PAVLININ, V.N.

Theory of the acclimatization of fur-bearing animals. Vop. ekol.
4:64-66 '62. (MIRA 15:11)

1. Institut biologii Ural'skogo filiala AN SSSR, Sverdlovsk.
(Fur-bearing animals) (Animal introduction)

SHVARTS, Stanislav Semenovich; PAVLININ, V.N., otv.red.; ARDASHNOVA, L.P.,
   red.izd-va; SEREDKINA, N.F., tekhn.red.

[Principles and methods of modern animal ecology; expanded report at
the philosophical seminary on biological problems, May 25, 1960]
Printsipy i metody sovremennoi ekologii zhivotnykh; rasshirennyi
doklad na ilosofskom seminare po voprosam biologii 25 maia 1960 g.
Sverdlovsk, 1960. 49 p. (Akademiia nauk SSSR. Ural'skii filial,
Sverdlovsk. Institut biologii. Trudy, no. 21)   (MIRA 14:7)
                  (Zoology--Ecology)

PAVLININ, V.N.

Conference on martens. Zool. zhur. 40 no.8:1274-1276 Ag '61.
(MIRA 14:8)

(Sverdlovsk Province--Martens)

PAVLININ, V.N., kand.biologicheskikh nauk; SHVARTS, S.S., prof., doktor
biologicheskikh nauk

Conservation of terrestrial vertebrates in the Urals. Okhr. prir.
na Urale no.1:87-92 '60. (MIRA 14:4)
(Ural Mountain region—Wildlife, Conservation of)

SHVARTS, S.S.; PAVLININ, V.N.

Establishment of zoogeographical regions based on rodent distribution in the Urals. Trudy Inst.biol.UFAN SSSR no.14:83-96 '60.
(MIRA 14:6)

(Ural Mountain region—Rodentia)

SHVARTS, S.S.; PAVLININ, V.N., kand.biol.nauk, otv.red.; POTAPOVA, T.S,
red.; SEREDKINA, N.F., tekhn.red.

[Some problems with regard to species in terrestrial vertebrates]
Nekotore voprosy problemy vida i nazemrykh pozvonochnykh
zhivotnykh. Sverdlovsk, 1959. 130p. (Akademiia nauk SSSR.
Ural'skii filial, Sverdlovsk. Institut biologii. Trudy, no.11).
                                                    (MIRA 13:4)

        (Species)   (Vertebrates)

PAVLININ, V.N.

Distribution of the Siberian and the European mink (Mustela
sibirica and Lutreola lutreola) in the basin of the Northern
Sos'va River. Trudy Sal. stats. UFAN SSSR no.1:357-358 '59.
(MIRA 14:9)

(Northern Sos'va Valley--Minks)

PAVLININ, V.N.

Notes on changes in the bird fauna in the basin of the Northern
Sos'va River. Trudy Sal. stats. UFAN SSSR no.1:385-386 '59.
(MIRA 14:9

(Northern Sos'va Valley--Birds)

PAVLININ, V.N.

Materials on the morphology of the hair covering of sables in
Tyumen' Province. Trudy Sal. stats. UFAN SSSR no.1:272-279
'59.
(MIRA 14:9)
    (Tyumen' Province--Sables)   (Fur)

PAVLININ, V.N.

Notes on the morphology of pine martens of the Urals. Trudy
Ural. otd. MOIP no.2:23-42 '59.   (MIRA 14:11)
          (Ural Mountains—Martens)

PAVLININ, V.N.

Birds of the northern trans-Ural region. Priroda 50 no.5:102-104
My '61.   (MIRA 14:5)

1. Institut biologii Ural'skogo filiala AN S SSR (Sverdlovsk).
                (Ural Mountain region--Birds)

SHVARTS, Stanislav Semenovich; PAVLININ, V.N., otv. red.;
ARDASENOVA, L.P., red. izd-va; PAL'MIN, M.Z., tekhn. red.

[Ways of the adaptation of terrestrial vertebrates to the
conditions governing their existence in subarctic regions.
Vol. 1: Mammals.] Puti prisposobleniia nazemnykh pozvonoch-
nykh zhivotnykh k usloviiam sushchestvovaniia v Subarktike.
Vol. 1. Mlekopitaiushchie. Sverdlovsk, 1963. 130 p. (Aka-
demiia nauk SSSR. Ural'skii filial. Institut biologii.
Trudy, no. 33)   (MIRA 17:1)

PAVLININ, V.N.

A survey of the acclimatization of mammals in the Urals. Trudy
Inst. biol. UFAN SSSR no.18:23-32 '59.   (MIRA 13:8)
     (Ural Mountain region--Game and game birds)

PAVLININ, V.N.

    Fur characteristics of the Tobol'sk sables and evaluation of results achieved with eastern sables released in Sverdlovsk. Trudy Inst. biol. UFAN SSSR no.18:33-90 '59.

                                             (MIRA 13:8)

   (Sverdlovsk Province--Sables) (Fur)

PAVLININ, V.N.

First conference on the protection of nature in Bashkiria. Zool.
zhur. 39 no.7:1117-1118 Jl '60.
(MIRA 13:7)
(Bashkiria--Wildlife, Conservation of--Congresses)

3/155/59/000/02/023/036

AUTHORS: Astakhov, A.V., Pavlov, V.P., Pavlotskiy, I.P.   b

TITLE: Spectral Representation of an n-particle Green Function in the Unidimensional Case

TEXT: Spectral representations of arbitrary multi-particle Green functions are obtained in the case where the field functions only depend on the time (unidimensional model). The results confirm that it is principally possible to obtain the representations from the causality conditions and from the mass spectrum alone ; a direct application of the results is possible, e.g. in thermodynamics.
The authors thank N.N. Bogolyubov for the subject and the guidance, and A.A. Logunov, B.V. Medvedev, M.K. Polivanov for advices.
There are 7 references: 3 Soviet, 2 American, 1 Swiss and 1 Italian.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova
             (Moscow State University imeni M.V. Lomonosov)

SUBMITTED: March 21, 1959

Card 1/1

PAVLININ, V.M., inzh.

