

L 18004-63

ACCESSION NR: AP3001292

2

causes of this surface diffusion, discarding most explanations, but they consider more likely the possibility of pinned dislocations in the layer, the diffusion mobility of atoms being increased along these defects. They also suggest that the layer may exhibit an increase in vacancy concentration because of oxidation-reduction processes on the surface of the metal. An analogy with surface diffusion in liquids is drawn, but the limitation of analogies is stressed. Orig. art. has: 7 figures, 3 tables, and 10 formulas.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet (Khar'kov State University)

SUBMITTED: 15Nov62

DATE ACO: 01Jul63

ENCL: 00

SUB CODE: PH

NO REF SOV: 007

OTHER: 007

Card 2/2

L 18125-63

EWP(q)/EWT(m)/BDS AFFIC/ASD JD

S/0181/63/005/007/1900/1907

ACCESSION NR: AP3003886

AUTHORS: Geguzin, Ya. Ye.; Rabets, V. L.; Cherny*shov, A. A.

64
58

TITLE: Creep of single crystals of NaCl and KCl in the region of premelting temperatures and low specific loads μ

SOURCE: Fizika tverdogo tela, v. 5, no. 7, 1963, 1900-1907

TOPIC TAGS: creep, specific load, Na, K, Cl, dislocation, climbing motion, mosaic, block

ABSTRACT: The authors undertook this study because of the need to know more about the kinetics of creep under very small loads in order to formulate a view on the processes occurring during high-temperature creep in crystalline material. At such loads it may be assumed that the elementary processes accompanying diffusion-viscosity transformation of shapes in the mosaic blocks and the process of diffusion, climbing of dislocation will not be masked by the effects of plastic deformation and may thus be studied in pure form. The authors have measured the rate of creep in single crystals of NaCl at 750 and 780C and in single crystals of KCl at 700 and 750C. The applied load ranged from 1 to 100 g/mm². It is shown that under the conditions of the experiment the rate of lengthening observed is not due to

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L 18125-63

ACCESSION NR: AP3003886

A diffusion-viscosity transformation of shapes in the mosaic blocks, but is apparently determined by the climbing motion of dislocations. Here, the "active" dislocations may be dislocations that existed in the sample by virtue of its previous history and that arise during creep because of the presence of appropriate sources. "In conclusion we express our thanks to I. M. Lifshits for useful discussions of the results." Orig. art. has: 8 figures and 4 formulas. 18

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet (Khar'kov State University);
Vsesoyuznyy institut monokristallov (All-Union Institute of Single Crystals)

SUBMITTED: 15Feb63

DATE ACQ: 15Aug63

ENCL: 00

SUB CODE: PH, ML

NO REF SOV: 009

OTHER: 007

Card 2/2

L 19163-63 EWT(1)/EWP(q)/EWT(m)/EWP(b)/BDS. AFPTC/ASD/ESD-3/IJP(C) JD/JG
ACCESSION NR: AP3005329 8/0181/63/005/008/2219/2227

AUTHORS: Geguzin, Ya. Ye.; Dzyuba, A. S.; Kosevich, A. M.

72
65

TITLE: Healing of isolated voids in a crystalline body by uniform pressure

SOURCE: Fizika tverdogo tela, v. 5, no. 8, 1963, 2219-2227

TOPIC TAGS: healing, void, crystal, pressure, kinetics, Na, Cl, creep, high temperature, elastic limit

ABSTRACT: Experimental studies have been made to trace the kinetics of healing isolated voids in single crystals of NaCl when the crystals are subjected to externally applied gas pressure under uniform compression. The observed kinetics are explained by increased gas pressure in the voids as a consequence of decreased volume of the voids. Calculations have been made for the kinetics of healing isolated voids within the framework of "Odqvist's scheme" (F. Odqvist, Acta Polytechnica, 2, 125, 1953). By comparing experimental and computed kinetic curves, the value of the elastic limit in a single crystal of NaCl has been determined for the region of pre-fusion temperatures. The value obtained,

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ACCESSION NR: AP3005329

7

$\sim 45-55 \text{ g/mm}^2$, is found to be near the value determined optically at room temperature by R. I. Garber and L. M. Polyakov (FTT, 2, 974, 1960). Other parameters determining the kinetics of healing voids agree with values obtained by direct experiments on high-temperature creep in single crystals by Ya. Ye. Geguzin, V. L. Rabets, and A. A. Chernyshov (FTT, 5, 891, 1963). Orig. art. has: 8 figures and 19 formulas.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo
(Kharkov State University)

SUBMITTED: 20Mar63

DATE ACQ: 06Sep63

ENCL: 00

SUB CODE: PH

NO REF SOV: 010

OTHER: 003

Card 2/2

GEUZIN, Ya.Ye.; KOVALEV, G.N.; OVCHARENKO, N.N.

Studying self-diffusion in the surface layer of gold by the "mass transfer" and radioisotope methods. Fiz. tver. tela 5 no.12:3580-3589 D '63.
(MIRA 17:2)

1. Khar'kovskiy gosudarstvennyy universitet i Ukrainskiy institut metallov.

GEGUZIN, Ya.Ye.; DZYUBA, A.S.

Effect of pressure on the interdiffusion of metals in connection with the effect of the occurrence of diffusion porosity. Fiz. met. i metalloved. 15 no.2:290-202 F '63. (MIRA 16:4)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gor'kogo.
(Metallography) (Diffusion)

S/020/63/149/004/011/025
B104/B186

AUTHORS: Geguzin, Ya. Ye., Rabets, V. L.

TITLE: On the dislocation structure of single NaCl crystals which have been creep tested

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 149, no. 4, 1963, 818 - 821

TEXT: Large single NaCl crystals grown by the Kirpulus method were annealed carefully and were split along the cleavage planes to plates with a thickness of 5 mm. The samples were polished than and obtained a cross_section of 5.5 mm. These samples were loaded at room temperature in the [100] direction, heated at a rate of 20°/min up to the isothermal holding temperature, kept at this temperature until the necessary elongation was approached and then cooled slowly. It was proved that the block structure and the dislocation distribution in the natural glide planes of samples which have been creep tested depends mainly on whether cooling proceeds under a load or not. The higher the temperature from

Card 1/2

On the dislocation structure of ...

