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GINGEL'MAN, Nikolay Robertovich; KOCHUROV, Aleksey Stepanovich; Prinimali uchastiye: BORISOV, A.P., insh.; ZHIDKIKH, I.A., insh.; VOLKOV, A.F., insh.; SHABALIN, L.A., insh. MIKHEYEV, N.P., kand.tekhn.nauk, retsenzent; ABAKUMOV, S.F., insh., retsenzent; ZASYPKIN, A.G., insh., retsenzent; ZALOZHNYY, O.N., insh., retsenzent; KLOTSMAN, M.I., insh., retsenzent; KOLMOGOROV, S.M., insh., retsenzent; BLANK, E.M., insh., red.; DUGINA, N.A., tekhn.red.

[Making models] Model'noe proizvodstvo. 3. perer. izd. Moskva, Mashgiz, 1961. 295 p. (MIRA 14:12)
(Engineering models)
(Molding (Founding)--Equipment and supplies)

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTSMAN, S. M

126-2-24/35

AUTHORS: Arkharov, V. I., Klotsman, S. M., and Timofeyev, A. N.

TITLE: Autoradiographic investigation of the influence of small additions of antimony on the diffusion of silver in polycrystalline copper. (Avtoradiograficheskoye issledovaniye vliyaniya malykh dobavok sur'my na diffuziyu serebra v polikristallicheskuyu med').

PERIODICAL: Fizika Metallov i Metallovedeniye, 1957, Vol.5, No.2, pp. 367-368 (USSR)

ABSTRACT: The influence of small additions of antimony on the character of the diffusion of silver in polycrystalline copper was studied qualitatively by microstructure methods in a paper by Gol'dshteyn, T. Yu., and one of the authors in earlier work (Ref.1). The section was studied of the diffusion zone parallel to the direction of the diffusion; the diffusion zone was exposed by means of etching of a cut by a specially selected reagent. It was found that during diffusion of silver in copper a uniform diffusion front forms and in the copper alloy containing 0.3 to 0.4% antimony the diffusion front has projections along the grain boundaries. Due to the absence of special tests for elucidating the influence of antimony additions on the possibility of revealing the

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Autoradiographic investigation of the influence of small additions of antimony on the diffusion of silver in polycrystalline copper. 126-2-24/35

show the autoradiograms of cross sections at equal depth from the active surface (0.1 mm). It can be seen that in the pure copper there are "sections" of projections of the diffusion front along the grain boundary which were not revealed by microstructural methods in the earlier work (Ref.1). However, in the alloy containing 0.4% Sb the "sections" of such projections are considerably more pronounced. If in the copper the silver is revealed on the investigated cross sections of the cut only along certain boundaries, the distribution of active silver in the alloy completely surrounds the grain boundaries. This result confirms fully the qualitative observations made in the earlier work (Ref.1). Fig.1 shows the diffusion of Ag^{110} into pure copper at 650°C for a duration of fifty hours, a depth of cut of 0.1 mm; magnification 20 times, exposure 150 hours. Fig.2 shows the diffusion of Ag^{110} into a copper alloy containing 0.4% Sb as a result of annealing at 650°C for fifty hours; depth of cut 0.1 mm, exposure time 150 hours, magnification 20 times.

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Autoradiographic investigation of the influence of small additions of antimony on the diffusion of silver in polycrystalline copper. 126-2-24/35

There are 2 figures and 1 reference (Arkharov, V.I., Gol'dshteyn, T. Yu. Trudy IFM UFAN, 1950, No.11, p.81).

(Note: This is a complete translation).

SUBMITTED: February 12, 1957.

ASSOCIATION: Institute of Physics of Metals, Ural Branch of the Ac. Sc.USSR (Institut Fiziki Metallov Ural'skogo Filiala AN SSSR).

AVAILABLE: Library of Congress.

Card 4/4

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

AKKHAROV, V.I.; KLOTSMAN, S.M.; TIMOFEYEV, A.N.; RUSAKOV, I.I.

Study of intercrystalline diffusion in metals and alloys. Issl. po zharopr. splav. 3:113-118 '58. (MIRA 11:11)
(Diffusion) (Crystal lattices)

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

ARKHAROV, V.I.; GALISHEV, V.S.; KLOTSMAN, S.M.; TIMOFEYEV, A.N.

Feasibility of autoradiographic detection of nonuniform concentrations of adsorption origin. Issl. po sharopr. splav. 3:296-302 '58. (MIRA 11:11)

(Alloys--Metallography) (Adsorption)

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

AUTHORS: Arkharov, V.I., Klotsman, S.M., Timofeyev, A.N.

TITLE: The Employment of Radioactive Tracers When Solving Problems of Internal Adsorption in Solids (Primeneniye radioaktivnykh indikatorov k resheniyu problemy vnutrenney adsorbtsii v tverdykh telakh)

PERIODICAL: Atomnaya Energiya, 1958, Vol. 4, Nr 4, pp. 380-381 (USSR)

ABSTRACT: One of the most important factors influencing the physical properties of technical materials is the influence exercised by the internal adsorption of impurities upon various structural inhomogeneities.

For a system Cu + Ag with slight Sb-impurities it was found by metallographic as well as by autoradiographic means that with a diffusion of Ag a non-uniform front with projections is formed, which extends far into the intercrystalline boundary. Furthermore, the fact was established by means of Ag^{110} that there is a linear dependence between ln i (characteristic of volume diffusion) and y (depth of penetration of the diffusion). It follows therefrom that the Sb-admixtures bring about an essential

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The Employment of Radioactive Tracers When Solving Problems of Internal Adsorption in Solids 89-4-4-15/20

change of the diffusion permeability of the intercrystalline zone, which is indicative of the effect produced by the internal diffusion of the admixture. There are 16 references, 14 of which are Soviet.

SUBMITTED: January 9, 1958

1. Copper-silver systems--Adsorptive properties 2. Copper-silver systems--Autoradiography 3. Antimony--Adsorption 4. Silver isotopes (Radioactive)--Applications

Card 2/2

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

SOV/126-6-2-8/34

AUTHORS: Arkharov, V. I., Klotsman, S. M. and Timofeyev, A. N.

TITLE: The Effects of Traces of Impurities on the Diffusion Coefficients for Polycrystalline Materials (O vliyanii malykh primesey na koeffitsiyenty diffuzii v poli-kristallicheskikh materialakh). II

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 2, pp 255-260 (USSR)

ABSTRACT: Al-110 is used to study the diffusion of silver in pure copper, and in copper containing 0.1% Be without and with previous heat treatment (100 hours at 863°C, or the same plus 50 hours at 590°C). Figs. 1-4 represent the results for these cases, in the above order (radiation intensity in layer-by-layer electrolytic etching vs.depth), in all cases for 100 hours' diffusion at 590°C. The effect of the Be is to increase intercrystallite diffusion, and the magnitude depends on the treatment. The extent to which the Be tends to concentrate in the zones between crystallites is discussed in a rather

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

The Effects of Traces of Impurities on the Diffusion Coefficients for Polycrystalline Materials II SOV/126-6-2-8/34

general way in the light of the results.
There are 5 figures, 1 table and 13 references, 10 of which are Soviet, 3 English.

ASSOCIATION: Institut fiziki metallov Ural'skogo filiala AN SSSR (Institute of Metal Physics, Ural Branch of the Ac.Sc., USSR)

SUBMITTED: August 21, 1957

Card 2/2 1. Copper alloys--Diffusion 2. Silver--Properties
3. Beryllium--Properties

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTSMAN, S. M., Cand Phys-Math Sci (diss) -- "Investigation of the effect of small impurities on the diffusion permeability of the intercrystallite junctions of polycrystals". Sverdlovsk, 1959. 11 pp (Min Higher and Inter Spec Educ USSR, Ural State U im A. M. Gor'kiy), 120 copies (KL, No 10, 1960, 125)

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTSMAN, S. M.

18(7) PHASE I BOOK EXPLOITATION SOV/3355

Akademiya nauk SSSR. Institut metallurgii. Nauchnyy sovet po probleme zharoprochnykh splavov

Issledovaniya po zharoprochnym splavam, t. IV (Studies on Heat-Resistant Alloys, vol. 4), Moscow, Izd-vo AN SSSR, 1959. 400 p. Errata slip inserted. 2,200 copies printed.

Ed. of Publishing House: V. A. Klimov; Tech. Ed.: A. P. Gusova; Editorial Board: I. P. Bardin, Academician; G. V. Kurdyumov, Academician; M. V. Ageyev; Corresponding Member, USSR Academy of Sciences; I. A. Oding, I. N. Pavlov, and L. P. Zudin, Candidate of Technical Sciences.

PURPOSE: This book is intended for metallurgists concerned with the structural metallurgy of alloys.

COVERAGE: This is a collection of specialized studies of various problems in the structural metallurgy of heat-resistant alloys. Some are concerned with theoretical principles, some with descriptions of new equipment and methods, others with properties of specific materials. [illegible] specified conditions are studied and reported on. For details, see Table of Contents. The articles are accompanied by a number of references, both Soviet and non-Soviet.