Asynchrono-synchronous rotating frequency changer. Trudy Ural.
politekh. inst. no.90:64-70 '58.   (MIRA 13:2)
                    (Frequency changers)

SHVARTS, S.S.; PAVLININ, V.N.

Problems in the protection of terrestrial vertebrates of the
Urals. Zool.zhur. 38 no.7:1119-1120 Jl '59.
(MIRA 12:10)

(Ural Mountain region—Wild life, Conservation of)

PAVLININ, V.N.

Notes on the feeding of the mole Talpa europaea in the Urals [with summary in English]. Biul. MOIP. Otd. biol. 64 no.2:11-17 Mr-Ap '59.
(MIRA 12:10)

(Ural Mountains--Moles (Animals))
(Animals, Food habits of)

SHVARTS, S.S.; PAVLININ, V.N.; SYUZYUMOVA, L.M.

Theoretical principles underlying prognoses of rodent populations
in the trans-Ural forest-steppe.   Izv.AN SSSR. Otd.khim.nauk
no.10:3-59 O '58.   (MIRA 11:12)
                (Ural Mountain region--Rodentia)

PAVLININ, V.N.;SHVARTS, S.S.

Distribution ranges of some rodents in the Urals. Izv.AN SSSR.
Otd.khim.nauk no.10:89-92 O '58.   (MIRA 11:12)
        (Ural Mountain region--Rodentia)

PAVLININ, V.N.

Conference on the replenishment and efficient utilization of the
the stocks of principal fur-bearing animals of the Urals. Zool.zhur.
36 no.9:1440 S '57.   (MIRA 10:10)
                (Ural Mountain region--Fur-bearing animals)

SHVARTS, S.S.doktor biologicheskikh nauk; PAVLININ, V.N., kandidat
biologicheskikh nauk.

[Instructions for counting and predicting the number of murine
rodents in the forest steppes of the Transural region] Ukazaniia
po uchetu i prognozu chislennosti mushevidnykh gryzunov v uslo-
viiakh lesostepnogo Zaural'ia. Sost.S.S.Shvarts i V.N.Pavlinin.
Sverdlovsk, 1956. 26 p.   (MLRA 10:6)

1.Akademiya nauk SSSR.Ural'skiy filial, Sverdlovsk. Institut
biologii.
          (Siberia, Western--Rodentia)

PAVLININ, V.N.

Reproduction and season of mole trapping in the Urals [with English summary in insert]. Zool.zhur. 35 no.4:606-613 Ap '56. (MLRA 9:8)

1. Laboratoriya zoologii Instituta biologii Ural'skogo filiala AN SSSR.

(Ural Mountains--Moles (MAnimals))

Epp
.R93240

PAVLININ, V. N.

    Ukazaniya Po Uchetu I Prognozu Chislennosti Myshevidnykh Gryzunov V Usloviyakh Lesostepnogo Zaural'ya (Instructions on the Calculation and Forecast of the Number of Mouse-Like Rodents in the Trans-Ural Forest and Steppe Regions,) by S. S. Shvarts I V. N. Pavlinin. Sverdlovsk, 1956. 26 p. Tables. At head of title: Akademiya Nauk SSR. Uralskiy Filial, Sverdlovsk. Institut Biologii.

PAVLININ, V.N.; SHVARTS, S.S.

Natural maintenance of vitality in wild mammals. Zhur.obshch. biol. 16 no.4:306-314 Jl-Ag '55.   (MLRA 8:11)

1. Laboratoriya zoologii Instituta biologii Ural'skogo filiala Akademii nauk SSSR.
        (MAMMALS) (ANIMALS, HABITS AND BEHAVIOR OF)

PAVLININ, V. N.

"Prolongation of the Mole's Life in Natural

Conditions According to Cyclization Data,"

Priroda, No. 12, 1949.

AVAK'YANTS, G.M.; PAVLINOV, A.B.; SABLIKOV, V.A.; SINYUKOV, M.P.; YUROVSKIY, A.V.

Study of some thermal effects in germanium power transistors.
Radiotekh. i elektron. 7 no.8:1421-1426 Ag '62.   (MIRA 15:8)
(Transistors)

L 8110-66   EWT(1)/EWT(m)/EEC(k)-2/T/EWP(t)/EWP(b)/EWA(h)   LJP(c)   JD/GG/AT
ACC NR: AP5026908   SOURCE CODE: UR/0109/65/010/010/1887/1892

AUTHOR: Pavlinov, A. B.; Sablikov, V. A.

ORG: Tashkent State University (Tashkentskiy gosudarstvennyy universitet)

TITLE: Some electrical characteristics of germanium and silicon "thread" diodes

SOURCE: Radiotekhnika i elektronika, v. 10, no. 10, 1965, 1887-1892

TOPIC TAGS: semiconductor diode, silicon diode, germanium diode

ABSTRACT: The results of an experimental investigation of Ge and Si "thread" diodes
are reported. By applying a 10^5-10^6 v/cm field in the reverse direction to a p-n
junction, an avalanche breakdown was caused; as a result, a thin (2—6 μ) break-
down path -- the "thread" -- was formed in the junction. The diodes prepared in
this way had an S-type I-V characteristic symmetrical with respect to the origin of
coordinates; the bend-point parameters are: V = 20 — 50 v, I = 30 — 60 ma for Si and
V = 5-15 v, I = 10 —50 ma for Ge; curves of L and ρ as functions of frequency,
for various control currents and the effect of temperature (-150 +150C) on the
diode parameters are also given. The "thread" diode was also tested as an inductance
in a parallel resonant circuit. In order to reduce the required control power,

Card 1/2   UDC: 621.382.29:537

6

L 8110-66
ACC NR: AP5026908

the base of such a diode has to be very thin (a few microns); however, the problem
of formation and properties of the "thread" under such conditions remains unsolved.
"In conclusion, the authors wish to thank G. M. Avakyants and A. V. Yurovskiy
for discussing the fundamental results." Orig. art. has: 7 figures and 10 formulas.