S/020/63/149/004/011/025
B104/B186

which the sample is cooled down, the more marked is the "running" of the dislocations from internal regions of the block to existing boundaries. It is also shown that with increasing relative deformation the number of the coarse blocks decreases and the maximum of the block-size distribution function shifts to smaller block sizes. Results show that high-temperature creeping of NaCl crystals produces a dispersion of the blocks and that the dispersion rate in the course of the isothermal test decreases. In a later state the blocks stabilize and the mean size is the smaller the higher the load which has been applied. There are 4 figures.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo
(Khar'kov State University imeni A. M. Gor'kiy)
Vsesoyuznyy institut monokristallov (All-Union Institute
of Single Crystals)

PRESENTED: November 2, 1962, by P. A. Rebinder, Academician

SUBMITTED: October 29, 1962

Card 2/2

L 16967-63

AFTC/ASD

JII

EWP(q)/EWT(m)/BDS S/020/03/149/000/001/001

37

AUTHCR:

Geguzin, Ya. Ye., and Kovalev, G. N.

TITLE:

Self-diffusion at the surface of polycrystalline silver 7

PERIODICAL:

Akademiya nauk SSSR. Doklady. v. 149, no. 6, 1963, 1290-1292

TEXT:

The authors investigated the diffusion of atoms at the surface of a solid on the basis of the surface self-diffusion of silver, by using the "layered specimen" method. This method makes it possible, when determining the coefficient of surface diffusion D_s , to take into account the loss of the diffusing component from the surface of the specimen into space and to evaluate the thickness of the surface layer δ_s in which this process takes place. The "layered specimen" method consists taking foil sheets of the metal whose surface diffusion is to be investigated and assembling them into a packet in which the individual sheets are in contact only at certain points of natural roughness of the surface. The packet is exposed to a radioactive isotope at a straight angle to the plane of the foil sheets, and subsequently the sheets are analyzed for the concentration (activity) of the diffused isotope as a function of distance x from the starting plane $\ln \bar{C} = \psi(x^{1/3})$. Quantitative results of the investigation are presented. There are 2 figures.

ASSOCIATION: Khar'kovskiy gosudarstvennyy institut im. A. M. Gor'kogo; Ukrainskiy institut metallov (Khar'kov State University imeni A. M. Gori'iy; Ukrainian Institute of Metals)

SUBMITTED: October 29, 1962

Card 1/1

ACCESSION NR: AP4011733

s/0181/64/006/001/0029/0034

AUTHORS: Geguzin, Ya. Ye.; Solunskiy, V. I.

TITLE: Discharge of excessive vacancies in the diffusion band

SOURCE: Fizika tverdogo tela, v. 6, no. 1, 1964, 29-34

TOPIC TAGS: vacancy discharge, excess vacancy, diffusion band, semiconductor, internal discharge, external discharge, diffusion pair, pore, vacancy saturation, dislocation, trapping coefficient

ABSTRACT: In the diffusion band of laminated samples made up of two mutually soluble substances in contact along a plane (or in the surface layer of samples from which the volatile component has been removed) excess vacancies arise during diffusion. The authors have examined the relative role of internal and external discharge of vacancies in the diffusion band. They have shown that in the early stages of the process a dominant role is played by external discharge (the interface of a diffusion pair) and at later stages by inner discharge (pores). In the later stages saturation of vacancies declines in the diffusion band. An experiment

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ACCESSION NR: AP4011733

on the system KCl-KBr has shown that the role of dislocations as possible discharging agents of excess vacancies at the investigated stage is small. This apparently signifies a low "trapping coefficient" of vacancies on encounters with dislocations. Orig. art. has: 3 figures and 20 formulas.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet (Kharkov State University)

SUBMITTED: 19Jun63

DATE ACQ: 14Feb64

ENCL: 00

SUB CODE: PH

NO REF SOV: 005

OTHER: 004

Card 2/2

GEGUZIN, Ya.Ye.; SOLUNSKIY, V.I.; KAGANOVSKIY, Ya.S.

Mechanism and kinetics of the growth of negative crystals
(pores) during interdiffusion in alkali metal halide single
crystals of the system KCl - KBr. Kristallografiia 9
no.2:248-254 Mr-Apr'64. (MIRA 17:5)

1. Khar'kovskiy gosudarstvennyy universitet imeni Gor'kogo.

GEGUZIN, Ya.Ye.; SOLUNSKIY, V.I.

Growth of negative crystals (pores) in the diffusion zone during mutual diffusion in alkali halide single crystals. Kristallografiia 9 no.4:577-578 J1-Ag '64.

(MIRA 17:11)

1. Kha'kovskiy gosudarstvennyy universitet.

GEGUZIN, Ya.Ye.; SOLUNSKIY, V.I.

Effect of the electric field on the development of porosity
during mutual diffusion in singlealkali-halogen crystals. Dokl.
AN SSSR 156 no. 3:644-646 '64. (MIRA 17:5)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M.Gor'kogo.
Predstavleno akademikom P.A.Rebinderom.

L 3892-66 ENT(1)/ENT(m)/T/EWP(t)/ENP(b) LJP(c) JD/GG
ACCESSION NR: AP5017495 UR/0368/65/002/006/0552/0554
535.436

AUTHOR: Geguzin, Ya. Ye.^{44.5}; Dobrovinskaya, Ye. R.^{44.5}; Podorozhanskaya, N. M.^{44.5}

TITLE: Spectrophotometric investigation of the diffusion of thallium ions in KI and NaI single crystals at high temperatures

SOURCE: Zhurnal prikladnoy spektroskopii, v. 2, no. 6, 1965, 552-554

TOPIC TAGS: scintillator, thallium, sodium, potassium, iodide, physical diffusion, activated crystal

ABSTRACT: The purpose of the investigation was to determine the diffusion ability of the Tl^{+} activator ion in the lattice of the single-crystal host and its effect on the scintillating properties of the crystal. The spectrophotometric procedure employed consists of successively removing thin layers from the surface of the diffusion-annealed single crystal and analyzing the remaining (principal) part of the crystal spectrophotometrically to determine the intensity of the maximum absorption band due to the presence of the diffusing component. The diffusion coefficient is determined from the dependence of the integral absorption at the maximum of the band on the thickness of the removed layer. The tests were made on single-crystal samples of the form of plates (10 x 8 x 5 mm) in sealed and evacuated ampoules.