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24(6)

SOV/126-7-2-24/39

AUTHORS: Klotsman, S. M., Timofeyev, A. N. and Trakhtenberg, I.Sh.

TITLE: On the Problem of Determination of Diffusion Coefficients Using an "Integral Residue" Method (K voprosu ob opredelenii koeffitsiyentov diffuzii metodom "integral'nogo ostatka")

PERIODICAL: Fizika Metallov i Metallovedeniye, 1959, Vol 7, Nr 2, pp 295-298 (USSR)

ABSTRACT: Gruzin (Ref 1) proposed an "integral residue" method for measurement of diffusion coefficients in solids. The method is based on a calculation of an integral (total) activity of each of the layers of equal thickness which are cut off from a sample. This activity is deduced from the activities of the sample before and after cutting off the layer in question (the activity referred to may be, for example, radioactivity of a tracer). Gruzin assumed that activity is uniformly distributed in the cut-off layer. The present note proposes a method for establishing whether this assumption is justified and describes an approximate procedure for the case when the non-uniform distribution of activity in the cut-off layer has to be allowed for. The paper is entirely theoretical.

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Inst. of Metal Physics, AS USSR

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18.1280

67759

SOV/126-8-5-11/29

AUTHORS: Arkharov, V.I., Klotsman, S.M., and Timofeyev, A.N.

TITLE: On the Effect of Small Additions on the Diffusion Coefficients in Polycrystalline Materials. III - Effect of Thallium on the Self-Diffusion of Silver

PERIODICAL: Fizika metallov i metallovedeniye, Vol 8, 1959, Nr 5, pp 709-713 (USSR)

ABSTRACT: Silver (99.99%), remelted in vacuum, and chemically pure thallium were used as the raw materials in the investigation. Ag-Tl alloys were made in an argon atmosphere. Ingots of pure silver and of the alloy were cold forged into rods of 12 x 12 mm cross-section. All heat-treatment operations and diffusion annealing were carried out in a vacuum of the order of 10^{-1} to 10^{-2} mm Hg. The temperature was maintained with an accuracy of ± 1 °C. After forging, all specimens were recrystallized for 6 hours at 900 °C. The grain size of all specimens was practically the same, being approximately 1 mm. After recrystallization, the specimens of pure silver and of the alloy were subjected to one of the following variants of heat treatment: 1) annealing at 350 °C for 200 hours; 2) annealing at 285 °C for

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SOV/126-8-5-11/29

On the Effect of Small Additions on the Diffusion Coefficients in Polycrystalline Materials. III - Effect of Thallium on the Self-Diffusion of Silver

200 hours; 3) annealing at 170 °C for 200 hours; and 4) annealing at 170 °C for 200 hours, followed by annealing at 350 °C for 100 hours. Radioactive silver was applied to the surface of the specimens by evaporation in vacuum. All specimens, having undergone one of the above variants of heat treatment, were subjected simultaneously to diffusion annealing. The latter was carried out at 285 °C for 200 hours. The distribution of silver in the diffusion zone was determined by a layer analysis using the integral residue method. Measurements of the activity and thickness of the removed layers were carried out employing a method described by Arkharov et al (Refs 1, 2). Figs 1 and 2 are typical graphs for the dependence of the residual integral activity logarithm on the depth of diffusion in pure silver and in the alloy. In a table on page 711, values of diffusion permeability of intercrystalline members of polycrystals of pure silver and a silver alloy containing 0.1% Tl are shown. As can be seen from the

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SOV/126-8-5-11/29

On the Effect of Small Additions on the Diffusion Coefficients in Polycrystalline Materials. III - Effect of Thallium on the Self-Diffusion of Silver

results obtained, the temperatures of maximum adsorption enrichment of the intercrystalline members does not coincide with the temperature of maximum volume solubility. From the independence of the diffusion permeability of the intercrystalline transition zones in pure silver on preliminary heat treatment, it is concluded that the structure of these zones remains unaltered in the investigated temperature range. From data on the dependence of the diffusion permeability of intercrystalline members in the silver - 0.1% Tl alloy on preliminary heat treatment, the adsorption activity of Tl in Ag can be calculated. An experimental confirmation of Arkharov's hypothesis (Ref 8) on the existence of a temperature dependence of the degree of adsorption enrichment was obtained. The sign of the temperature dependence of the intercrystalline internal adsorption of Tl in Ag was derived. It is suggested that the excess energy in the intercrystalline transition zones decreases during adsorption of Tl, mainly due to

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SOV/126-8-5-11/29

On the Effect of Small Additions on the Diffusion Coefficients in Polycrystalline Materials. III - Effect of Thallium on the Self-Diffusion of Silver

its geometrical structure and not due to interatomic reactions.
There are 2 figures, 1 table and 8 references, of which 6 are Soviet and 2 English.

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of Physics of Metals, Academy of Sciences USSR)

SUBMITTED: May 20, 1959

Card 4/4

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

18.9100

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SOV/81-59-19-67422

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 19, p 76 (USSR)

AUTHORS: Klotsman, S.M., Timofeyev, A.N.

TITLE: The Methodical Possibilities of Studying the Inner Adsorption and Some Problems of Diffusion by Means of Labeled Atoms

PERIODICAL: Tr. In-ta fiz. metallov. AS USSR, 1959, Nr 22, pp 77 - 91

ABSTRACT: Various methods are critically reviewed for detecting and measuring concentration non-uniformity of adsorption origin in metals and alloys and for the study of diffusion permeability of metal oxides at high temperatures by means of labeled atoms. In the method of slit counter the non-uniformity of concentration is determined by the difference of radiation from two different sections of the sample separated by a diaphragm located between the sample and the counter tube. For the qualitative detection of the non-uniformity of concentration caused by inner adsorption (A) on intercrystallite transition zones, the diaphragm should have a width of < 0.05 mm and a height of > 0.2 mm, the length of the sections of the rectilinear boundaries of the individual crystals in the investigated samples ~ 1 mm. The sample should move in two

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SOV/81-59-19-67422

The Methodical Possibilities of Studying the Inner Adsorption and Diffusion by Means of Labeled Atoms Some Problems of

mutually perpendicular directions in a horizontal plane with an accuracy of recording $\angle$ 0.01 mm. The method of the analysis of samples is based on the radiometric analysis of the quantity of the labeled component and can be carried out in two variants: a) electrolytic etching of the bare sections of the sample, control of the weight of the samples according to the current, b) removal of chips from various sections of the cut, colorimetric or spectral determination of the weight of the samples. The inner A on the intercrystallite transitional zones can be detected at a specific activity of the alloy $\sim$ 200 mCurie/kg, a size of the chip of $(2\cdot10^{-3}x2\cdot10^{-3})$ cm^2 and at changes in the concentration of the labeled component by a factor of 10 - 100 times. The error of the method is usually $\sim$ 10%. In the autoradiographic method of recording of the distribution of the radioactive indicator cuts are prepared which are exposed on fine-grained emulsions sensitive to β-radiation. For studying the inner A this method still has only a limited application in view of the insufficient resolution power and sensitivity. For studying the parameters of diffusion (D) in multi-layer natural scales it is expedient to study the diffusion characteristics of sintered pressed powders of synthetic phase mixtures, which are formed in the reaction process during diffusion and the effect of porosity on the parameters of D.

Card 2/2

S. Samoylov

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

SOV/58-59-10-22645

Translation from: Referativnyy Zhurnal, Fizika, 1959, Nr 10, p 122 (USSR)

AUTHOR: Klotsman, S.M.

TITLE: Study of the Effect of Adsorption-Active Impurities on the Structure of Intercrystallite Couplings

PERIODICAL: Tr. In-ta fiz. metallov. AN SSSR, 1959, Nr 22, pp 93 - 100

ABSTRACT: This article reviews the results of radiotracer studies of the internal adsorption phenomenon and its effect on the properties of intercrystallite transition zones. Experimental data available at present concerning the structure of intercrystallite couplings and regularities in internal adsorption permit the refinement of existing conceptions, as well as the contemplation of some possibilities of further research in this problem area. The bibliography contains 21 titles.

The author's résumé

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S/126/60/010/005/015/030
E111/E452

AUTHORS: Klotsman, S.M., Timofeyev, A.N. and Trakhtenberg, I.Sh.

TITLE: Measurement of Diffusion Coefficients in Oxide Phases

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol.10, No.5, pp.732-735

TEXT: The authors point out that investigations of diffusion in scale are difficult and are, therefore, often (Ref.1 to 6) carried out on sintered compacts. The present investigation was on single crystals of magnetite as well as such compacts of the crushed single crystals. Compression was at 3000 kg/cm^2 and sintering was at 1100°C for 60 hours in purified argon. Diffusion annealing was effected in the same atmosphere with specimens in pairs (1 tablet with 1 single crystal) and their active sides (deposit of iron containing Fe^{55}) inwards. The diffusion coefficient was determined to ± 15%. Correction was made for the concentration distribution of the diffusing element in removed layers, as previously described by the authors (Ref.8). Self-diffusion coefficient values for iron at 850 to 1075°C were found to be represented by

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E111/E452

Measurement of Diffusion Coefficients in Oxide Phases

$6 \times 10^5 \exp(84.0 \pm 5.9) \frac{kcal}{mol} / RT \frac{cm^2}{sec}$ for single crystals and

$1 \times 10^4 \exp(74.7 \pm 4.5) \frac{kcal}{mol} / RT \frac{cm^2}{sec}$ for compacts.