SUB CODE: 09/   SUBM DATE: 28May64/   ORIG REF: 001/   ATD PRESS: 4/146   [03]

Card 2/2

S/109/62/007/008/013/015
D409/D301

9.4310

AUTHORS: Avak'yants, G.M., Pavlinov, A.B., Sablikov, V...,
Sinyukov, M.P. and Yurovskiy, A.V.

TITLE: Study of thermal effects in germanium power transis-
tors

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 8, 1962,
1421-1426

TEXT: The dependence of the triode parameters on the heat,
released at the collector junction, is studied theoretically and
experimentally. The condition for the appearance of falling charac-
teristics in the non-stationary regime, is obtained. Formulas are
derived for the emitter and collector currents, the current gain α,
the feedback coefficient μ, the collector conductivity g_c, and the
emitter conductivity g_e. As a result of the heat release, falling
characteristics appear in both the emitter and collector circuits.
The experimental setup for the study of the non-isothermic current-
voltage characteristics is described. The transistors П209 (P209)

Card 1/2

L 07932-67   EWT(1)/EWT(m)/EWP(t)/ETI   IJP(c)   JD/AT

ACC NR: AP6030668

SOURCE CODE: UR/0166/66/000/004/0053/0056

AUTHOR: Pavlinov, A. B.; Sablikov, V. A.

ORG: Tashkent State University im. V. I. Lenin (Tashkentskiy gosuniversitet)

TITLE: Breakdown of germanium and silicon crystals in a strong electric field

SOURCE: AN UzSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 4, 1966, 53-56

TOPIC TAGS: dielectric breakdown, germanium semiconductor, silicon semiconductor, pn junction, space charge, semiconductor carrier, volt ampere characteristic

ABSTRACT: The authors consider irreversible breakdown of a semiconductor under the influence of a strong stationary electric field, such as is produced by a p^+-n junction at large inverse bias under space-charge limitation conditions. In the experiments, the role of the p^+-n junction was played by extraction of mobile carriers, thus eliminating the strong heating resulting from application of a strong stationary field. The changes in volume of this semiconductor resulting from the breakdown were observed by transmission of infrared light. Examination shows that the breakdown is followed by the production between the electrodes in the crystal of a thin strongly absorbing channel, whose diameter is equal to several microns, depending on the breakdown current. The experiments were made with silicon and germanium. The infrared observations disclosed also that the region around this channel is overheated, thus indicating that the current is concentrated in the channel. It is concluded from the results that the breakdown is localized, that the breakdown current increases first

Card   1/2

L 07932-67

ACC NR: AP6030668

slowly (up to 500 - 600 v - exponentially), and then rises very rapidly during the breakdown. The average field intensity producing the breakdown is 10^5 - 10^6 v/cm. From the dependence of the photocurrent on the field, from the magnitude of the field, and from the dependence of the current on the field, it is concluded that the most probable mechanism causing loss of the dielectric strength is thermoelectric. The carrier density in the breakdown channel is estimated at $\approx 10^{15}$ - 10^{16} cm^{-3}. From a comparison with the conclusions of the thermal theory presented by the authors earlier (Radiotekhnika i elektronika v. 10, no. 10, 1965, p. 1887-1892) it is concluded that this theory describes the behavior of the channel well in the negative sections of the volt-ampere characteristics. Orig. art. has: 3 figures and 2 formulas.

SUB CODE: 20/ SUBM DATE: 02Nov64/ ORIG REF: 003/ OTH REF: 003

Card 2/2 ⟨gh⟩

PAVLINOV, L. V.

Sorkhin, V.O., and K.V. Popov. Study of Certain Problems of the Tempera-
ture Dependence of the Plasticity of Steel from the Viewpoint of the Disloca-
tion Theory   138

Grain, P.L., L.V. Pavlinov, A.D. Drygunnik (Deceased), and G.B. Fedorov.
Self-Diffusion in Chromium and Molybdenum   153

Fedartsev-Lotikov, G.P., M.F. Chechenet, R.S. Kaplan, F.I. Putko, and L.I.
Marianin. Investigation of the Properties of EI 736 Steel   160

Abakumovskikh, G.P., F.I. Fadyukhin, and M.L. Solosoov. Cast Austenitic
Steels for Service at Temperatures of 650°-700°C   168

Portnin, V.Z., M.A. Filatova, A.V. Pyzhevnikov, A.I. Maksimov, B.A. Lobarov,
A.S. Lobaoda, D.I. Barantskovsky, V.I. Nordinski, and M.I. Dangilov. Heat-
Resistant Alloys for Automotive and Stationary Gas Turbines   175

Minin, R.G. The Effect of Elements of Groups IV to VIII of the Periodic Table
on the Properties of Phase Ni₃Al   179

Antipryk, S.I. The Effect of Hardness and Grain Size on the Thermal Fatigue
of Heat-Resistant Steel   187

Portnoy, K.I., and G.V. Samsonov. Study of Boride-Base Materials   192

Antipova, F.M. Study of Phase Composition of the Diffusion Layer   193

Ageyev, N.A. On the Theory of Recovery and Complex Alloying of Steels   211

Meshcobil, Yu.A., N.G. Girshovich, V.Fn. Bilyk, G.P. Kochkareva, N.I. Antipov,
I.V. Grygik, and A.Fn. Ioffe. Castability of Heat-Resisting Alloys   219

Medovar, B.I., and A.N. Safonnikov. Metallurgical Problems in Electroslag
Welding of Heat-Resisting Austenitic Steels and Nickel-Chromium-Base Alloys

28551

I8 1500

S/137/61/000/009/026/087
A060/A101

AUTHORS: Borisov, Ye.V., Gruzin, P.L., Pavlinov, L.V., Fedorov, G.B.