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L 3892-66

ACCESSION NR: AP5017495

The following expressions are derived for the temperature dependence of the diffusion coefficients of Tl^+ in single crystals of KI (444--656C) and NaI (443--620C):

$$D_{Tl^+ - KI} = 8 \cdot 10^{-8} e^{-\frac{1.17}{RT}}$$

$$D_{Tl^+ - NaI} = 10^{-8} e^{-\frac{1.8}{RT}}$$

Orig. art. has: 3 figures and 3 formulas.

ASSOCIATION: None

SUBMITTED: 30 Jun 64

ENCL: 00

SUB CODE: SS, OP

NR REF SOV: C05

OTHER: 001

Beh

Card 2/2

L 24912-65 EEC(b)-2/EWT(1)/EWT(m)/I/EWA(d) IJP(c)

ACCESSION NR: AP5003414

S/0181/65/007/001/0062/0074

AUTHORS: Lifshits, I. M.; Goguzin, Ya. Ye.

TITLE: Surface phenomena in ionic crystals

SOURCE: Fizika tverdogo tela, v. 7, no. 1, 1965, 62-74

TOPIC TAGS: ionic crystal, surface property, vacancy distribution, charge distribution, potential distribution

ABSTRACT: The author analyzes consecutively the distribution of charge and potential near the surface of an ionic crystal. This includes the equilibrium distribution of anion and cation vacancies near the surface, based on a study of the equilibrium concentration of vacancies in an ordered two-component structure. The width of the double electric layer near the surface, resulting from the accumulation of vacancies of a definite sign or of other charged impurities on the surface, is calculated. The stationary distribution

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23
14
B

L 24912-45

ACCESSION NR: AP5003414

of the vacancies in the presence of diffusion currents is considered, when the equilibrium concentrations of the vacancies near the different surfaces are not the same, owing to differences in applied voltages. By way of an example, the distribution is determined of the vacancies near an isolated spherical pore whose surface is under a Laplace pressure. The charge that concentrates around the isolated pore and the conditions for its compensation are calculated. The compensation of charges in an ionic-crystal region containing an ensemble of pores is also discussed. The effect of surface curvature or abrupt discontinuities in the surface is pointed out. Orig. art. has: 2 figures and 46 formulas.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet (Khar'kov State University)

SUBMITTED: 18Jun64

ENCL: 00

SUB CODE: SS

NR REF SOV: 001

OTHER: 002

Card

2/2

L 690-125 EEC(L)-2/TWA(L)/WV(L)/EWT(M)/EWP(S)/T/EMP(S) PL-3 1J(L) GG/JD/JS
ACCESSION No: AP5006885 8/0181/65/007/003/0802/0810

AUTHOR: Geguzin, Ya. Ye.; Solunskiy, V. I.; Reznik, L. M.

TITLE: On the phenomenon of "vacancy breakdown" during mutual diffusion in alkali-halide single crystals

SOURCE: Fizika tverdogo tela, v. 7, no. 3, 1965, 802-810

TOPIC TAGS: alkali halide, single crystal, mutual diffusion, diffusion porosity, vacancy breakdown

ABSTRACT: This is a continuation of earlier experiments on the mutual diffusion in alkali-halide single crystals (Kristallografiya v. 9, 248, 1964) and presents the results of an investigation of the influence of an external electric field on the mechanism and kinetics of occurrence of diffusion porosity in connection with the dislocation structure of real crystals. The systems investigated were KCl-KBr and NaCl-NaBr. The preparation of the samples and the test procedure are described. The studies of the mutual diffusion in these systems have shown that chains of pores are initiated in the diffusion zone and can develop with preferred orientation along the applied field. In samples with the contact made along the (100) plane needle-like pores were produced perpendicular to the plane of the contact

Card 1/2

L 49049-65

ACCESSION NR: AP5006885

(i.e., parallel to the field). The lengths of the needles varied in different sections of the diffusion zone. When the samples were in contact along the (110) plane, the type of pore structure depended on the field applied. A phenomenological description of this phenomenon, called "vacancy breakdown," is proposed to explain this phenomenon. A similarity is found between the formation of the pore chains and the arrangement of nuclei of electric breakdown in crystals. A distinguishing feature of the kinetics of this process is that repeated heating and cooling cycles do not cause lengthening of already existing chains, although new chains are produced. Orig. art. has: 9 figures and 5 formulas.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo (Khar'kov State University)

SUBMITTED: 05/3ep64

ENCL: 00

SUB CODE: 88

NR REF SOV: 003

OTHER: 002

Card 2/2 CC

L 58876-65 EMT(1)/EMT(a)/T/EMP(t)/EEC(b)-2/EMP(b)/EWA(c) P1-4 IJP(c)

JD/GG

ACCESSION NR: AP5017298

UR/0181/65/007/007/2058/2063

AUTHOR: Geguzin, Ya. Ye.; Dobrovinskaya, Ye. R.

40
37
B

TITLE: Diffusion of thallium ions along dislocations in a single crystal of potassium iodide

21

A

SOURCE: Fizika tverdogo tela, v. 7, no. 7, 1965, 2058-2063

TOPIC TAGS: thallium, potassium iodide, crystallography, crystal lattice dislocation

21

ABSTRACT: The spectrophotometric and isotopic experimental methods were used to investigate the contribution of thallium ion diffusion along the edge and spiral dislocations to the total diffusion flux in single crystals of KI. Two single crystals of KI with different dislocation densities ρ_1 and ρ_2 ($\sim 2 \cdot 10^5$ and $\sim 2 \cdot 10^6$ cm⁻²) separated by a thallium layer were annealed simultaneously. The $\sigma = f(x)$ curves were obtained by the two methods. In the spectrophotometric method the single crystal with a certain established distribution of concentrations produced by diffusion annealing was subjected to subsequent polishing of the thin layers. The amount of diffused material in the remaining (principal) part of the crystal was determined from the

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L 58876-65

ACCESSION NR: AP5017298

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intensity of the absorption band maximum which is due to the presence of absorbed components. In the isotopic method a layer of radioactive Tl^{204} was placed between the two crystals. The intensity of the layers was measured with SI-23 counters. According to the data which were obtained the temperature dependence for the edge and spiral dislocations is given by the following relationships:

$$(D_d S)_{\text{edge}} = 2 \cdot 10^{-13} \exp \left(- \frac{0.51 \pm 0.03}{kT} \right),$$

$$(D_d S)_{\text{spiral}} = 5 \cdot 10^{-13} \exp \left(- \frac{0.63 \pm 0.03}{kT} \right).$$