The activation energies differ from some published values (Ref.9) whose experimental points are represented in Fig.1 with those of the present work. The difference between values for the two types of specimen used tend to decrease as temperature rises (annealing at 1300°C eliminates significant differences). Fig.2 shows plots of a value proportional to specific activity of the diffusing element against the square of the depth below the active layer (Curves 1 and 2 for compact and single crystal respectively): the anomalously sharp fall in the activity parameter close to the active layer makes it impossible to determine the "volumetric" diffusion coefficient of compacts from the initial part of the concentration curve. There are 2 figures, 1 table and 11 references: 5 Soviet and 6 Non-Soviet.

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S/126/60/010/005/015/030
E111/E452

Measurement of Diffusion Coefficients in Oxide Phases

ASSOCIATION: Institut fiziki metallov AN SSSR
(Institute of Physics of Metals AS USSR)

SUBMITTED: May 3, 1960

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

S/137/61/000/011/045/123
A060/A101

AUTHORS: Klotsman, S. M., Kuranov, A. A., Ponomareva, V. D., Timofeyev, A. N.

TITLE: Utilization of radioactive isotopes for the homogeneity-control of metallo-ceramic standards used in spectral analysis of noble metals

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 11, 1961, 27 - 28, abstract 110185 ("Radioact. izotopy i yadern. izlucheniya v nar. kh-ve SSSR. v. 3", Moscow, Gostoptekhizdat, 1961, 188 - 190)

TEXT: Standard specimens fabricated by the methods of powder metallurgy are used for the spectral analysis of noble metals for impurity content in the amounts of 10^{-2} - 10^{-6}%. Silver was used as the object investigated. Two extreme cases were analyzed: a) complete solubility of the impurity in the base (Ag in Ag) and a very low solubility (Fe in Ag). Powders of radioactive Ag^{110} (obtained by electrolysis) and Fe^{59} (with spherical particle shape) were used, with particle size 20 - 60 μ. Mixtures were prepared from inactive Ag with 0.01% Ag^{110} and with 0.03% Fe^{59}. After 14 hrs of mixing briquets were pressed from each mixture (diam. 20 mm, weight 20 - 25 g) at a pressure of 800 kg/cm^2. The specimens were sintered in a H_2 stream at various temperatures and baking times.

Card 1/2

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Utilization of radioactive isotopes for... S/137/61/000/011/045/123
A060/A101

Autoradiography was used for the quantitative estimation of the diffusion process. The optimal mixing duration was established. For the case of ideal solubility (Ag self-diffusion) it was demonstrated that the annealing time, sufficient to obtain the required uniformity, constituted 6 hours at 700 - 900°C.

I. Brokhin

[Abstracter's note: Complete translation]

Card 2/2

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTSMAN, S.M.; TIMOFEYEV, A.N.; TRAKHTENBERG, I. Sh.

Feasibility of determining the thickness of intercrystalline bonds on semiconductor bicrystals. Fiz. met. i metalloved. 11 no.6:951-952 Je '61. (MIRA 14:6)

1. Institut fiziki metallov AN SSSR.
(Semiconductors)
(Crystal lattices)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTSMAN, S.M.; TIMOFEYEV, A.N.; TRAKHTENBERG, I.Sh.; Prinimal uchastiye: MIROSHNIKOV, L.A., student

Investigating the diffusion properties of monochalcogenides of transition metals. Part 1. Self diffusion of nickel and sulfur in single nickel monosulfide crystals. Fiz. met. i metalloved. 12 no.3:463-464 S '61. (MIRA 14:9)

1. Institut fiziki metallov AN SSSR. 2. Ural'skiy gosudarstvennyy universitet (for Miroshnikov).
(Nickel) (Sulfur) (Diffusion)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

24.7500

S/126/62/014/001/006/018
E071/E135

AUTHORS: Arkharov, V.I., Klotsman, S.M., Timofeyev, A.N., and Trakhtenberg, I.Sh.

TITLE: An investigation of diffusion properties of monochalcogenides of transitionary metals. II. Self-diffusion in polycrystals

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.1, 1962, 68-74

TEXT: Since no results of investigations of the laws of intercrystalline diffusion in chemical compounds have been published and study of these laws on polycrystalline chemical compounds and their comparison with the laws for elementary substances would give a basis for modelling the structure of intercrystalline linkages in chemical compounds, self-diffusion of Ni in mono- and polycrystals of nickel monosulphide in the temperature range 400-800 °C was studied radiometrically and by autoradiography. Both compounds were obtained by reaction between the individual components in evacuated and sealed ampules, subsequent melting and homogenation. Chemical and X-ray

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An investigation of diffusion ... S/126/62/014/001/006/018
E071/E135

diffraction analyses confirmed that the specimens were single phased with a structure of the NiAs type. The diffusion was measured on specimens 3-4 mm in diameter and 10 mm thick, one face of which was covered with the diffusion source by vacuo spraying, using Ni^{53}, Co^{60} and Te^{125m} as diffusing elements. Unlike pure metals, predominant self-diffusion in polycrystals along the grain and mosaic block boundaries occurs at temperatures considerably above 0.6-0.7 of the melting temperature and the ratio of intercrystalline diffusion permeability to the "volume" coefficient of self-diffusion amounts to 10^{-1} - 10^{-2} cm^3/sec. In single crystals of nickel monosulphide predominant diffusion along the grain and mosaic block boundaries occurs at even 0.6 times the melting temperature. The mechanism of scale formation during the process of reaction diffusion can be best studied by measuring the parameters of volume and boundary diffusion of phases entering the composition of the scale. There are 4 figures.

ASSOCIATION: Institut fiziki metallov AN SSSR
(Institute of Physics of Metals, AS USSR)

Card 2/2

SUBMITTED: November 10, 1961.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

S/126/62/014/003/012/022
E021/E435

AUTHORS: Klotsman, S.M., Timofeyev, A.N., Trakhtenberg, I.Sh.

TITLE: Investigation of the diffusion properties of chalcogenides of transition metals. III. Self-diffusion of nickel in nickel oxide

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.3, 1962, 428-433

TEXT: The coefficient was determined of self-diffusion of nickel in the scale growing during oxidation of electrolytic nickel (99.99%) samples (15 x 15 x 3 mm). The source of diffusion was a 10 mm diameter, 0.1 μ thick spot of nickel, labelled by Ni^{63}, vacuum-sprayed on the polished surface of the sample. The samples were heated in air in a furnace controlled to ± 3°C. After diffusion, parallel 10 ± 2 μ thick layers were removed mechanically from the surface and then the total activity of the samples was measured. For calculating the coefficient of diffusion the relation $\log I = f(x^2)$ was constructed (I - integral activity and x - depth). It was found that the temperature relationship of the coefficient of self-diffusion of nickel in

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Investigation of the diffusion ... S/126/62/014/003/012/022
E021/E435

nickel oxide in the range 1190 to 1400°C is

$$D = 4.8 \times 10^{-4} \exp\left[-(48.4 \pm 2.0) \times 10^3/RT\right] \text{ cm}^2/\text{sec}.$$

It is proposed that the divergence in absolute values of the coefficient of self-diffusion from the data in the literature is connected with differences in purity of the samples. The results showed absence of any marked contribution by intercrystalline diffusion of nickel in nickel oxide to the total diffusion. In the investigated temperature interval, diffusion of the metal through the scale plays a preferential role in the oxidation of nickel. There are 2 figures and 1 table.

ASSOCIATION: Institut fiziki metallov AN SSSR
(Institute of Physics of Metals, AS USSR)

SUBMITTED: January 12, 1962

Card 2/2

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

ARKHAROV, V.I.; KLOTSMAN, S.M.; TIMOFEYEV, A.N.; TRAKHTENBERG, I.Sh.

Investigating the diffusion properties of transition metal monochalchogenides. Fiz. met. i metalloved. 14 no.1:68-74 Jl '62. (MIRA 15:7)

1. Institut fiziki metallov AN SSSR.
(Metal crystals) (Diffusion)

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

S/126/62/014/006/015/020
E073/E420

AUTHORS: Klotsman, S.M., Timofeyev, A.N., Trakhtenberg, I.Sh.