TITLE: Self-diffusion of molybdenum and diffusion of tungsten in molybdenum

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 9, 1961, 3, abstract 9Zh11
               ("Metallurgiya i metallovedenie chist. metallov", no. 1, Moscow,
               1959, 213 - 218)

TEXT: The self-diffusion of Mo and the diffusion of W in Mo were studied
in the interval 1,800-2,175°C by the use of radioactive isotopes Mo^{69} and W^{185}.
The annealing time was from a few hours up to tens of hours. Samples of Mo ob-
tained by arc-smelting in vacuum were subjected to preliminary annealing at 1,500
°C for a period of 20 hrs in a H$_2$ atmosphere. To determine the diffusion coeffi-
cient the method of measuring the total activity of the sample remainder was us-
ed. The following temperature dependence was obtained for the diffusion coeffi-
cient for Mo self-diffusion: $D = 4 \exp (-115,000/RT)$ cm^2/sec. For diffusion of
W in Mo it was found that $D = 5 \cdot 10^{-4} \exp (-78,000/RT)$ cm^2/sec.

[Abstracter's note: Complete translation]   A. Kusakov

Card 1/1

BORISOV, Ye.V.; GRUZIN, P.L.; PAVLINOV, L.V.; FEDOROV, G.B.

Self-diffusion of molybdenum and tungsten diffusion in molybdenum.
Met.i metalloved.chist.met. no.1:213-218 '59.
(MIRA 12:10)

(Molybdenum) (Tungsten) (Diffusion)

18.7500   1555

AUTHORS: Lyashenko, V.S., Bykov, V.N. and Pavlinov, L.V.

TITLE: The Effect of Iron and Nickel Additions on Self-Diffusion in α-Zirconium

TEXT: Using the radioactive tracer (Zr^{95}) technique, the present authors studied the effect of small (up to 0.4%) additions of iron and nickel on self-diffusion in zirconium at 650 to 830°C. The temperature dependence of the coefficient of self-diffusion D of Zr-base alloys, containing 0.14, 0.42, 0.25% Fe (Curves 1, 2 and 3) and 0.3 or 0.2% Ni (Curves 4 and 5), is shown in Fig.1, where the same relationship for pure zirconium is illustrated by the broken curve.   It will be seen that addition of nickel and iron decreases the coefficient of self-diffusion in α-zirconium by a factor of 2 - 3.   This effect is attributed not only to the change in the nature of the solid solution, which affects the volume diffusion, but also to the change of the microstructure of zirconium which, in the presence of iron or nickel, loses its needle-like character.   As a result of this, the total surface of

Card 1/2

PAVLINOV, L.V.

Calculation of diffusion parameters. Fiz. met. i metalloved.
20 no.3:345-348 S '65.   (MIRA 18:11)

L 13825-66   EWT(m)/EPF(n)-2/EWP(t)/EWP(b)   IJP(c)   ES/JD/WW/JG

ACC NR: AP6001793 (N)   SOURCE CODE: UR/0089/65/019/006/0521/0523

AUTHOR: Pavlinov, L. V.; Nakonechnikov, A. I.; Bykov, V. N.

ORG: none

TITLE: Uranium diffusion in molybdenum, niobium, zirconium, and titanium

SOURCE: Atomnaya energiya, v. 19, no. 6, 1965, 521-523

TOPIC TAGS: uranium metal, temperature dependence, molybdenum, niobium, zirconium, titanium, metal diffusion, crystal lattice defect

ABSTRACT: Uranium diffusion in Mo, Nb, Zr, and Ti has been investigated. Diffusion coefficients were determined by measuring the integral activity of the residue using the α-radiation of uranium enriched up to 90% by U^{235}. Readings were taken at 1500 — 2000C (Mo and Nb) and 915 — 1200C (Zr and Ti). The temperature dependence of the diffusion coefficient is described by the equations

$$D^U_{Mo} = 7.60 \cdot 10^9 \exp(-78\,400/RT) \; cm^2/sec.$$

$$D^U_{Nb} = 8.90 \cdot 10^{-2} \exp(-78\,800/RT) \; cm^2/sec.$$

$$D^U_{Zr} = 7.77 \cdot 10^{-3} \exp(-25\,800/RT) \; cm^2/sec.$$

$$D^U_{Ti} = 4.90 \cdot 10^{-4} \exp(-29\,300/RT) \; cm^2/sec.$$

Card   1/2

UDC: 621.039.542/548.526

ACC NR: AP6033050   SOURCE CODE: UR/0126/66/022/002/0234/0238

AUTHOR: Nakonechnikov, A. I.; Pavlinov, L. V.; Bykov, V. N.