The values obtained for the energy of activation are in agreement with the proposition that the nucleus ("dislocation tube") is more distorted in the case of edge dislocation than in the case of spiral dislocation. It is shown that the edge dislocations are characterized by a higher diffusion permeability than the spiral dislocations. Orig. art. has: 3 figures, 9 formulas.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo (Kharkov State University); VNII monokristallov (VNII of Single Crystals)

Card 2/3

L 58876-65
ACCESSION NR: AP5017298

SUBMITTED: 18Jan65

ENCL: 00

0
SUB CODE: SS, *NP*

NO REF SOV: 007

OTHER: 008

EW
Card

3/3

L 57580-65 EWT(1)/EPA(s)-2/EWT(m)/EWP(w)/EPF(c)/EPF(n)-2/EWA(d)/T/EWP(t)/EFC(b)-2/
 EWP(b)/EWA(c) Pr-4/Pt-7/P1-4/Pu-4 IJP(c) JD/JG/GG
 UR/0070/65/010/003/0:71/0379
 ACCESSION NR: AP5013718 548.4

65
64
B

AUTHOR: Geguzin, Ya. Ye.; Ovcharenko, N. N.; Vorob'yeva, I. V.

TITLE: Investigation of phenomena on the surface of single crystals. On the mechanism and kinetics associated with the healing of deep cracks on the surface of ionic single crystals.

SOURCE: Kristallografiya, v. 10, no. 3, 1965, 371-379

TOPIC TAGS: crystallography, crystal imperfection, ionic crystal

ABSTRACT: The healing mechanism of deep cracks in single NaCl crystals was observed experimentally. Cracks were introduced artificially in single crystals using a razor blade or a special heated knife with an apex angle of 30° which was slowly pressed into the sample. Heat treatment was done in the region just below the melting point and was interrupted sporadically to observe changes occurring in the crack opening. A long-focus optical system was used so that the changes in the crack could be observed without destroying the sample. During isothermal annealing, the crack opening is displaced due to the influx of material. A large number of pro-

Card 1/2

L 57580-65

ACCESSION NR: AP5013718

trusions form at the crack opening giving it an ulcerated front. In some places bridges form. The healing of the crack is accomplished by at least two processes which take place simultaneously: 1) the closing of the crack accompanied by change in its apex angle; 2) the transport of material from the plane regions of the crack profile to its mouth. Approximate calculations are derived and presented for the displacement of the crack opening during healing assuming that the mechanism is one of diffusion in a gaseous medium. Results of analogous calculations assuming volumetric diffusion and surface diffusion are presented without derivation. Theoretical considerations show that the application of stress during healing decreases the flare angle and should substantially accelerate the self-healing. This was confirmed in experiments with single NaCl crystals by applying 7 to 120 gram weights per mm² perpendicular to the plane of the crack. Orig. art. has: 8 figures, 1 table, 7 formulas.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet (Kharkov State University)

SUBMITTED: 22Jun64

ENCL: 00

SUB CODE: SS

NO REF SOV: 006

OTHER: 001

Card ^{AR} 2/2

L 31857-65 EWT(m)/T/EWP(t)/EWP(b) Pad IJP(c) JD/RA

ACCESSION NR: AP5004270

S/0126/65/019/001/0094/0100

23
22
P

AUTHOR: Geguzin, Ya. Ye.; Paritskaya, L. N.

TITLE: The effect of reversing the preferential flow of vacancies during reciprocal diffusion in crystal bodies 18

SOURCE: Fizika metallov i metallovedeniye, v. 19, no. 1, 1965, 94-100

TOPIC TAGS: vacancy flow, interdiffusion, preferential flow, Kirkendall effect, Frenkel effect, macroscopic defect, diffusion pair, structural nonequilibrium, volume diffusion, diffusion porosity, copper alloy, nickel alloy

ABSTRACT: It has been shown experimentally that the preferential flow of lattice vacancies can be changed not only in magnitude but also in direction. The experiments in which the direction and magnitude of the preferential flow of lattice vacancies were studied involved the use of samples made up of macrocrystalline polycrystals free of large lattice distortions; this made the diffusion in them differ little from the diffusion in a monocrystalline sample. The effect of macroscopic defects on the diffusion in crystal bodies prompts the assumption that it is possible to reverse the preferential flow of lattice vacancies; in equilibrium systems such a flow results from the inequality of the partial diffusion factors of the component atoms. Tests with copper-nickel samples, in which the degree
Card 1/2

L 31857-65

ACCESSION NR: AP5004270

of nonequilibrium between the copper and nickel was artificially changed, confirmed the possibility of reversing the preferential flow of lattice vacancies. Orig. art. has: 6 figures, 1 table and 1 formula.

ASSOCIATION: Khar'kovskiy gosuniversitet imeni A. M. Gor'kogo (Khar'kov state university)

SUBMITTED: 02Jan64

ENCL: 00

SUB CODE: SS

NO REF SOV: 007

OTHER: 000

Card 2/2

GEGUZIN, Ya.Ye.; GERLOVSKAYA, L.V.; GLADKIKH, N.P.; PALATNIK, L.S.;
PARITSKAYA, L.N.

Diffusion activity of vacuum condensates in connection with
the effect of reversing the flow of vacancies. Fiz. met. i
metalloved. 20 no.4:636-639. 0 '65.

(MIRA 18:11)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M.
Gor'kogo.

GEGUZIN, Ya.Ye.; BOYKO, Yu.I.

Effect of low pressures on mutual diffusion in ionic single
crystals. Dokl. AN SSSR 160 no.2:317-320 Ja '65. (MIRA 18:2)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M. Gor'kogo.
Submitted June 17, 1964.

L 53010-65 EWT(1)/EWT(m)/T/EWP(t)/EEC(b)-2/EWP(b)/EWA(c) P1-4 IJF(c) JD/

JG/GG
ACCESSION NR: AP5010577

UR/0020/65/161/003/0575/0576

AUTHOR: Geguzin, Ya. Ye.; Matsokin, V. P.; Eyzov, E. A.