TITLE: On the mechanism of diffusion of impurities in germanium

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.6, 1962, 925-927

TEXT: In earlier work it was found that "rapidly diffusing" impurities have a low degree of solubility in germanium (10^{14} to 10^{15} cm^{-3} at 800°C), whilst the solubility of "slowly diffusing" impurities is larger by three to five orders of magnitude. According to Kosenko "slowly diffusing" impurities (zinc indium) have a "fast" component and conversely for Ag and Fe. For "fast diffusing" impurities the solubility in the range of "slow" diffusion is of the order of 10^{18} cm^{-3}, i.e. in the range of solubility of "slowly diffusing" impurities. The ratio of the coefficients of "fast" and "slow" diffusion in germanium of Ag, Fe, In, Zn and Te at 800°C is 10^4 to 10^5 and the solubility ratios are respectively 10^2 to 10^4. The above-mentioned relations governing the diffusion of impurities in germanium are explained by

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the fact that the impurities diffuse simultaneously in accordance with two mechanisms: along the vacant lattice points and interstitially, the latter causing "fast" diffusion. All available experimental data confirm the accepted view that "slow" diffusion is through the vacancy mechanism. According to published data, most of the investigated impurities, with the possible exception of lithium, move in the regular germanium lattice along thermally excited vacancies. In the presence of structural nonuniformities of the type of single dislocations or dislocation walls, there will be a flow along these nonuniformities. The "fast diffusing" impurities differ from those of groups III and V by the fact that they are particularly prone to diffusion along structural nonuniformities. These impurities which have a low solubility in germanium (Ag, Cu, Ni, Fe, Co) are apparently adsorption-active and enrich the structural nonuniformities. The behaviour of Cu and Ge shows that this conclusion is valid. The problem of interaction between the structural nonuniformities in Ge will be the subject of a separate paper.

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTSMAN, S.M.; TIMOFEYEV, A.N.; TRAKHTENBERG, I.Sh.

Investigating the diffusive properties of transition metal chalcogenides. Part 3: Self-diffusion of nickel in nickel oxide. Fiz. met. i metalloved. 14 no.3:428-433 S '62. (MIRA 15:9)

1. Institut fiziki metallov AN SSSR.
(Diffusion) (Nickel)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTSMAN, S.M.; TIMOFEYEV, A.N.; TRAKHTENBERG, I.Sh.

Self-diffusion of electron transfer in intercrystallite joining silver. Fiz.met.i metalloved. 14 no.5:793-795 N '62. (MIRA 15:12)

1. Institut fiziki metallov AN SSSR.
(Silver-Electric properties) (Diffusion)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTSMAN, S.M.; TIMOFEYEV, A.N.; TRAKHTENBERG, I.Sh.

Mechanism of the diffusion of impurities in germanium. Fiz. met.i metalloved. 14 no.6:925-927 D '62. (MIRA 16:2)

1. Institut fiziki metallov AN SSSR.
(Germanium—Metallography) (Diffusion)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTSMAN, S.M.; TIMOFEYEV, A.N.; TRAKHTENBERG, I.Sh.

Intercrystalline self-diffusion of silver in an electric field.
Fiz. tver. tela 5 no.11:3276-3281 N '63. (MIRA 16:12)

1. Institut fiziki metallov AN SSSR, Sverdlovsk.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTSMAN, S.M.; TIMOFEYEV, A.N.; TRAKHTENBERG, I.Sh.

Intercrystallite electric transfer of silver in copper. Fiz. met. i metalloved. 16 no.4:611-612 O '63. (MIRA 16:12)

1. Institut fiziki metallov AN SSSR.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTSMAN, S.M.; TIMOFEYEV, A.N.; TRAKHTENBERG, I.Sh.

Investigating the diffusion properties of transition metal chalcogenides. Part 4: Temperature dependence of the anisotropy of the self diffusion of nickel and sulfur in nickel monosulfide. Fiz. met. i metalloved. 16 no.5:743-750 N '63. (MIRA 17:2)

1. Institut fiziki metallov AN SSSR.

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTSMAN, S.M.; TIMOFEYEV, A.N.; TRAKHTENBERG, I.Sh.

Diffusion in polycrystals. Fiz. met. i metalloved. 16 no.6:895-903 D '63. (MIRA 17:2)

1. Institut fiziki metallov AN SSSR.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTSMAN, S.M.; TIMOFEYEV, A.N.; TRAKHTENBERG, I.Sh.

Investigating the diffusion processes of monochalcogenides of transition metals. Part 5: Mechanism of the diffusion of nickel and sulfur in nickel monosulfide. Fiz. met. i metalloved. 17 no.1:132-139 Ja '64. (MIRA 17:2)

1. Institut fiziki metallov AN SSSR.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

ACCESSION NR: AP4009383

S/0126/63/016/006/0895/0903

AUTHORS: Klotsman, S. M.; Timofeyev, A. N.; Trakhtenberg, I. Sh.

TITLE: On the problem of diffusion in polycrystals

SOURCE: Fizika metallov i metallovedeniye, v. 16, no. 6, 1963, 895-903

TOPIC TAGS: volumetric diffusion, intercrystalline diffusion, diffusate, intercrystalline junction, nickel, chromium, silver, heterodiffusion, electric transport, ferric oxide, self diffusion, reaction diffusion, face centered lattice

ABSTRACT: The authors studied the laws of diffusion in polycrystals and the contribution of intercrystalline diffusion to the total diffusion current. The following expressions were obtained for the concentration Q_{gr} of the diffusate due to intercrystalline diffusion and for Q_{ob} and the concentration due to volumetric diffusion, at a point distance y from the source

$$Q_{ob} = K \exp\left(-\frac{y^2}{4D_{ob}t}\right) \text{ and } Q_{gr} = K' \exp\left[-\left(\frac{2D_{ob}}{\delta D_{gr}}\right)^{\frac{1}{2}} \frac{y}{(\pi D_{ob} t)^{\frac{1}{4}}}\right],$$

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ACCESSION NR: AP4009383

Here K and K' are time-dependent coefficients governing the volumetric diffusion and the intercrystalline diffusion respectively, D_{ob}, and D_{gr} are the corresponding diffusion coefficients, δ is the effective width of the intercrystalline junction, and t the diffusion time. The experimental results available in literature were analyzed, and a criterion was obtained for estimating the temperature range in which the diffusion would be mainly volumetric or intercrystalline. It was found that the temperature range for silver was about 100-150C and for nickel it was 150-280C. The authors analyzed the available results on heterodiffusion and electrical transport in nickel. They discuss the possibility of improving the accuracy of diffusion measurements. From an analysis of the data obtained in the electrical transport in chromium in a temperature range of 950-1100C and in silver in a range of 950-1350C it was found that the lower limit for the recovery of polycrystals was about 0.85 to 0.9 times the melting point of the metal (in the case of metals with face-centered lattices). In the case of nickel, the temperature for self-diffusion was found to be about 1250-1300C. The authors thank V. I. Arkharov for his valuable discussions. Orig. art. has: 5 formulas and 2 tables.

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of Physics of Metals, AN SSSR)

Card 2/3

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

ACCESSION NR: AP4009383

SUBMITTED: 06Apr63

SUB CODE: MM, SS

NO REF SOV: 019

ENCL: 00

OTHER: 013

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

L 62920-65 EWT(m)/T/EWA(t)/EWP(b) IJP(c) JD/JG

ACCESSION NR: AP5018858 UR/0126/65/020/001/0078/0083

AUTHOR: Klotsman, S. M.; Timofeyev, A. N.; Trakhtenberg, I. Sh.

TITLE: Effect of low-concentration impurities on diffusion coefficients of polycrystalline materials. IV. Effect of cadmium on intercrystalline self-diffusion of silver

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 1, 1965, 78-83

TOPIC TAGS: permeability measurement, solubility, metal heat treatment, adsorption, molecular interaction, metal diffusion

ABSTRACT: Bulk permeability and permeability of intercrystalline junctions is measured in pure silver and in silver containing 1% cadmium. The cadmium is an adsorption activating impurity. The temperature dependence of the bulk solid solubility and degree of adsorption concentration are the same. The effect of cadmium on bulk self-diffusion and intercrystalline junction permeability are the same. The atomic interaction in the zone of adsorption concentration is no different from the atomic interaction in the bulk of the alloy. The interaction energy of cadmium with the intercrystalline junctions is not less than 10×10^{4} joules. "The authors thank

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

L 62920-65

ACCESSION NR: AP5018858

A. A. Kuranov for furnishing the certified silver and alloy samples and V. Ye. Arkharov for his interest in the work and valuable discussion." Orig. art. has: 1 table, 4 figures, 4 formulas.

ASSOCIATION: Institut fiziki metallov, AN SSSR (Institute of Physics of Metals, AN SSSR)

SUBMITTED: 14Jul64 ENCL: 00 SUB CODE: SS, MM

NO REF SOV: 009 OTHER: 003

Card 2/2

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

ARKHIPOVA, N.K.; KLOTSMAN, S.M.; TIMOFEYEV, A.N.; TRAKHTENBERG, I.Sh.

Intercrystalline electric transfer of silver in gold.
Fiz. met. i metalloved. 20 no.1:159-160 Jl '65.
(MIRA 18:11)

1. Institut fiziki metallov AN SSSR.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTSMAN, S.M.; ARKHIPOVA, N.K.; TIMOFEYEV, A.N.; TRAKHTENBERG, I.Sh.