ORG: none

TITLE: Carbon diffusion into refractory metals with a bcc lattice

SOURCE: Fizika i metallov i metallovedeniye, v. 22, no. 2, 1966, 234-238

TOPIC TAGS: refractory metal, molybdenum, niobium, tungsten, tantalum, titanium, diffusion, carbon diffusion, diffusion coefficient, activation energy, frequency factor

ABSTRACT: Specimens of 99.98%-pure molybdenum, 99.14%-pure niobium, 99.51%-pure tungsten, 99.01%-pure tantalum, annealed at 1500C, and 99.62%-pure titanium, annealed at 1000C, were coated with a uniform thin layer of C-14 radioactive carbon and, after stacking into pairs with the active sides facing each other, were diffusion annealed in a vacuum of $(3-5) \cdot 10^{-5}$ mm Hg at 1100—1600C. The diffusion coefficient and activation energy were determined with an accuracy of about 12 and 5%, respectively. With increasing annealing temperature from 1200 to 1600C, the diffusion coefficient increased from $1.34 \cdot 10^{-8}$ to $4.24 \cdot 10^{-7}$ cm^2/sec for molybdenum, from $8.61 \cdot 10^{-10}$ to $5.15 \cdot 10^{-8}$ cm^2/sec

Card 1/2   UDC: 539.292:546...

ACC NR   AP6033050

for tungsten, and from 1.0... ... ... cm²/... ... ... tantalum,
For niobium and titanium, diffusion occurred in the ... ... range,
the diffusion coefficient varied from ...)·10⁻? to 2/sec
and from 1.75·10⁻⁶ to 7.27·10⁻⁶ cm²/sec, respective. In the same
temperature ranges, the calculated values of the ... ... energy
were 53500, 43000, 41000, 35000, and 20J·0 cal ... ... W, Ta, Mo, Nb
and Ti, respectively. Thus, the activation energy of carbon diffusion
into metals with a bcc lattice is directly proportional to the melting
temperature of the base metal, and can be expressed the equation
ΔH = kT$_{mel}$, where K ≈ 10—13. The frequency factor the carbon dif-
fusion into the bcc metals is, to a great extent, determined by the
activation energy, and can be expressed by the equation D_0 = A exp(bΔH),
where A = 3.2·10⁻⁴ cm²/sec and b = 10⁻⁶ cal/atom ... B. art. has:
4 figures, 2 tables, and 10 formulas.

SUB CODE: 11/ SUBM DATE: 03Dec65/ ORIG REF: 007/ OTH REF: 005

Card 2/2

85969

S/126/60/010/005/019/030
E032/E414

18 75 60   ' $\int \int \int$

AUTHORS: Lyashenko, V.S., Bykov, V.N. and Pavlinov, L.V.

TITLE: Self-Diffusion of Zirconium in Some Zirconium Based
Binary and Tertiary Alloys

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol.10, No.5,
pp.756-762

TEXT: The self-diffusion of Zr in binary alloys of Zr and Nb,
containing up to 31.1 wt.% niobium, and tertiary alloys of Zr and
Nb (25%) with Mo (3%), tin (2.8%) and Cr (0.6%) was investigated.
The diffusion coefficients were determined with the aid of the
radioactive isotope Zr^{95} in the temperature range 900 to 1200°C.
The radioactive Zr isotope was deposited onto the specimens by
evaporation in vacuum.   The diffusion annealing was carried out in
double-walled sealed-off quartz ampoules.   The ampoules were
evacuated down to a pressure of about 10^{-3} to 10^{-4} mm Hg and
carefully outgassed before being sealed off.   In order to prevent
possible oxidation, the specimens were covered with a layer of
zirconium shavings.   Layers 2 to 3 µ thick were removed at a
time.   The experimental errors (calculated by the least squares

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S/126/60/010/005/019/030
E032/E414

Self-Diffusion of Zirconium in Some Zirconium Based Binary and
Tertiary Alloys

method) were 8 to 10% and 2% for the diffusion coefficient and
activation energy respectively.   In all cases, the logarithm of
the diffusion coefficient was found to depend linearly on the
reciprocal of the absolute temperature.   The results obtained are
summarized in the following tables:

Table 2

No. of alloy	D_o, cm^2/sec	ΔH, cal/g·at
1	5.2×10^{-5}	25400
2	9.2×10^{-5}	28700
3	8.9×10^{-5}	28600
4	9.1×10^{-5}	29200
5	8.7×10^{-5}	29600
6	1.1×10^{-4}	32600
7	1.1×10^{-4}	33800
8	6.6×10^{-4}	37900
9	1.3×10^{-3}	42600

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E032/E414

Self-Diffusion of Zirconium in Some Zirconium Based Binary and
Tertiary Alloys

Table 3

No. of alloy	Do, cm^2/sec	$\triangle$H, cal/g · at
1	1.0×10^{-2}	48200
2	2.1×10^{-2}	49500
3	3.2×10^{-3}	43700

Table 2 refers to the binary alloys and the heading "No. of alloy"
refers to the following concentrations of Nb, respectively,
0.5, 1.2, 2.2, 5.2, 9.5, 15.4, 18.0, 26.9, 31.3 (% by weight).

In Table 3 the three alloys were: Zr + 25.6% Nb + 2.8% Sn (No.1);
Zr + 23% Nb + 0.6% Cr (No.2);   Zr + 28% Nb + 3% Mo (No.3).

The addition of Nb to Zr is found to reduce the diffusion
coefficient and increase the activation energy in the above
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S/126/60/010/005/019/030
E032/E414

Self-Diffusion of Zirconium in Some Zirconium Based Binary and
Tertiary Alloys

temperature interval.   In the case of the tertiary alloys, the
addition of molybdenum, tin or chromium to the alloy Zr + 25% Nb
leads to a further increase in the activation energy and a
reduction in the diffusion coefficient.   There are 7 figures,
3 tables and 4 references: 3 Soviet and 1 Non-Soviet.

SUBMITTED: November 25, 1959 (initially)
              May 12, 1960 (after revision)

Card 4/4

L 24852-65   EWT(m)/EPF(n)-2/T/EWP(t)/EWP(b)   Pu-4   IJP(c)/ASD(a)-5/ASD(f)-3/
ASD(m)-3/AS(mp)-2/AFMDC   JW/JD/JG
ACCESSION NR: AP4046097   S/0126/64/018/003/0459/0461

AUTHOR: Pavlinov, L. V.; By*kov, V. N.