TITLE: Effect of weak electric fields on the distribution of dislocations in an ensemble in alkali-halide single crystals at high temperatures ³¹₃₀^B

SOURCE: AN SSSR. Doklady, v. 161, no. 3, 1965, 575-576, and insert facing p. 576

TOPIC TAGS: dislocation motion, alkali¹ halide², single crystal, high temperature behavior, dislocation distribution, diffusion mobility

ABSTRACT: The authors describe some singularities which they observed in the re-distribution of dislocation in ensemble in single-crystal KCl and KBr in weak fields (~ 10--100 V/cm) and at high temperatures, when the motion of dislocation can be due to the appreciable diffusion mobility of the ions. The experiments were made with a single crystal grown by the Kiropoulos method from spectrally pure raw material, and split along the cleavage planes. During the course of high temperature annealing, a field ~ 50 V/cm was applied to the sample, with a corresponding density $j = 3 \mu\text{A}/\text{cm}^2$. After annealing for different lengths of time, the sample was slowly cooled in the field and its structure before and after cooling was determined at room temperature, so as to trace the dislocation distribution. The results showed

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L 53010-65

ACCESSION NR: AP5010577

the distribution of the dislocation in the (100) plane to be uneven, with a preferred clustering observed at the end of the crystal with the positive potential. The dislocation density exhibited a nonmonotonic variation with the coordinate. Macroscopic pores developed and grew in regions where the dislocation density reached a maximum. The number of porous zones seen in an optical microscope at 340x magnification was proportional to the quantity of electricity passing through the crystal and thus proportional to the annealing time. The time necessary to establish an inhomogeneous dislocation distribution ranged from 5 to 15 seconds. Control experiments have shown that the described phenomena did not depend on the material from which the electrode was made. It is premature to analyze the observed results and the investigation is still being continued. This report was presented by P. A. Rebinder. Orig. art. has: 2 figures.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo (Khar'kov State University)

SUBMITTED: 07Jan65

ENCL: 00

SUB CODE: 88,TD

NR REF SOV: 002

OTHER: 001

gal
gard 2/2

GEGUZIN, Ya.Ye.; OVCHARENKO, N.N.

Motion of macroscopic gaseous inclusions in NaCl single crystals under the action of small electric fields. Dokl. AN SSSR 163 no.3:621-623 J1 '65. (MIRA 18:7)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M.Gor'kogo. Submitted November 30, 1964.

L 13112-66 EWT(1)/EWT(m)/I/EWP(t)/EWP(b)/ENA(c) IJP(c) JD/GG

ACC NR: AP6000845

SOURCE CODE: UR/0181/65/007/012/3498/3501

AUTHORS: Geguzin, Ya. Ye.; Dobrovinskaya, Ye. R.

ORG: Khar'kov State University im. A. M. Gor'kiy (Khar'kovskiy gosudarstvennyy universitet

33
82
B

TITLE: Self-diffusion of positive Na ions along edge and screw dis-
locations in NaCl single crystals

SOURCE: ^{21,44,55} Fizika tverdogo tela, v. 7, no. 12, 1965, 3498-3501

TOPIC TAGS: sodium chloride, physical diffusion, crystal dislocation phenomenon, single crystal.

ABSTRACT: This is a continuation of earlier experiments by the authors (FTT v. 7, 2058, 1965) and the purpose of the investigation was to obtain information on the structure of the dislocation nucleus in the crystal and on the diffusion penetrability of the dislocations. The diffusing component was the isotope Na²², sputtered in vacuum on single-crystal NaCl samples grown by the Kiropoulos method from high-purity material. The concentration distribution was determined by gradual removal of layers. The intensity of the removed layers was measured with an end-window counter (SI-2B). The information on the diffusion cur-

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L 13112-66

ACC NR: AP6000845

rents along the dislocations was obtained by comparing the plots of the concentration as functions of the depth of two single crystals which differ only in the dislocation density. The tests were made under two sets of conditions, with overlap of the diffusion bands (Hart model; Acta. met. v. 5, 597, 1957), and without overlap (Smoluchowski model; Phys. Rev. 87, 482, 1952). The variation of the concentration with the depth agreed with the Hart model. Two different methods of determining the total dislocation flux were employed and gave similar results. It is concluded that both screw and edge dislocations exhibit an increased diffusion penetrability with respect to the Na^+ ion. Orig. art. has: 2 figures and 5 formulas.

SUB CODE: 20/ SUMB DATE: 13May65/ ORIG REF: 002/ OTH REF: 006

Card

2/2 HW

GEGUZIN, Ya. Ye.; DOBROVINSKAYA, Ye.R.

Self-diffusion of Na⁺ ions along edge and screw dislocations in
NaCl single crystals. Fiz. tver. tela 7 no. 12:3498-3501 D '65
(MIRA 1961)

1. Khar'kovskiy gosudarstvennyy universitet imeni Gor'kogo.

L 30198-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/JG
ACC NR: AP6012516 SOURCE CODE: UR/0181/66/008/004/1304/1306

AUTHORS: Geguzin, Ya. Ye.; Solunskiy, V. I.; Boyko, Yu. I.

54
B

ORG: Khar'kov State University im. A. M. Gor'kiy (Khar'kovskiy gosudarstvennyy universitet)

TITLE: Mutual diffusion in KCl-KBr single crystals in a constant external electric field

SOURCE: Fizika tverdogo tela, v. 8, no. 4, 1966, 1304-1306

TOPIC TAGS: potassium chloride, potassium bromide, sandwich structure, physical diffusion, electric field, crystal vacancy

ABSTRACT: This is a continuation of earlier work by the authors (DAN SSSR v. 160, 317, 1965 and v. 156, 644, 1964). The experiments consisted of annealing a sandwich structure KCl-KBr-KCl at temperatures 530, 580, 620, 650, and 680C in a constant electric external field. The field intensity varied from 10 to 150 v/cm, with the field vector perpendicular to the plane of contact between the single-crystal plates. A slight pressure was applied to eliminate the porosity due to diffusion. The concentration distribution was determined by removal of layers followed by determination of the crystal lattice parameter with the aid of a diffractometer (URS-50). The results showed that the external electric

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L 30198-66

ACC NR: AP6012516

field shifts the concentration curve somewhat and deforms it slightly. The experimental data can be used to determine the effective coefficient of chemical diffusion in two ways: from the concentration distribution curve and from the shift of the concentration curve obtained in experiments without application of the field and from the shift due to the field. An important result of the comparison of the diffusion coefficients is that the ratio of the coefficient without and with field increases with increasing temperature. This indicates that some of the vacancies are electrically neutral. This may also explain the reason why the concentration curve shifts more towards the KCl than the KBr. Orig. art. has: 2 figures and 3 formulas.