Silver diffusion in polycrystalline gold. Fiz. met. i metalloved. 20 no.3:390-395 S '65. (MIRA 18:11)

1. Institut fiziki metallov AN SSSR.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTSMAN, S.M.; TIMOFEYEV, A.N.; TRAKHTENBERG, I.Sh.

Effect of minor impurities on the coefficients of diffusion in polycrystalline materials. Part 4: Effect of cadmium on the intercrystalline self-diffusion of silver. Fiz. met. i metalloved. 20 no.1:78-83 Jl '65. (MIRA 18:11)

1. Institut fiziki metallov AN SSSR.

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

L 16176-66 EWT(m)/T/EWP(t) IJP(c) JD

ACC NR: AP5025323 SOURCE CODE: UR/0126/65/020/003/0390/0395

AUTHOR: Klotsman, S. M.; Arkhipova, N. K.; Timofeyev, A. N.; Trakhtenberg, I. Sh.

34

ORG: Institute of Physics of Metals, AN SSSR (Institut fiziki metallov AN SSSR)

B

TITLE: Diffusion of silver in polycrystalline gold

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 3, 1965, 390-395

TOPIC TAGS: silver, gold, volumetric analysis, crystal structure, polycrystal, metal diffusion

ABSTRACT: The present work is a continuation of an earlier investigation by the authors (FTT, 1964, 5, 11, 3978 and FMM, 1963, 16, 4, 611) who needed to know the diffusion of silver in polycrystalline gold in order to continue their research on the effect of an electric field on the intercrystalline diffusion of silver. The volumetric diffusion D_v of silver in gold at 770 - 1040° was determined first by using two methods: (1) the relation of integral intensity I of the γ component of the radiation of silver 110 on the depth of diffusion penetration x, and (2)

Card 1/2

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L 16176-66

ACC NR: AP5025323

by the direct use of measured values of integral activity. The effect of temperature on the value of D_v was represented by the straight line in the coordinates $\log D_v = f(1/T)$. The formula was derived for the calculation of volumetric diffusion of silver into polymetallic gold:

$$D_{vg} = 0.053 \exp\left(-\frac{40400 + 500}{RT}\right) cm^2/sec.$$

This agreed well with the results obtained by Mallard et al. (Phys. Rev., 1963, 129, 2, 617). Diffusion annealing at a temperature range of 540- 2750 was made for determining the coefficient of intergranular diffusion D_g. Calculation of D_g was made by the Fisher method (J. Appl. Phys., 1951, 22, 74). The final equation is

$$\delta D_{gb} = 9.5 \cdot 10^{-10} \exp\left(-\frac{18200 + 800}{RT}\right) cm^3/sec.$$

where δ is the semiwidth of the grain boundary. Orig. art. has: 7 formulas, 6 figures and 1 table.

SUB CODE: 11,20/ SUBM DATE: 01Feb65/ ORIG REF: 004/ OTH REF: 003

Card 2/2

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

L 47410-66

ACC NR: AP6027757 SOURCE CODE: GE/0030/66/016/002/0729/0736

AUTHOR: Archipova, N. K.; Klotsman, S. M.; Timofeev, A. N.; Trakhtenberg, I. Sh.

ORG: Institute of Metal Physics, Academy of Sciences SSSR, Sverdlovsk

TITLE: Effect of a d-c field on the lattice diffusion of silver-110 in copper and gold

SOURCE: Physica status solidi, v. 16, no. 2, 1966, 729-736

TOPIC TAGS: direct current field, lattice diffusion, silver 110, copper, gold, electron drag, matrix conductivity, electromigration

ABSTRACT: A study is made of the effect of direct current, with a density of about 100 to 150 amp/mm^2, on the diffusion of silver-110 in gold (99.99%) and high purity grade copper, at temperatures above 800C. Diffusion of silver-110 is measured by the residual activity method. The direction of the electromigration and the magnitude of the activated ions "effective charge" is clear indication of electron drag. The "effective charge" decreases linearly with an increase in

Card 1/2

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ACC NR: AP6027757

temperature. The temperature coefficient of the "effective charge" of silver in gold and copper is higher than the temperature coefficient of the matrix conductivity. Orig. art. has: 7 figures, 3 tables, and 10 formulas. [Authors' abstract]
[KS]

SUB CODE: 20/ SUBM DATE: 18Apr66/ ORIG REF: 011/ OTH REF: 006/

Card 2/2 vlr

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KATS, V.I., doktor ekon. nauk; KIRICHENKO, V.N., kand. ekon. nauk; IVANOV, Ye.A.; SAID-GALIYEV, K.G.; LUK'YANOV, E.B.; MUSATOVA, V.A.; PLYGHEVSKIY, B.P., kand. ekon. nauk; STOMAKHIN, V.I.; KARPUKHIN, D.N., kand. ekon. nauk; KIRICHENKO, N.Ya.; ZHIDKOVA, M.V., kand. ekon. nauk; ANCHISHKIN, A.I.; KLINSKIY, A.I., kand. ekon. nauk; SOLOV'YEV, N.S.; KLOTSWOG, F.N.; VSYAKIKH, E.P.; LAGUTIN, N.S., kand.ekon. nauk; LEMESHEV, M.Ya., kand. sel'khoz.nauk; KORMNOV, Yu.F., kand. ekon. nauk; SAVIN, V.A.; TEREKHOV, V.F.; KUDROV, V.M., kand. ekon. nauk; AL'TER, L.B., doktor ekon. nauk, red.; KRYLOV, P.N., kand. ekon. nauk; LEPINKOVA, Ye., red.; KOKOSHKINA, I., mladshiy red.; ULANOVA, L., tekhn. red.

[Growth of the social product and the proportions of the national economy of the U.S.S.R.] Rost obshchestvennogo proizvodstva i proportsii narodnogo khoziaistva SSSR. Moskva, 1962. 453 p. (MIRA 16:2)

(Russia—Economic policy)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

ROMANOVA, A.M., kand.tekhn.nauk; KLOTSVOG, N.F., inzh.

Increasing the comb productivity of combing machines. Tekst. prom. 18 no.9:20-22 S '58. (MIRA 11:10)
(Combing machines)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

[illegible], [illegible], (and others)

Preliminary research on the torsion of the hull of a ship caused by an oblique wave. p. 417

[illegible] vol. 3, no. 4, 1955

Poland

so. EAST EUROPEAN ACCESSIONS LIST vol. [illegible], no. 10 Oct. 1956

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTT, J.

Regulations on discharging industrial wastes and sewage into recipients.

p. 376 (Gaz, Woda I Technika Sanitarna. Vol. 31, no. 10, Oct. 1957. Warszawa, Poland)

Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 2, February 1958

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

GORSKI, Jerzy; KLOTT, Jerzy

Trends of technological progress in the Polish ship industry. Problemy proj hut maszyn 12 no.10:310-313 O '64.

1. Prozamet, Gdansk.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTT, Maria; KUCZBORSKI, Stanislaw

Therapy of tuberculosis of oral cavity, pharynx and larynx with isonicotinic acid hydrazide. Gruslica 23 no.6:409-416 June '55.

1. Z XI Oddziału Ftyzjatrycznego Instytutu Gruslicy.Kierownik: dr. S.Kuczborski; Dyrektor:prof. dr. J. Misiewicz. Warszawa, Plocka 26.

(NICOTINIC ACID ISOMERS, ther.use
isoniazid in tuberc. of larynx, pharynx & oral cavity)
(TUBERCULOSIS, LARYNGEAL, therapy
isoniazid)
(TUBERCULOSIS
of pharynx & mouth, ther.isoniazid)
(MOUTH, diseases
tuberc.,ther.isoniazid)
(PHARYNX, diseases
tuberc.,ther.isoniazid)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTT, Maria; KOZIOROWSKI, Antoni; LACHOWICZ, Danuta

Respiratory disorders in artificial pneumothorax. I. Respiratory disorders during formation of pneumothorax and after early interruption. Gruslica 24 no.4:247-264 Apr 56.

1. Z Instytutu Gruslicy, Dyrektor: prof. dr. J. Misiewicz, Warszawa, Plocka 26.

(PNEUMOTHORAX, ARTIFICIAL, complications, resp. disord. (Pol))
(RESPIRATION, disord. in artif. pneumothorax (Pol))

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

OSINSKA, Krystyna; KLOTT, Maria; ZAJACZKOWSKA, Jadwiga; KOCHANOWICZ, Jan; LACHOWICZ, Danuta; NASIADKO, Halina

Results of the treatment of pulmonary tuberculosis with 2 grams of streptomycin weekly associated with PAS. Gruslica 24 no.5; 341-348 May 56.

1. Z Oddzialow ftyzjatrycznych Instytutu Gruslicy Dyrektor: prof. dr. J. Misiewicz, Instytut gruslicy, Warszawa, ul. Plocka 26.