TITLE: Self diffusion in molybdenum

SOURCE: Fizika metallov i metallovedeniye, v. 18, no. 3, 1964, 459-461

TOPIC TAGS: selfdiffusion, molybdenum, niobium, tungsten, zirconium, titani-
um, uranium, polymorphic transformation, body centered lattice, face centered
lattice, activation energy, fusion point

ABSTRACT: Selfdiffusion was investigated within the 2155-2540C range and its
coefficient computed by method of the integral residue with radioactive isotope
Mo-99. Mo specimens contained $3 \cdot 10^{-2}$%C, less than 10^{-3}%Fe, less than 10^{-3}%
Ca, less than $3 \cdot 10^{-4}$% Cr, Ni, Ag, Cu, Al, Mg, Mn. Homogenizing was done at
2155C, 2220C, 2330C, 2430C and 2540C. Selfdiffusion in Mo with a body-center-
ed cubic lattice was found to obey the same laws as selfdiffusion in metals with
a face-centered cubic lattice. This also applied to the relationship between the

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L 24852-65
ACCESSION NR: AP4046097

activation energy and the fusion point $\Delta H = (35-40)T_s$ -- with T_s being the absolute fusion point-- and to the relationship between the activation energy and the heat of sublimation L_s : $\Delta H \approx 0.65 L_s$. Mo, Nb and W have one crystal lattice in the solid phase independent of temperature conditions while Zr, Ti and U occur in several crystal modifications. Therefore, the inevitable polymorphic transformations which lead to flaws in the crystal structure should always be taken into account. The authors conclude that selfdiffusion in body-centered metals that do not undergo polymorphic transformation is governed by the same laws as selfdiffusion in metals with a face-centered lattice. However, appreciable deviations from this pattern were observed in body-centered metals in which polymorphic transformations occur. The orig. art. has: 2 tables.

ASSOCIATION: None

SUBMITTED: 07Jan64   ENCL: 00

SUB CODE: MM   NO REF SOV: 006   OTHER: 009

Card 2/2

L 53685-65   EWT(m)/EPF(n)-2/T/EWP(t)/EWP(b)/EWA(c)   Pab/Pu-4   DIAAP/IJP(c)

ES/JD/WW/JG

ACCESSION NR: AP5008785

S/0126/65/019/003/0397/0400

532.72

AUTHOR: Pavlinov, L. V.; Bykov, V. N.

TITLE: Diffusion of carbon in β-zirconium

SOURCE: Fizika metallov i metallovedeniye, v. 19, no. 3, 1965, 397-400

TOPIC TAGS: zirconium, carbon, diffusion coefficient, radioactive isotope

ABSTRACT: Diffusion of carbon in the high-temperature body-centered cubic form of zirconium (99.6%) is investigated using radioactive isotope C^{14}. The diffusion of carbon in β-zirconium at temperatures of 900-1260°C is expressed by the equation $D = 0.0048 \exp(-26,700/RT)$ cm^2/sec. Parameters for the temperature dependence of the coefficient of carbon in zirconium (D_0 and ΔH) agree with data on the diffusion of carbon in other body-centered metals, as well as with the values calculated according to Wert and Zener (*Phys. Rev.*, 1949, 76, 1169). The activation energy and frequency factor for the diffusion of carbon and nitrogen in zirconium are about the same as the corresponding values of self-diffusion in zirconium. The authors feel this unusual phenomenon requires further investigation.

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L 53685-65
ACCESSION NR: AP5008785

ASSOCIATION: none

SUBMITTED: 02Mar64   ENCL: 00   SUB CODE: NP, MM

NO REF SOV: 005   OTHER: 012

Card 2/2

PAVLINOV, L.V.; BYKOV, V.N.

Self-diffusion in molybdenum. Fiz. met. i metalloved. 18 no.3:
459-461 S '64.   (MIRA 17:11)

LYASHENKO, V.S.; BYKOV, V.N.; PAVLINOV, L.V.

Effect of additions of iron and nickel on self-diffusion in -zirconium.
Fiz. met. i metalloved. 10 no.5:727-731 N '60.   (MIRA 14:1)
                (Zirconium alloys--Metallography)

LYASHENKO, V.S.; BYKOV, V.N.; PAVLINOV, L.V.

Zirconium self-diffusion in certain binary and ternary alloys.
Fiz. met. i metalloved. 10 no.5:756-762 N '60.   (MIRA 14:1)
(Zirconium alloys—Metallography)
(Diffusion)

/8. 1200, 18. 7500

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SOV/126-8-3-7/33

AUTHORS: Lyashenko, V.S., Bykov, V.N. and Pavlinov, L.V.

TITLE: Study of Self-Diffusion of Zirconium and Zirconium-Tin Alloys

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 8, ? ?
             pp 362-369 (USSR)

ABSTRACT: In this paper the influence of tin additions on the
             activation energy of self-diffusion of zirconium was
             investigated. Tin was chosen as the alloying element ?
             its reputedly beneficial influence on the corrosion
             resistance of zirconium. Zirconium iodide (99.0%) with
             the following impurities was used for the investigation:
             Hf - 0.07%, N - 0.014%, Fe - 0.04%. Si - 0.05%. F ??
             was remelted in an electric arc furnace of the Alfil-?
             type in an argon atmosphere. Binary zirconium alloys
             containing 1.30, 2.39 and 3.54 wt per cent tin, were
             melted under the same conditions. All specimens were
             given a homogenizing anneal at 1000°C for 5 hours. The
             dimensions of the specimens were 10 x 10 x 20 mm. The
             radioactive isotope Zr-95, which was applied to the
             specimens by spraying in vacuum, was used for the

