation of iron and molybdenum during cold plastic deformation 18 27

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 3, 1965, 448-454

TOPIC TAGS: iron, molybdenum, plastic deformation, elastic stress, crystal dislocation, electron microscopy

ABSTRACT: A direct electron microscopic study was conducted on the so-called "cellular" dislocation structure of Fe and Mo, which forms during cold plastic deformation. It was indicated that the dislocation condensations--the cell boundaries--are oriented quite regularly and are arranged along the path of a slip plane {110}, {112}, and {123} often approximately the same for each of the three systems. Based on data available in the literature, the conclusion is made that these dislocation walls should have long range interacting stress fields. In

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UDC: 548.0:539 2

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ACC NR: AP5025332

spite of the presence of local fields of long range stresses combined with them, elastic stresses in specimens as a whole are partially relaxed due to cross slip and elastic dislocation interaction which predetermines less hardening of the material in a given case. In those cases where for any reasons the dislocation cross slip is inhibited (for example, with decreased deformation temperatures or an energy decrease in the packing defect during alloying), the cellular structure cannot be formed. With comparable deformations these materials are hardened more strongly. Orig. art. has: 2 figs.

SUB CODE: 11,20/ SUBM DATE: 27Aug64/ OTH REF: 005

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ACC NR: AP6033054 SOURCE CODE: UR/0126/66/022/002/0286/0289

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TITLE: Lamellar structure of molybdenum 27

SOURCE: Fizika metallov i metallovedeniye, v. 22, no. 2, 1966,
286-289

TOPIC TAGS: molybdenum, molybdenum, alloy, cold rolling, molybdenum alloy structure, molybdenum lamellar structure, ^{BASE}CRYSTAL DISLOCATION, METAL GRAIN STRUCTURE, SOLID MECHANICAL PROPERTY

ABSTRACT: The dislocation structure of cold-rolled molybdenum (containing about 0.1% zirconium and 0.2% titanium) has been investigated by microscopy. Cold-rolled molybdenum sheet 0.1 mm thick was reduced to a foil by electrolytic polishing in a 90% solution of H₂SO₄. The structure of cold-rolled molybdenum was made up of subgrains, mostly of elongated shape, separated from each other by dislocation walls or networks. The dislocation density within subgrains was relatively low. In addition to the usual structure of cold-rolled metals, there were some extended structural formations resembling grain or subgrain boundaries. These formations are assumed to be boundaries located in

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ACC NR: AP6033054

a plane parallel to the original sheet which divide the foil into parallel layers. This structure is probably responsible for the lower values of mechanical properties in the direction perpendicular to the direction of rolling. When, even small stresses are applied, the foil splits into layers. Orig. art. has: 4 figures.

SUB CODE: 11, 13/ SUBM DATE: 03Aug65/ OTH REF: 001

Cord 2/2

ZOIOTOV, A.V.; ORLOV, L.I.

Relation between the electric resistance of strata and their
water and petroleum saturation. Razved. i prom. geofiz. no. 32:
3-11 '59. (MIRA 13:4)
(Tymary region--Electric prospecting)

ANPILOGOV, A.P.; ORLOV, L.I.

Using preserved cores to interpret oil field geophysical data.
Geol. nefiti i gaza 5 no.6:46-50 Je '61. (MIRA 14:6)

1. Volgo-Ural'skiy filial Vsesoyuznogo nauchno-issledovatel'skogo
instituta geofizicheskikh metodov razvedki.
(Oil well logging, Electric)

S/169/62/000/003/001/001
D228/D01

AUTHOR: Orlov, L. I.

TITLE: Change in the resistivity of sandstones during the displacement of oil by salt- and fresh water

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 3, 1961, 7. abstrakt 3A47 (Novosti neft. i gaz. tekhn., geologiya, no. 7, 1961, 34-37)

TEXT: Sandstone specimens were saturated with a liquid consisting of 80% oil and 20% petroleum ether; this was then displaced by salt- and fresh-water. The original degree of oil- and water saturation of a specimen amounted to 85.9 and 14.1% respectively. During the displacement of oil by water the resistivity of separate parts of a specimen was measured by means of a system of electrodes. As a result of the tests it was established that the coefficient of the increase in the resistance of a fully inundated specimen equals 2 - 2.5, that there is a zone of decreased resistance between the elutriated and oil-saturated parts of a specimen on the

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Change in the resistivity ...

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displacement of oil by fresh-water and that the parameters of the
elutriated and transitional zones depend on the collector properties
of beds. [Abstracter's note: Complete translation.]