(STREPTOMYCIN, therapeutic use,
pulm. tuberc., with PAS (Pol))
(PARAAMINOSLICYLIC ACID, therapeutic use,
pulm. tuberc., with streptomycin (Pol))

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

ZAJACZKOWSKA, Jadwiga; HERYNO, Kazimierz; KLOTZ, Maria; KRAKOWKA, Pawel; LANGE, Jadwiga; PIEKARNIAK, Krysepin; ZICH, Boguslaw

Effect of chemotherapy on the indications for pneumothorax treatment and on early complications. Gruslica 24 no.8:707-718 Aug 56.

1. Z Oddzialow ftyzjatrycznych Instytutu Gruslicy Kierownik: doc. dr. W. Jarosszewicz. Dyrektor: prof. dr. Janina Misiewicz.
(TUBERCULOSIS, PULMONARY, ther.
chemother., eff. on indic. for artif. pneumothorax & on early compl.)
(PNEUMOTHORAX, ARTIFICIAL
eff. of chemother. on indic. for pneumothorax)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

BULSKA, Malgorzata; KLOTT, Maria; MADEY, Jan

Immediate and remote effect of pregnancy on the course of pulmonary tuberculosis. Gruslica 24 no.10:1025-1038 Oct 56.

1. Z Instytut Gruslicy, Dyrektor: prof. dr. J. Misiewicz W-wa, ul. Plocka 26.

(TUBERCULOSIS, PULMONARY, in pregnancy, immediate & remote eff. of pregn. on course of dis. (Pol))

(PREGNANCY, in various diseases, tuberc., pulm., immediate & remote eff. of pregn. on course of dis. (Pol))

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTT, Maria (Warszawa, ul. Plocka 26.)

Case of tuberculous exudative pericarditis, pleuritis and mediastinal lymphadenitis treated with ACTH. Gruslica 26 no.6:419-423 May 58

1. Z Oddzialu XI Instytutu Gruslicy Kierownik: doc. dr P. Krakowka. Dyrektor: prof. dr J. Misiewicz.

(TUBERCULOSIS, CARDIOVASCULAR, ther
ACTH in exudative pericarditis with pleurisy & mediastinal lymphadenitis (Pol))
(TUBERCULOSIS, PULMONARY, ther.
ACTH IN pleurisy with exudative pericarditis & mediastinal lymphadenitis (Pol))
(TUBERCULOSIS, LYMPH NODES, ther.
ACTH, in mediastinal lymphadenitis with exudative pericarditis & pleurisy (Pol))
(ACTH, ther. use.
tuberc. exudative pericarditis with pleurisy & mediastinal lymphadenitis (Pol))

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

GASIOROWSKI, Wiktor; KLOTZ, Maria ; NOWOTNA-WALCOWA, Rosa

A case of idiopathic pulmonary hemosiderosis. Polski tygod. lek. 15 no.19:724-726 9 My '60.

1. Z III Kliniki Chorob Wewnetrznych A.M. w Warszawie; kierownik: prof. dr. B. Kedejsko i z XI Oddzialu Instytutu Gruzlicy; kierownik: doc. dr. P. Krakowka.
(HEMOSIDEROSIS case reports)
(LUNG DISEASES case reports)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTT, Maria; KOZAKOW, Helena; GRYMINSKI, Janusz

Diagnostic difficulties in cases of eosinphilic infiltrations of the lungs. Gruslica 28 no.3:201-209 Mr '60.

1. Z Oddzialu XI Instytutu Gruslicy. Kierownik: doc.dr med. P. Krakowicz. Dyrektor: prof.dr med. W. Jaroszewicz.
(LOEFFLER'S SYNDROME diag.)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

GRYMINSKI, Janusz; KLOTT, Maria

A case of severe sensitivity to PAS, SM and INH with manifestations of the involvement of various organs. Gruslica 29 no.3:281-292 Mr '61.

1. Z Oddzialu I Instytutu Gruslicy Kierownik: doc. dr med. P. Krakowka Dyrektor: prof. dr med. W. Jaroszewicz.

(PARAAMINOSALICYLIC ACID toxicol)
(STREPTOMYCIN toxicol)
(ISONIAZID toxicol)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KRAKOWKA, Pawel; CHODKOWSKA, Stefania; KLOTT, Maria; KOCHANOWICZ, Jan

2 Cases of Aspergillus fumigatus infection of pleural empyema in patients with pulmonary tuberculosis. Gruzlica 30 no.3:259-267 '62.

1. Z Pracowni Mykologicznej i z Oddzialu Gruzlicy Pluc Kierownik: doc. dr med. P. Krakowska Z Zakladu Patologii Kierownik: prof. dr. med. S. Chodkowska Z Oddzialu Gruzlicy Pluc Kierownik: prof. dr med. Wiwa Jarowszewicz Instytutu Gruzlicy Dyrektor: prof. dr. med. Wiwa Jaroszewicz.
(ASPERGILLOSIS case reports) (EMPYEMA microbiol)
(TUBERCULOSIS PULMONARY compl)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KRAKOWKA, Pawel; CHODKOWSKA, Stefania; KLOTT, Maria; MALINOWSKI, Boleslaw; NOWICKI, Jan

A case of pulmonary Aspergillus mycosis (aspergillosis) in the pleural space in a patient with pulmonary tuberculosis. Gruzlica 28 no.6:471-476 Je '60.

1. Z Oddzialow Instytutu Gruzlicy: Z Oddzialu I i z Pracowni Mykologicznej Kierownik: doc. dr P.Krakowka. Z Oddzialu Patologii Kierownik: prof. dr S.Chodkowska. Z Oddzialu Chirurgicznego Kierownik: prof. dr L.Manteuffel Dyrektor: prof. dr W.Jaroszewicz oraz z Sanatorium im. F.Dzierzynskiego w Otwocku Kierownik Oddzialu: dr B.Malinowski Dyrektor: dr E.Konar

(TUBERCULOSIS PULMONARY compl)
(ASPERGILLOSIS compl)
(LUNG DISEASES compl)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

ZYCH, Dobieslaw; KOCHANOWICZ, Jan; PIEKARNIAK, Kryspin; KLOTT, Maria

Tuberculosis of the breast. Gruslica 30 no.7:667-673 '62.

1. Z Instytutu Gruslicy Z Oddzialu II Kierownik: prof. dr med. W. Jaroszewicz i z Oddzialu I Kierownik: doc. dr med. P. Krakowka Dyrektor: prof. dr med. W. Jaroszewicz.
(BREAST DISEASES) (TUBERCULOSIS)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTT, Maria; PAWLICKA, Lilia

A case of broncho-esophageal fistula in a woman with pulmonary tuberculosis. Gruslica 30 no.11:1045-1050 '62.

1. Z Instytutu Gruslicy. Z oddziału I. Kierownik: doc. dr med. P. Krakowka i z Pracowni Radiologicznej. Kierownik: prof. dr med. K. Ossowska, Dyrektor Instytutu Gruslicy: prof. dr med. W. Jaroszewicz.
(ESOPHAGEAL FISTULA) (BRONCHIAL FISTULA) (TUBERCULOSIS PULMONARY)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KLOTT, Maria, ZIELINSKI, Stefan

Behavior of hearing in tuberculous patients previously treated and not-treated with streptomycin. Gruzlica 31 no.6:637-640 Je'63.

1. Instytut Gruzlicy, Warszawa

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

WARESKA, Wanda, KLOTT, Maria; IZDEBSKA-MAKOSA, Zuzanna

Excretion of cycloserine in cases of kidney diseases. Gruzlica 31 no.6:664-668 Je'63

1. Instytut Gruzlicy, Warszawa.

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

[illegible], [illegible]; [illegible], [illegible]; [illegible], [illegible]

Staphylococcal pneumonias in adults. Gruzlica 3[illegible] [illegible]
Ap '[illegible].

1. Z Instytutu Gruzlicy Zakład Radiologii (Kierownik: prof. dr. med. K. [illegible]) i Klinika Chorób Płuc (Kierownik: doc. dr. med. [illegible]).

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

KRAKOWKA, Pawel; ROWINSKA, Ewa; HAIWEG, Halina; KLOTT, Maria; TRACZYK, Kazimierz; CHRUSCIAK, Elzbieta

Pulmonary actinomycosis with special reference to diagnostic and therapeutic difficulties. Gruzlica 33 no.4:313-322 Ap '65.

1. Z Kliniki Chorob Pluc i Pracowni Mykologicznej Instytutu Gruzlicy (Kierownik: doc. dr. P. Krakowka).

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

IZDEBSKA-MAKOSA, Zuzanna; KLOTT, Maria; ROWINSKA, Ewa; KLIMKIEWICZ, Halina; KOZIOROWSKI, Antoni

Diagnostic difficulties in the pulmonary fibrosis. Gruzlica 33 no.7:605-613 Jl '65.