Card 1/6   determination of the coefficient of self-diffusion. A

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SOV/126-8-3-7/33

Study of Self-Diffusion of Zirconium and Zirconium-Tin Alloys

zirconium. The specimens were placed on the water-
cooled lid of a chamber, in which a residual pressure of
10^{-3} mm Hg was maintained, and sprayed. The film of the
zirconium isotope applied was impervious and 0.5 to 1 μ
thick. The diffusion anneal at temperatures of 650 to
827°C was carried out in evacuated quartz ampoules. At
temperatures of 918 to 1260°C, the specimens were annealed
in a quartz ampoule under continuous evacuation (at a
residual pressure of approximately 5 x 10^{-4} mm Hg). At
temperatures of 1325 to 1500°C, the diffusion anneal was
carried out in a vacuum furnace with a tungsten heater
(at a residual pressure of approximately 5 x 10^{-4} Hg)
Pairs of specimens, their active faces put together,
were annealed at the same time. In order to prevent any
possible oxidation, the specimens were always covered with
zirconium filings. Annealing was carried out continuously
and the heating and cooling time of the specimens was
allowed for by an appropriate correction. The annealing
time in the β-range was 1 to 30 hours (the depth of
penetration being 200 to 300 μ). In the α-range, the
accuracy of diffusion coefficient measurements is at the

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SOV/126-6-3-7/33

Study of Self-Diffusion of Zirconium and Zirconium-Tin Alloys

limit of sensitivity of the method, as the depth of
penetration on annealing for 222 to 1076 hours was found
to be 30 to 60 μ. The temperature was measured by a
Pt/Pt-Rh thermocouple. The layers were removed with a
grinding wheel. The thickness of a layer was measured
by the difference in specimen thickness before and after
removal of the layer, using the vertical optical length
measuring instrument of the IZV-1 type. The accuracy of
such an instrument is ± 1 μ. However, as the layers
removed may not be absolutely parallel to each other,
the actual error in measuring the layer thickness is
estimated at 2 to 3 μ. In the α-region, the thickness of
a layer was measured by the IZV-1 instrument and also
calculated from the change in weight of the specimens,
which were weighed with an accuracy of ± 0.0001 g. In
this case, the error in measuring the layer thickness did
not exceed 1 μ. The integral activity of the specimens
was measured with a B-2 ridometer, using a face counter of
the MST-17 type. The duration of each measurement was
10 min. The γ-radiation of Nb, being the product of the
decay of Zr-95, was evaluated using a filter. The

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Study of Self-Diffusion of Zirconium and Zirconium-Tin Alloys

absorption coefficient of β-irradiation of zirconium, which was measured by using aluminium filters, was found to be 350 cm^{-1}. The coefficient of self-diffusion was measured by removing layers and determining their specific activity from the difference of the integral activities of the specimen before and after removing the layer (Ref 6). The results of measurements of self-diffusion coefficients of zirconium are shown in Table 1 and in Fig 1 and 2 (650 to 827°C for the α-phase; 918 to 1500°C for the β-phase). The temperature dependence of the self-diffusion coefficient, calculated graphically and by the least squares method, can be represented by the equations

$$D = 5.9 \times 10^{-2} \times \exp(-\frac{52000}{RT}) \quad cm^2/sec \quad (\alpha\text{-phase})$$

$$D = 2.4 \times 10^{-3} \times \exp(-\frac{38000}{RT}) \quad cm^2/sec \quad (\beta\text{-phase})$$

In Fig 3, the dependence of the concentration logarithm on x^2 (x = depth of penetration) for specimens annealed

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SOV/126-8-3-7/33

Study of Self-Diffusion of Zirconium and Zirconium-Tin Alloys

at 918, 996 and 1260°C is shown. In Fig 4, the dependence
of the concentration logarithm on the depth of
penetration is shown for the same specimens. Fig 5 shows
the microstructure of zirconium after annealing at 1500°C
for 1 hour, followed by cooling at the rate of 100°C/min.
The graph of the dependence of the diffusion coefficient
of zirconium on temperature in the investigated alloys is
shown in Fig 6. The parameters of diffusion of zirconium
are shown in Table 2. The values of Q (activation energy)
and $\lg D_0$ in relation to tin content are shown in Fig 7 and
8. In Fig 9, the dependence of $\lg D_0$ on activation energy
is shown. The authors arrived at the following conclusions:
1. In the temperature range 900 to 1100°C, grain-boundary
diffusion occurs preferentially. The ratio of grain-
boundary to volume-diffusion coefficients at 918°C is
2×10^5. 2. Results have been obtained on the influence
of tin on the parameters of self-diffusion of α-zirconium.
An addition of up to 3.5 wt % tin raises the activation
energy in the temperature range 740 to 827°C and the
greatest value for the activation energy (75000 cal/g-at)
Card 5/6   is obtained for an alloy containing 2.39% Sn.

PAVLININ, V.N.

Comparative craniology of yellow-throated marten and fisher.
Trudy Inst.biol.UFAN SSSR No.29:81-92 '62.   (MIRA 16:2)
                (Martens)   (Skull)

PAVLININ, V.N., kand.biolog.nauk

Conservation of squirrels in pine forests of the Tobol Valley.
Okhr.prir.na Urale no.3:81-83 '62.   (MIRA 16:6)
                    (Tobol Valley—Squirrels)
                (Tobol Valley—Wildlife, Conservation of)

PAVLINOV, V. N,

Pavlinov, V. (USSP). (Method of Measuring the Coefficient of the Magnetic
Permeability of Rocks). Russian Patent 113000, issued June 30, 1933.
Covers method of measuring coefficient of magnetic permeability of rocks in which
two hollow spheres or ellipsoids, having centers in horizontal plane, are used;
spheres are filled with rock to be investigated and a magnetic needle is fastened
between them. Spheres are turned around needle, and deviation of needle caused
thereby is observed. From these observations coefficient of magnetic permeability
of rocks investigated is calculated.
Claim allowed - 1.