SUB CODE: 20/ SUBM DATE: 22Nov65/ ORIG REF: 003/ OTH REF: 002

Card

2/2 CC

L 01825-67 EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) JD/CG

ACC NR: AP6030952 SOURCE CODE: UR/0181/66/008/009/2558/2565

AUTHOR: Geguzin, Ya. Ye. ; Matsokin, V. P.

44
43 B

ORG: Khar'kov State University im. A. M. Gor'kiy (Khar'kovskiy gosudarstvennyy universitet)

TITLE: The "disintegration" effect in dislocation boundaries in high-temperature annealing of crystals under stress

SOURCE: Fizika tverdogo tela, v. 8, no. 9, 1966, 2558-2565

TOPIC TAGS: crystal dislocation, crystal deformation, dislocation, boundary, dislocation boundary, high temperature deformation, crystal annealing, high temperature annealing

ABSTRACT: The authors determined experimentally the "disintegration" effect of dislocation boundaries in crystals in which stress is maintained from the outside by an applied force. The considerations presented by the authors on the mechanism of this phenomenon are substantiated by experiments on the high-temperature deformation of dislocated crystals as in pure four-point flexure. An analysis is given of the relative role of the mechanism of diffusional "ascent" and sliding in the

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L 01825-67

ACC NR: AP6030952

"disintegration" process. The authors express their gratitude to V. V. Indenbom for a discussion of the experiments conducted. Orig. art. has: 6 formulas, 1 table, and 8 figures. [Authors' abstract] [SP]

SUB CODE: 20/ SUBM DATE: 03Jan66/ ORIG REF: 002/ OTH REF: 004/

Card 2/2

L 04839-07 SUT(1)/SUT(m)/S T(t)/ATI

ACC NR: AP6024390

SOURCE CODE: UR/0020/66/169/002/0324/0327

27
B

AUTHOR: Geguzin, Ya. Ye.; Dobrovinskaya, Ye. R.

ORG: Khar'kov State University (Khar'kovskiy gosudarstvennyy universitet); All-Union Scientific Research Institute of Single Crystals, Scintillation Materials, and Especially Pure Chemical Substances (Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov, stsintilyatsionnykh materialov i osobo chistykh khimicheskikh veshchestv)

TITLE: Diffusion penetrability of different defects in KCl and KI single crystals

SOURCE: AN SSSR. Doklady, v. 169, no. 2, 1966, 324-327

7-7

TOPIC TAGS: potassium chloride, iodide, crystal defect, physical diffusion, crystal dislocation phenomenon

ABSTRACT: In view of the importance that attaches to data on the diffusion penetrability of defects of different types in the same crystal with respect to the same species of atoms, the authors report results of measurements of the diffusion coefficients along the intergrain boundaries and edge and screw dislocations, obtained in experiments on the diffusion of Tl⁺ in KCl and KI single crystals. The product of the diffusion coefficient by the area of the diffusion fronts was determined by a method based essentially on different hypotheses concerning the overlap of the diffusion zones produced around a single dislocation, and consisting in carrying out the measurements simultaneously on two different crystals having different dislocation densities. The measurements were made in a temperature interval 200 - 540°. The

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UDC: 539.216.3

L 04639-67

ACC NR: AP6024390

diffusion of the Tl was determined from the change in the microhardness of the crystals, induced by the Tl. It is concluded that diffusion along the vacancies is smallest, followed by diffusion along edge dislocations, diffusion along screw dislocations, and diffusion in the host substance. Conclusions concerning the relative migration energies along different defects are drawn from the results. This report was presented by Academician P. A. Rebinder 18 October 1965. Orig. art. has: 2 figures and 6 formulas.

SUB CODE: 20/ SUBM DATE: 15Oct65/ ORIG REF: 007/ OTH REF: 010

awm

Card 2/2

ACC NR: AP6036966

(A, N)

SOURCE CODE: UR/0181/66/008/011/3248/3253

AUTHOR: Gegusin, Ya. Ye.; Mosharov, M. V.; Dobrovinskaya, Ye. R.; Lev, I. Ye.

ORG: Kharkov State University (Khar'kovskiy gosudarstvennyy universitet); All-Union Scientific Research Institute of Single Crystals, Kharkov (Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov)

TITLE: Diffusion of cations along boundaries in alkali halide bicrystals

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3248-3253

TOPIC TAGS: physical diffusion, alkali halide, activation energy

ABSTRACT: The self-diffusion and diffusion of Ag^+ , Tl^+ , K^+ , Na^+ , Ni^{++} and Ca^{++} cations along boundaries in KCl, NaCl and KI bicrystals grown by the Kyropoulos method were studied. The distribution of diffusing cations in the boundary region was determined by autoradiography. The role of defects in the diffusion process was described by their diffusional penetrability $\Phi = DS$, where D is the diffusion coefficient and S the cross-sectional area of the diffusion front. The temperature dependence $\Phi = \Phi_0 e^{-\frac{Q}{RT}}$, where Q_0 is the activation energy of boundary diffusion of univalent

ions, was determined experimentally. Q_0 was found to be close to the activation energy of diffusion along an edge dislocation Q_d and to the activation energy of volume diffusion Q_v in the low-temperature (impurity) region. It is postulated therefore

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ACC NR: AP6036966

that the elementary diffusion event is similar in all three cases and consists in the jump of the atoms into the neighboring vacancy. It is concluded that the degree of looseness of the boundary is largely independent of temperature, assuming that the boundary width is substantially less dependent on temperature than is the diffusion coefficient. Orig. art. has: 6 figures, 1 table and 6 formulas.

SUB CODE: 20/ SUBM DATE: 11Apr66/ GRID REF: 004/ OTH REF: 014

Card 2/2

ACC NR: AP7004392

SOURCE CODE: UR/0226/67/000/001/0020/0026

AUTHOR: Geguzin, Ya. Ye. ; Paritskaya, L. N.