1. Z Kliniki Chorob Pluc (Kierownik: doc. dr. P. Krakowka), z Zakladu Radiologii (Kierownik: prof. dr. K. Ossowska) i z Zakladu Fizjopatologii (Kierownik: dr. A. Koziorowski) Instytutu Gruzlicy.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

L 08140-67 EWT(1) IJP(c) AT

ACC NR: AP6033666 SOURCE CODE: UR/0371/66/000/004/0014/0021

AUTHOR: Kesamanly, F. P.--Kesamanli, F.; Klotyn'sh, E. E.--Klotins, E.; Nasledov, D. N.--Nasledovs, D.; Talalakin, G. N.--Talalakins, G.

ORG: Physicotechnical Institute im. A. F. Ioffe (Fiziko-tekhnicheskiy institut); Institute of Power Engineering AN LatSSR (Institut energetiki AN LatSSR)

TITLE: Transfer effects in p-type gallium arsenide crystals

SOURCE: AN LatSSR. Izvestiya. Seriya fizicheskikh i tekhnicheskikh nauk, no. 4, 1966, 14-21

TOPIC TAGS: gallium arsenide, Hall mobility, Nernst effect, high temperature effect, transfer effect, pn junction, p type gallium

ABSTRACT: The authors investigated the temperature and concentration relationships of the Hall mobility and the transverse Nernst—Ettingshausen effect in p-type gallium arsenide alloyed with zinc and cadmium. The investigations have been conducted at temperatures ranging from 90 to 800K in crystals with the concentration of holes at 300K from 5.4×10^{16} to 7.7×10^{19} cm^{-3}. It is shown

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L 08140-67

ACC NR. AP6033666

that the experimental results could be consistently understood in terms of the theory for a semiconductor with an isotropic and parabolic zone. It is shown that the ions play an important role in scattering holes below room temperature. The mechanisms of hole scattering by the lattice oscillation are examined. The authors thank V. G. Sidorov for submitting precision values of the thermal emf. Orig. art. has: 5 figures, 5 formulas, and 1 table. [Based on authors' abstract]

SUB CODE: 20/ SUBM DATE: 14Sep65/ ORIG REF: 012/ OTH REF: 003/

Card 2/2 nst

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

ACCESSION NR: AP4011750 S/0181/64/006/001/0134/0140

AUTHORS: Kesamanly*, F. P.; Kloty*n'sh, E. E.; Val'tsev, Yu. V.; Nasledov, D. N.; Ukhanov, Yu. I.

TITLE: Nernst-Ettinghausen and Faraday effects in indium phosphide

SOURCE: Fizika tvordogo tela, v. 6, no. 1, 1964, 134-140

TOPIC TAGS: Nernst Ettinghausen effect, effective electron mass, indium phosphide, Hall constant, specific electrical conductivity, differential thermal emf, optical absorption, polarization, polarization rotation

ABSTRACT: In order to obtain supplementary information on the mechanism of electron scattering and the dependence of the effective electron mass on temperature, the authors investigated, in large crystalline samples of indium phosphide, the temperature dependence of the Hall constant, the specific electrical conductivity, the resistance changes in a magnetic field, the differential thermoelectromotive force, the transverse Nernst-Ettinghausen effect, the optical absorption, and the rotation of the polarization plane for infrared light in a magnetic field. The results are summarized in Figs. 1-6 of the Enclosures. The authors found that in samples with an electron concentration of $8.2 \cdot 10^{16} cm^{-3}$ and a depression of temperature below 200K

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ACCESSION NR: AP4011750

the Hall constant and the change in resistance in a magnetic field increase noticeably. At low temperatures the scattering of electrons takes place by impurity ions. With increase in temperature, electron scattering by lattice vibrations increases. The effective mass of the electrons at room temperature is 0.066 ± 0.003 times the mass of free electrons. Orig. art. has: 6 figures and 1 formula.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute AN SSSR); Fizicheskiy institut AN Azerb. SSR, Baku (Physics Institute AN Azerb. SSR)

SUBMITTED: 17Jul63 DATE ACQ: 14Feb64 ENCL: 08

SUB CODE: PH NO REF SOV: 009 OTHER: 013

Card 2/2

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

ACCESSION NR: AP4019873 S/0181/64/006/003/0958/0960

AUTHORS: Kesamanly*, F. P.; Klotys*n'sh, E. E.; Lagunova, T. S.; Nasledov, D. N.

TITLE: The impurity band in crystals of n type InP

SOURCE: Fizika tverdogo tela, v. 6, no. 3, 1964, 958-960

TOPIC TAGS: crystal, Hall constant, electron concentration, semiconductor band structure

ABSTRACT: This is a continuation of investigation in support of previous work (F. P. Kesamanly*, E. E. Klotys*n'sh, Yu. V. Mal'tsev, D. N. Nasledov, and Yu. I. Ukhanov, FTT, 6, 134, 1964), indicating that the increase in Hall constant in n-type InP with decrease in temperature below 200K is due to conduction in the impurity band. One of the consequences of an impurity band in a crystal is a maximum on the curve showing temperature dependence of the Hall constant. Investigation in the region of 2-300K of n-type InP with electron concentration of $8.2 \cdot 10^{16}$ cm^{-3} has shown that the Hall constant increases as T declines down to 40-50K and then reaches a maximum, after which it begins to decline till the

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ACCESSION NR: AP4019873

temperature reaches 10K. Below this temperature the Hall constant is again independent of temperature. That this maximum is due to conduction in the impurity band is indicated by the fact that the same maximum is observed at similar electron concentrations in n-type GaAs, for which this conduction in the impurity band has been demonstrated. Comparisons with results on InAs, InSb, and Ge also support this conclusion. "The authors thank O. V. Yemel'yanenko for valuable discussions of the results." Orig. art. has: 2 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute AN SSSR); Institut fiziki AN AzSSR, Baku (Institute of Physics AN AzSSR)

SUBMITTED: 15Nov63 DATE ACQ: 31Mar64 ENCL: 00

SUB CODE: EC NO REF SOV: 004 OTHER: 001

Card 2/2

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

L 16065-66 EWT(1)/EWT(m)/T/EWP(t) IJP(c) JD/JG

ACC NR: AP5027381 SOURCE CODE: UR/0371/65/000/005/0047/0056

AUTHOR: Yemel'yanenko, O. V.--Jemeljanenko, O.; Klotyn'sh, E. F.--Klotiņš, E.; Nasledov, D. N.--Nasledovs, D.

ORG: Leningrad Physico-technical Institute im. A. F. Ioffe, AN SSSR (Leningradskiy fiziko-tekhnicheskiy institut AN SSSR); Power Plant Institute, AN Latv.SSR (Institut energetiki AN Latv.SSR)

TITLE: Galvanomagnetic and thermomagnetic properties of gallium arsenide after diffusion of copper

SOURCE: AN LatSSR. Izvestiya. Seriya fizicheskikh i tekhnicheskikh nauk, no. 5, 1965, 47-56

TOPIC TAGS: magnetic property, gallium arsenide, crystal structure, electric property, Hall effect, metal diffusion, copper, galvanomagnetic effect, thermomagnetic effect

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

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ACC NR: AP5027381

ABSTRACT: It is difficult to avoid the diffusion of copper into crystals because they are heated to high temperatures during the production of devices containing GaAs crystals. This study was made to determine the effect of copper on the electric properties of GaAs and to ascertain whether a controlled (dosed) delivery of copper into GaAs of the n-type could transfer the latter into the p-type with the required concentration of vacancies. Initial samples of n-GaAs (1.5x2.5x12mm) were polished, boiled, and washed in bidistilled water. The Cu (99.999%) was dust-sprayed (10-20 layer) on the largest faces of crystals, and the diffusion was made in a vacuum furnace at 4.10^{-6}mm hg. The dependence of the solubility of copper on the temperature was used for the multiple diffusion of copper into the same samples. The p-GaAs was produced after 1-3 diffusions from the low-resistance crystals ($\rho \leq 10^{6}$ohm cm) of n-GaAs commonly used in production of apparatuses. The concentration of vacancies in the p-GaAs at 300K was $7.5x10^{14}$-$7.0x10^{15}cm^{-3}$. An acceptor level of 0.14±0.01 ev. was observed in the p-type GaAs. This level was related either to the copper or to the acceptor impurity in the initial GaAs of the n-type. The concentration of ions and neutral atoms of the admixture could be determined from the temperature effect on the Hall mobility. The mechanism of scattering of the current carriers was interpreted from the effect of temperature on the Hall mobility and the Nernst-Ettingshausen effect. Therefore, the diffusion by copper could be used as a method for the

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ACC NR: AP5027381

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production of pure GaAs crystals in the p-form (i.e. such in which a scattering on the lattice predominated at 100K and higher). In most cases the diffusion of copper was a controllable process following the known laws of copper diffusion and solution. It did not result in a production of samples with uncontrollable properties. The only exceptions were the samples having large initial amounts of admixtures. The character of scattering of vacancies in the lattice will require further study. Orig. art. has: 4 figures and 4 tables.