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ORLOV, L.I.; GIMAYEV, R.S.

Effect of rock pressure on the electric resistance of carbonate
rocks. Prikl. geofiz. no.33:206-212 '62. (MIRA 15:10)
(Rock pressure) (Rocks, Carbonate—Electric properties)

ORLOV, L.I.; MALININ, V.F.

Laboratory method of studying the pore space of carbonate rocks.
Razved.i prom.geofiz. no.44:127-129 '62. (MIRA 15.7)
(Rocks, Carbonate)

ORLOV, L.I.

Сентябрь 1941 года. Восточная часть территории, занятая войсками Красной Армии, была выведена в тыл. Восточная часть территории, занятая войсками Красной Армии, была выведена в тыл.

1. Восточная часть территории, занятая войсками Красной Армии, была выведена в тыл. Восточная часть территории, занятая войсками Красной Армии, была выведена в тыл.

ORLOV, L.I.; RUCHKIN, A.V.

Separation of fractured reservoirs according to the data of electric logging. Razved. geofiz. no.4:94-104 '65. (MIRA 1889)

SULTANOV, T.A.; ORLOV, L.I.; MORCHOVA, V.T.

Experimental verification of the capillary displacement method for investigating the oil and gas saturation and electrical conductivity of reservoirs. Nauch. tekhn. sbor. pr. dok. neftekhim. 76-79: 165. CIA 1800

.. Vsesoyuznyy neftegazovyy nauchnoissledovatel'skiy tsentr.

ORLOV, L.K.; SHERSHNEV, K.S.

Evaluation of oil and gas occurrences in Perm Province based
on radiometric data. *Neftegaz. geol. i geof.* no.5:42-44 '65.
(NTA 18:7)

i. Perm'neftegeofizika.

ORLOV, L.L.

Ballistocardiography. *Sov.med.* 23 no.8:34-43 *ME* '59. (MIRA 12:12)

1. Iz gospital'noy terapevticheskoy kliniki (dir. - prof. P.Ye. Lukomskiy) II Moskovskogo meditsinskogo instituta imeni N.I. Pirogova.
(BALLISTOCARDIOGRAPHY)

AKIMOV, Yu.I.; ORLOV, L.L. (Moskva)

Clinical significance of electrokymography in the diagnosis of tricuspid stenosis. Klin.med. no.7:110-116 '61. (MIRA 14:8)

1. Iz gosspital'noy terapevticheskoy kliniki (dir. - prof. P.Ye. Lukomskiy) II Moskovskogo meditsinskogo instituta imeni N.I. Pirogova.

(HEART--VALVES--DISEASES) (ELECTROKIMOGRAPHY)

AKIMOV, Yu.I.; ORLOV, L.L.

Elektrokymography; survey of the literature and analysis of our
data. Sov. med. 25 no.7:8-19 JI '61. (MIRA 15:1)

1. Iz gosital'noy terapevticheskoy kliniki (dir. - chlen-korrespondent
AMN SSSR, prof. P.Ye.Lukomskiy) II Moskovskogo meditsinskogo instituta
imeni N.I.Pirogova. (ELEKTROKIMOGRAPHY)

AKIMOV, Yu.I.; ORLOV, L.L.

Electrocardiography in the healthy subject. Terap.arkh. 33 no.2:
58-72 P '61. (MIRA 14:3)

1. Iz gosspital'noy terapevticheskoy kliniki (dir. - prof. P.Ye.
Iskanskiy) II Moskovskogo meditsinskogo instituta imeni N.I.
Pirogova.

(ELECTROCARDIOGRAPHY)

AKIMOV, Yu.I.; ORLOV, L.L.; BULYCHEV, V.V.

Normal electrokymogram and its characteristics in athletes.
Vop.kard. 2-go MGMI no.2:19-51 '62. (MIRA 16:1)
(ELECTROKIMOGRAPHY) (ATHLETES)

ORLOV, L.L.; GUSHCHINA, O.S.

Electrokymogram of patients suffering from chronic coronary
insufficiency. Vop.kard. 2-go MGMI no.2:101-127 '62.

(MIRA 16:1)

(ELECTROKYMOGRAPHY) (CORNOARY HEART DISEASE)

AKIMOV, Yu.I.; MALOVA, M.N.; ORLOV, L.L.