ORG: Khar'kov State University (Khar'kovskiy gosudarstvennyy universitet)

TITLE: Model study of the initial stage of pressure sintering

SOURCE: Poroshkovaya metallurgiya, no. 1, 1967, 20-26

TOPIC TAGS: sintering, model test, surface pressure, powder metal sintering, pressure sintering

ABSTRACT: The kinetics of changes in the area of the particle contact surface in pressure sintering have been determined from changes in the specific gravity of large sintered spheroidal particles. Details of the mechanism of sintering large powder particles are established. The procedure for sintering copper spheroidal particles to a copper plate is described. The dependence of the effective viscosity on pressure is determined. Orig. art. has: 17 formulas, 5 figures, and 1 table.

SUB CODE: 11/SUBM DATE: 27May66/ORIG REF: 005/OTH REF: 009/ [AM]

Card 1/1

ACC NR: AP7008110 SOURCE CODE: UR/0020/67/172/004/0820/0822
AUTHOR: Geguzin, Ya. Ye.; Boyko, Yu. I.
ORG: Khar'kov State University (Khar'kovskiy gosudarntveenny universitet)
TITLE: Effect of x-ray irradiation on interdiffusion in alkali halide single crystals
SOURCE: AN SSSR. Doklady, v. 172, no. 4, 1967, 820-822
TCPIC TAGS: irradiation effect, x ray irradiation, single crystal, ionic crystal, *ALKALI HALIDE*

ABSTRACT: An experimental investigation was made of the interdiffusion in alkali halide single crystals under conditions of diffusion annealing at constant irradiation. The three-layered A-B-A specimens were KCl-KBr and NaCl - NaBr systems. The thickness of crystal plate A was selected in such a way that the attenuation of the penetrated beam would be 50 to 70%. The thickness of A was 150-200 μ ; that of B, 2 mm. The diffusion in the A+B contact occurred under the effect of x-irradiation, while in the B+A contact the diffusion occurred under usual conditions because of the considerable thickness of B, which absorbed the radiation. The other conditions (temperature, annealing time) in A+B and B+A contacts were identical. In a KCl-KBr system at

Card 1/2 UDC: 537.226:539.219.3+537.311.33:539.219.3

ACC NR: AP7008110

560° the effective diffusion coefficient in the irradiated specimens (D_R), determined according to Motano, appeared to be lower than in nonirradiated specimens (D_0) by almost one order. With an increase in temperature the difference in diffusion coefficients D_R and D_0 diminishes and at temperatures of 620 and 680° the diffusion coefficients were identical in irradiated and nonirradiated diffusion zones. The difference in effective diffusion coefficients is associated with the difference in the total volume of the diffusion pores observed in KBr crystal. The irradiation causing a decrease of effective diffusion coefficient facilitates the growth of the total volume of pores. A qualitative similar effect of x-irradiation upon the effective diffusion coefficient was also observed in NaCl—NaBr system. A definite contribution in decreasing the effective coefficient of interdiffusion can be made by the partial attenuation of the electrodiffusion field caused by conduction electrons. The field facilitates the displacement of the most slowly diffusing ion (in the KCl—KBr system the Cl^- ion). The decrease in the mobility of the Cl^- ion should lead to a decrease of the effective diffusion coefficient. Orig. art. has: 4 figures.
[JA] [WA-95]

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 001

Card 2/2

GAYEVOY, Ye.V., kand. sel'skokhoz. nauk; VASSERMAN, B.A., inzhener-
tekhnolog; RADKEVICH, D.P., starshiy inzhener; TRUDOLYUBOVA,
G.B., mladshiy nauchnyy sotrudnik; BRYUZGINA, G.A., mladshiy
nauchnyy sotrudnik; GEGUZINA, I.Yu., mladshiy nauchnyy
sotrudnik; BLYANSKAYA, N.V., tekhnik

New method for the conservation treatment of raw leather
in a mobile apparatus. Trudy VNIIMP no.15:67-78 '63.

(MIRA 17:5)

s/0126/64/017/001/0020/0023

ACCESSION NR: APh013088

AUTHORS: Geguzina, S. Ya.; Timan, B. L.

TITLE: Propagation of sound in an elastic anisotropic two phase mixture

SOURCE: Fizika metallov i metalloved., v. 17, no. 1, 1964, 20-23

TOPIC TAGS: sound propagation, elastic anisotropic mixture, elastic adiabatic wave, internal stress, thermodynamic equilibrium, sound energy attenuation

ABSTRACT: The propagation of sound in a two-phase mixture in the isotropic case has previously been presented by M. A. Krivoglaz (FZh, 1960, 10, 497). The authors investigated the propagation of an elastic adiabatic wave in a two-phase mixture in a state of thermodynamic equilibrium. The internal stresses and temperature change arising with the passage of a wave lead to the disruption of equilibrium of the phase and give rise to an irreversible phase change, leading to the dissipation of energy and attenuation of the wave. The equation of an elastic wave in the general case is

$$\rho u_i = \frac{\partial \sigma_{ik}}{\partial x_k} \quad (1)$$

where u_i is the i-y vector component of dislocation, σ_{ik} is the stress tensor, and

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ACCESSION NR: AP4013088

ρ is the average density. A solution was sought in the form $n_i = n_{i0} e^{i(hr - \omega t)}$ (2). The elastic potential was written in a suitable form, considering the effects of temperature change and the change of the molar concentration. The case of high thermoconductivity and a low frequency was examined. The adiabatic stipulation of the process has the form

$$\delta S = -\frac{q}{T} \delta p + \frac{C_p}{T} T' + \frac{1}{2} \epsilon V \epsilon_{ii} = 0 \quad (3)$$

Here all quantities pertain to a single gram-molecule: q is the heat of the phase change, C_p is the thermal capacity of the two-phase mixture (in the absence of a phase change) with a constant pressure. For the speed of the phase change the expression of Krivoglas was used

$$\frac{dr}{dt} = -\frac{mq}{rRT^2} (T' - T_0), \quad r = \frac{mV^2}{s} \quad (4)$$

Here m is the number of gram-molecules in the system. R is the gas constant, r is the temperature dependent quantity characterizing the linear speed of growth of the phase, r is the effective size of the phase particles, s is the surface area between the phases, T_0 is the transition temperature change under the action of stresses. Considering expressions (2), (3), (4), the values δp and T' were expressed in terms of σ_{10} . In the case of a cubic crystal the thermal conductivity