PAVLINOV, V.N.

New finds of graptolites in Kazakhstan. Biul. MOIP. Otd. geol. 24
no.6:34-39 '49.   (MIRA 11:6)
(Kazakhstan--Graptolites)

PAVLINOV, V. N.

PAVLINOV, V. N.

"The Priority of Russian Scientists in the Establishment of the Nature of Small Intrusive Bodies," Tr. Mosk. geol. -razved. in-ta, 26, 101-110, 1954

In the history of the study of small intrusive bodies, the author distinguishes three periods. The first period encompasses the second half of the 19th century, after the introduction of the term "laccolith" (Gilbert). The second period covers the first 30 years of the 20th century, characterized by the detailed studies of small intrusive bodies in the region of the Caucasian Mineral Waters (Kavkazskiye Mineral'nyye Vody) and in the Crimea. The third period covers the time up to the present.

RZhGeol, No 1, 1955

PAVLINOV   V.N

BOGDANOV, A.A.; ZHUKOV, M.M.; MILANOVSKIY, E.V.; PAVLINOV, V.N.; BOG-
DANOV, A.A., redaktor; SEMENOVA, M.V., redaktor; MILER, Z.N.,
tekhnicheskiy redaktor; POPOV, N.D., tekhnicheskiy redaktor.

[Laboratory manual for a course in general geology] Posobie k
laboratornym zaniatiiam po kursu obshchei geologii. Moskva,
Gos. nauchno-tekhn. izd-vo lit-ry po geologii i okhrane nedr,
1954. 146 p.   (MLRA 7:11)
        (Geology--Laboratory manuals)

AUTHOR: Pavlinov, ?. ?.

TITLE: Modern Forms of Quaternary Volcanoes in the ?atin ?e???r
              and Knaynan' Island ?nina and Their Lava ?vremennyye
              formy ?hetvertichnykh vulkanov rayon? T?ang ? ?strova
              Haj-nan   ?? ? ?kh lavy?

PERIODICAL: Byul ??en ??????? ????hestva ?py???????? ??????
              ???? ????????????y, ?9?? ?r 1, p ??? ???

ABSTRACT: This is a summary of a report given by the author at a con-
              ference of the Moscow Society of Naturalists on ?? ?pri? ?9??
              ?n ??5?, the author studied Quaternary volcanoes in the T? ??g
              region and on the island of Haj-nan. He ? ?? ? ?
              description of three types he discovered ? ??? ? regions
              and analyses the composition of their lava?

              1. Geology   2. Volcanoes--Analysis

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3(5), 14(5)
AUTHOR: Pavlinov, V. N.   SCV/152-59-3-2*/25

TITLE: Bibliography (Bibliografiya)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Neft' i gaz, 1959,
               Nr 3, p 96, p ˙04 (USSR)

ABSTRACT: A report is given on the book "Neftyanyye i gazovyye
               mestorozhdeniya Kitayskoy Narodnoy Respubliki" (Th. Petroleum
               and Gas Occurrences in the People's Republic of China) by
               Chzhan Gen, Chzhan Tsin-da and P. P. Zabarinskiy. It describes
               the new discoveries by Chinese geologists. Thus, the hitherto
               inaccurate and incomplete data are completed. The authors teach
               at the Peking Petroleum Institute. The book contains geotectonic
               and stratigraphic data on the petroleum deposits in China. An
               especially detailed description is given of the occurrences
               near Lao Dzyun' myao (province of Tszyutszyuan) and Tushandzy
               (Dzungaria). Further, among others, the occurrences on Formosa
               are mentioned as well as the hitherto little investigated but
               promising regions in the Tibet uplands of Sikang and the
               Tungting-hu lowlands. In a criticism the disadvantage is
               pointed out that many of the latest papers by Chinese geologists

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Bibliography   SOV/152-59-3-21/25

have hitherto not been taken into account and that the
evolution of petroleum in **inland sea basins** and the occurrences
of bituminous schists are not sufficiently mentioned.

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"Principles of structural geology and geological mapping" by
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(MIRA 13:6)

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          (China--Geology, Structural)

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Role of graptolites in the detailed stratigraphy of Ordovician
and Silurian sediments of the Soviet Arctic. Izv.vys.ucheb.zav.;
geol.i razv. 3 no.1:18-27 Ja '60.   (MIRA 13:7)

1. Moskovskiy geologorazvedochnyy institut im. S. Ordzhonikidze.
        (Russia, Northern--Geology, Stratigraphic)
        (Graptolites)

PAVLINOV, V.N.

Training of geological engineers in the Moscow Geological
Prospecting Institute. Izv. vys. ucheb. zav.; geol. i razv.
no.6:136-137 Je '61.   (MIRA 15:1)

1. Moskovskiy geologorazvedochnyy institut imeni S. Ordzhonikidze.

PAVLINOV, V.N.

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    areal, ocherk morfologii, problem mezhvidovoi gibridizatsii.
    Sverdlovsk. 1963. 111p. (Akademiia nauk SSSR. Ural'skii
    filial, Sverdlovsk, Institut biologii. Trudy, no.34)

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PAVLINOV, V.N.

Urgent problems in training geological engineers. Sov. geol.
6 no.1:29-39 Ja '63.   (MIRA 16:6)

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PAVLINOV, V.N.

     Stratigraphic significance of graptolites in sub-arctic regions of
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LI SY-GUAN [Li Ssŭ-kuang]; SUN' DYAN-TSIN [Sun Tien-ch'ing]; U LEY-BO ;
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END # 411