SUB CODE: 20/ SUBM DATE: 15Jan65/ ORIG REF: 003/ OTH REF: 010

Card 3/3 A.N.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

L 20349-65 EWT(1)/EWG(k)/EWT(m)/T/EWP(t)/EWP(b)/EWA(h) Pz-6/Peb IJP(c)/SSD/
AFWL/ASD(a)-5/AS(mp)-2/AFETR/RAEM(a)/ESD(gs)/ESD(t) JD/AT
ACCESSION NR: AP4041353 S/0048/64/028/006/0961/0968

AUTHOR: Burdukov, Yu.M.; Yemel'yanenko, O.V.; Zotova, N.V.; Kesamanly, F.P.; Kletyn'sh, E.E.; Lagunova, T.S.; Sidorov, V.G.; Talalakin, G.N.; Scherbatov, V.Ye. (Deceased); Nasledov, D.N. (Doctor of physico-matematical sciences)

TITLE: Investigation of transfer effects in $A^{III}B^{V}$ type compounds (Report, Third All-Union Conference on Semiconductor Compounds held in Kishinev 16-21 Sep 1963)

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.6, 1964, 961-968

TOPIC TAGS: semiconductor, semiconductor research, semiconductor band structure, Hall effect, Nernst Ettinghausen effect, electric conductivity, gallium arsenide, indium arsenide, indium phosphide

ABSTRACT: The present paper is a review of the results of experimental studies of transfer effects in $A^{III}B^{V}$ type compounds, specifically, gallium arsenide, indium arsenide and indium phosphide, with emphasis on the first. The work of other authors, Soviet and non-Soviet, is referred to, but for the most part the data and discussion are based on investigations by the authors' group. The main purpose of these studies was to investigate the energy spectrum and characteristics of the impurity

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L 20349-65
ACCESSION NR: AP4041353

band (zone) and elucidate the mechanism of electron scattering in these semiconductor compounds. The assumed band structure of GaAs is described. Extensive measurements were made of the thermo-emf of the compounds in order to investigate the structure of the allowed bands. Data and curves are given for the dependence of the effective electron mass on the carrier concentration in the crystal, the temperature dependence of the Hall constant, the temperature dependence of the height of the Fermi level, the temperature dependence of the relative resistivity increment ($\Delta\rho/\rho$) in a magnetic field, the Nernst-Ettinghausen effect, all for n-type GaAs; the dependence of the hole mass on the hole concentration in p-type GaAs; the temperature dependence of kinetic effects in InP; the temperature dependences of the Hall constant and $\Delta\rho/\rho$ and the field dependence of $\Delta\rho/\rho$ for n-type InAs. The mechanism of interaction of electrons with lattice vibrations in gallium arsenide and indium arsenide is discussed. Impurity effects are considered and various models are evaluated from the standpoint of their agreement with experiment and practical utility. Orig.art.has: 8 formulas and 9 figures.

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L 20349-65
ACCESSION NR: AP4041353

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR (Physicotechnical Institute, Academy of Sciences, SSSR)

SUBMITTED: 00 ENCL: 00

SUB CODE: SS, EM NO. REF SOV: 006 OTHER: 006

Card 3/3

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L 65243-65 EWT(1)/EWT(m)/EWP(b)/EWP(t) IJP(c) JD

ACCESSION NR: AP5012597 UR/0181/65/007/005/1595/1597

AUTHOR: Yemel'yanenko, O. V.; Klotyn'sh, E. E.; Nasledov, D. N. 44,55 44,55 44,55 61 55 B

TITLE: Effect of copper on the electric properties of gallium arsenide

SOURCE: Fizika tverdogo tela, v. 7, no. 5, 1965, 1595-1597

TOPIC TAGS: gallium arsenide, carrier density, Hall effect, Nernst effect, electron mobility 21,44,55

ABSTRACT: The authors report results of an investigation of the electric properties of samples of n-GaAs ($\rho \lesssim 10$ ohm-cm) in which copper is introduced. The acceptor concentration at a diffusion temperature 600--760C was 10^{16}--10^{17} cm^{-1}. The carrier density was determined with the aid of the Hall effect. Measurements of the Hall mobility made it possible to determine the concentration of the ionized and neutral impurity atoms. The results show that the larger the initial electron density, the higher the diffusion temperature necessary for reversal of the conductivity type. The compensation produced was equivalent to a yield of 1--3 acceptor levels per copper atom. The effect of copper was smaller in samples with larger impurity concentration. Samples with small mobility, which decreased with decreasing temperature, were obtained from material with high initial impurity concentration $N_i > 5 \times 10^{17}$ cm^{-2}). Samples with high mobility, which increased monotonically with

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L 65243-65

ACCESSION NR: AP5012997 6

decreasing temperature, were obtained from initially pure crystals, $N_i < 8 \times 10^{16}$ cm^{-3}. It is concluded that introduction of copper by diffusion can serve as a method of obtaining "pure" p-type crystals (in which the scattering by the lattice predominates already at 100K). Orig. art. has: 2 figures and 2 tables.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute, AN SSSR); Institut energetiki AN LatvSSR, Riga (Institute of Power Engineering, AN LatvSSR)

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Card 2/2

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

L 33250-66 EWT(m)/EWP(t)/ETI LJP(c) JD/JG

ACC NR: AR6016231 SOURCE CODE: UR/0058/65/000/011/E065/E065

AUTHOR: Klotyn'sh, E. E.; Nasledov, D. N.

21 27 74

B

TITLE: Scattering of electrons by impurity atoms in gallium arsenide

SOURCE: Ref. zh. Fizika, Abs. 11E509

REF SOURCE: Sb. Fizika. Dokl. k XXIII Nauchn. konferentsii Leningr. inzh.-stroit. in-ta. L., 1965, 21-26

TOPIC TAGS: gallium arsenide, electron scattering, impurity scattering, temperature dependence, Hall constant, activation energy, electron mobility, crystal lattice vibration

ABSTRACT: The authors investigated the temperature dependences (85 - 750K) of the Hall coefficient and of the electric conductivity of GaAs crystals with electron density 1.1×10^{15} - 2.8×10^{18} cm^{-3} at 300K. The results offer evidence of the presence of donors with activation energy 0.14 ± 0.03 ev, whose concentration in the investigated crystals does not exceed 3×10^{16} cm^{-3}. The obtained values of the mobility agree with the calculated ones when account is taken of the scattering of electrons by the following: a) lattice vibrations, b) impurity ions, c) neutral atoms of impurity with donor level 0.14 ev. The large contribution of scattering by neutral atoms at T < 400K is noted. Ye. Movchan. [Translation of abstract]

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Card 1/1 ply

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

ACC NR: AP6026693

SOURCE CODE: UR/0181/66/008/008/2415/2419

AUTHOR: Kovalevskaya, G. G.; Klotyn'sh, E. E.; Nasledov, D. N.; Slobodchikov, S. V.

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

TITLE: Certain electrical and photoelectrical properties of copper-alloyed InP

SOURCE: Fizika tvordogo tela, v. 8, no. 8, 1966, 2415-2419

TOPIC TAGS: Hall constant, photoconductivity, electron donor, relaxation time

ABSTRACT: Results are given of the electrical and photoelectric measurements made of copper-alloyed indium phosphide. Samples were prepared by both mechanical and chemical polishing. The Hall constant and electroconductivity were measured with a special semi-automatic instrument. The samples had electron concentrations of 10^{12} to 10^{14} cm^{-3} at 400°K. The temperature dependence of the Hall effect and of electroconductivity in copper-alloyed n-InP is plotted, as well as the spectral distribution of photoconductivity. The donor level was found to be 0.49 ± 0.03 ev for the E_{d_1} level, 0.17 ± 0.03 ev for the E_{d_2} level, and an activation level of 0.33 ev for E_a. The Fermi levels were found to be somewhat above the activation energy of 0.49 ev. The copper, acting as an acceptor in InP, empties both the shallow and deep donor levels. When $h\nu > E_g$, the

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several photoconductivity peaks in the region of intrinsic absorption are related to the band-structure features of InP. The various photoconductivity peaks are discussed. The photoeffect relaxation time indicates the existence of several long-lived components, with lifetimes ranging from several seconds to as much as 5 minutes. This indicates the importance of deep sticking levels. The authors thank G. I. Stepanov for assistance in measuring the relaxation times. Orig. art. has: 4 figures, 1 table.

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723210018-7

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1. Kierownik Kliniki Chirurgicznej Akademii Medycynym Wroclaw: prof. dr K. Czyzewski. 2. Kierownik Katedry Anatomii Patologicznej, Wyzsza Szkola Rolnicza, Wroclaw: prof dr. A. Zakrzewski.

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P. 23. (MECHANISACE.) (Praha, Czechoslovakia) Vol. 5, No. 1, Jan. 1958

SO: Monthly Index of East European Accession (EEAI) LC. Vol. 7, No. 5, 1958

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KLOUB, Jan, ins., dr.

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New system of elutriating sand for high-quality concrete. p.320

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Design of operational equipment for a large building project. p.8

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SOVETSKA VEDA: STAVEBNICTVI
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