Electrokymogram of patients suffering from chronic pulmonary
and cardiopulmonary insufficiency. Vop.kard. 2-go MGMI no.2:
129-138 '62. (MIRA 16:1)
(ELECTROKYMOGRAPHY) (HEART--DISEASES) (LUNGS--DISEASES)

ORLOV, L.L.; BULYCHEV, V.V.; AKIMOV, Yu.I.

Ballistocardiogram of a healthy person and its characteristics
in athletes. Vop.kard. 2-go MGMI no.2:139-154 '62.

(MIRA 16:1)

(BALLISTOCARDIOGRAPHY) (ATHLETES)

ORLOV, L.L.; AKIMOV, Yu.I.; SOLOV'YEV, V.V.; FEDOROV, V.D.

Ballistocardiogram of patients suffering from rheumatic heart
disease. Vop.kard. 2-go MGMI no.2:155-176 '62. (MIRA 16:1)
(BALLISTOCARDIOGRAPHY) (RHEUMATIC HEART DISEASE)

ORLOV, L.L.

Changes in the ballistocardiogram of patients suffering from
chronic coronary insufficiency. Vop.kard. 2-go MGMI no.2:177-
195 '62. (MIRA 16:1)
(BALLISTOCARDIOGRAPHY) (CORONARY HEART DISEASE)

SOLOV'YEV, V.V.; AKIMOV, Yu.I.; ORLOV, L.L.; YURASOV, V.S.

Diagnosis of tricuspid stenosis. Kardiologiya 5 no.2:35-43
'63 (MIRA 17:2)

1. Iz gospital'noy terapevticheskoy kliniki (dir. - chlen-
korrespondent AMN SSSR prof. P.Ye. Lukomskiy) II Moskovskogo
meditsinskogo instituta imeni N.I.Pirogova.

AKIMOV, Yu.I.; ORLOV, L.L. (Moskva)

Electrokymography in the diagnosis of diseases of the cardiovascular system. Vrach. delo no. 1:33-37 Ja '64. (MIRA 17:3

1. Gospital'nay^a terapevticheskaya klinika (zav. - chlen-korrespondent AMN SSSR prof. P.Ye. Mikomskiy) II Moskovskogo meditsinskogo instituta imeni N.I.Firogova.

ORLOV, L.L.

Electrokymographic findings in patients with chronic coronary insufficiency (angina pectoris, cardiosclerosis, aneurysm).
Cor vasa 6 no.1:1-11 '64.

1. Department of Internal Medicine, II-nd (Pirogov) Moscow Medical Institute, Moscow.

*

ORLOV, L.L.

Comparative value of electrokymography and ballistocardiography
in chronic coronary insufficiency. *Kardiologiya* 3 no.4:77-82
Jl-Ag'63 (MIRA 17:3)

1. Iz gospi'tal'noy terapevticheskoy kliniki (dir. - chlen-
korrespondent AMN SSSR prof. P. Ye. Lukomskiy) II Moskovskogo
meditsinskogo instituta imeni N.I. Pirogova.

ORLOV, L.M. (Ulan-Ude)

A simple method. Zashch. rast. ot vred. i bol. 9 no.7:38 '64.
(MIRA 18-2)

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secretion of the sublingual salivary gland in cattle. Fiziol. zhiv.
51 no. 3-083-089 sp. 1966. (MIRA 18:7)

.. Kafedra anatomii i fiziologii sel'skokhozyaystvennykh zhivotnykh
sel'skokhozyaystvennogo inzhenerstva imeni Kirova, Omsk.

TURCHUK, Anatoliy Arsen'yevich; TITOV, Petr Savvat'yevich; YEGOROV, Mikhail Sergeyevich; ORLOV, Lev Nikolayevich; MEDVEDEV, Nikolay Vasil'yevich; BUBNOV, Ye.S., redaktor; SERGEYEVA, N.A., redaktor; GUROVA, O.A., tekhnicheskii redaktor

[ZIP-300 core drilling unit] Burovoi agregat ZIP-300. Moskva,
Gos.nauchno-tekhn.isd-vo lit-ry po geol.i okhrane nedr, 1955. 197 p.
[Microfilm] (Boring machinery) (MLRA 9:3)

TURCHUK, A.A.; TITOV, P.S.; ORLOV, L.N.; BORAVLEV, V.A., red.; MUKHIN, S.S.,
red.isd-va; PEN'KOVA, S.A., tekhn.red.

[ZIP-1200A drilling unit] Burovoi agregat ZIP-1200A. Moskva, Gos.
nauchno-tekhn.isd-vo lit-ry po geol. i okhrene nedr, 1958. 103 p.
(Boring machinery) (MIRA 11:5)