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ACCESSION NR: APL013088

and thermal expansion are isotropic. If the speed of motion of the boundary between the phases is limited by the heat supply the quantity u is not directionally dependent, but if it depends on the speed of the phase change it is a function of direction. The anisotropic case was considered. The values of ρ and T'

determined above were substituted in the elastic potential expression giving components of the stress tensor in terms of the deformation tensor. The expression for the overall compression was determined and found to be a function of the frequency. For simplicity the moduli of elasticity of both phases were assumed to coincide as were the axes of symmetry similarly orientated. The propagation velocity was examined for the cubic directions $[100]$, $[110]$, $[111]$. In only one of the three directions was the speed found to be a function of frequency, and in this direction it was attenuated. The expressions for speed in the three directions were developed. They were checked with the isotropic case developed by Krivoglaz and found consistent. The relaxation time was the same in both cases. The results should prove useful in analyzing experimentally determined dependencies of the wave vector on direction in crystals having orientation formations in the second phase. They should also be of help in determining the contribution to absorption of the mechanism described in this paper and the contribution determined by a scattering at the boundary between the matrix and the second phase. Orig. art. has 35 equations.

Card 3/4

ACCESSION NR: AP4013088

ASSOCIATION: VNII monokristallov i osobo chistykh veshchestv, Khar'kovskiy gosuniversitet (VNII of Monocrystals and High Purity Substances, Kharkov State University)

SUBMITTED: 20Mar63

ENCL: 00

SUB CODE: GP, MA

NO REF SOV: 002

OTHER: 000

Card

4/4

GEUZINA, S.Ya.

Study of the dispersion of internal friction rate and coefficient of absorption of elastic waves in two phase mixtures with a unidimensional periodic structure. Fiz.met. i metalloved. 18 no.5:654-663 N '64. (MIRA 18 4

1. Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov osobo chistykh veshchestv, Khar'kov.

L 27999-66

ACC NR: AT6012880

SOURCE CODE: UR/2910/65/005/002/0241/0252

AUTHOR: Pipinis, P. A., -- Pipinys, P.; Gegzhnayte, L. Yu. --
Gegznaite, L.; Raulichkite, A. V. -- Raulickyte, A.

48
B+1

ORG: Vilnius State Pedagogical Institute (Vil'nyusskiy gosudarstvennyy pedagogicheskiy institut)

TITLE: Effect of the electric field on the photoluminescence of the ZnS-Pb crystal phosphor

SOURCE: AN LitSSR. Litovskiy fizicheskij sbornik, v. 5, no. 2, 1965, 241-252

TOPIC TAGS: crystal phosphor, luminescence, electric field, electric effect, light excitation, photoluminescence, zinc sulfide, lead

ABSTRACT: The effect has been studied of direct and alternating electric fields on the photoluminescence of ZnS-Pb crystal phosphor with various lead concentrations. A flash of luminescence appeared in the phosphor when the electric field (Gudden-Pohl effect) was switched on and off. An alternating electric field has a quenching effect on the luminescence of crystal phosphor. The dependence of the quenching effect on the variation of the electric-field frequency, field strength, and temperature was examined. The existence of an

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ACC NR: AT6012880

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optimal time interval for the development of the flash of the Gudden-Pohl effect was determined. Flashing ignition luminescence for the crystal phosphor with the highest activator concentration was observed when the samples were affected by an alternating electric field during excitation. The authors thank students V. Yanushkevichyute and G. Ostasevichyute for carrying out measurements. Orig. art. has: 9 figures. [Based on author's abstract] [NT]

SUB CODE: 20/ SUBM DATE: 16Oct64/ ORIG REF: 004/ OTH REF: 015

Card 2/2 CC

MOHAY, S., dr.; GEHER, F., dr.

Pharmacoradiographic studies of the stomach with pempidin. Ther.
hung. 11 no.1:20-23 '63.

1. Department of Radiology, Balassa Janos Municipal Hospital of
the 8th District of Budapest.
(STOMACH) (PEMPIDINE) (PHARMACOLOGY) (RADIOGRAPHY)

GEHER, F.

BANSAGI, Jozsef, dr.; GEHER, Ferenc, dr.; FREDMERSZKY, Tibor, dr.

Hygiene in aluminum industry. Nepegessegugy 36 no.7:190-196
July 55.

1. Kozlemany as Orszagos Munkagessegugyi Intezetbol (igazgato:
Timar, Miklos dr. - es a Budapesti Orvostudomanyi Egyetem
Rontgenklinikajarol (igazgato: Ratkocsy, Nandor dr.).

(INDUSTRIAL HYGIENE
in aluminum indust. in Hungary.)

(ALUMINUM,
hyg. in aluminum indust. in Hungary.)

EXS REFA MEDICA Tom 14 Vol.10/4 Radiology Apr 56

61. GÉHER F. Röntgenklin. der med. Univ. Budapest. *Bei der Aluminiumherstellung auftretende Lungenveränderungen. Pulmonary changes occurring in the aluminium industry FORTSCHR. RÖNTGENSTR. 1955, 82/5 (598-604) Tables 1 illus. 3

Aluminium ions precipitate protein and become irreversibly bound to the tissue proteins. In this way, they cause a fundamental change in the properties of the cells and destroy their vital functions. Formerly, pulmonary changes were not observed in the aluminium industry, because the stearin which was used formed a protective layer which shielded the tissue fluids. If aluminium is inhaled, there is a collagen-hyaline change in the pulmonary tissue, which leads to destruction of the respiratory parenchyma with induration and shrivelling of the lung tissue. The symptoms and the physical findings are non-characteristic. The following 2 forms of roentgenological changes are found: (1) Distinct pulmonary shadows, mostly bilateral in the median or inferior portions, the size of a small palm of the hand. (2) Pale shadow formation in the median or lower areas, composed of confluent, vaguely demarcated foci. Approximately 5% of the workers in aluminium plants show the changes described. No progress was observed over 2 years.

Brat - Oldenburg

GEHER F.
EXCERPTA MEDICA Sec.12 Vol.10/7 Ophthalmology July56

1162. GÉHER F. Röntgenklin., med. Univ., Budapest. *Röntgenmikrodosistherapie
entzündlicher Augenerkrankungen. Treatment of inflammatory
ocular affections with small doses of X-rays STRAHLEN-
THERAPIE 1955, 97/3 (362-371)
140 patients with acute and chronic inflammatory ocular diseases of different

1162 CONT

aetiology were X-irradiated with small doses of 5 to 10 r. The number of sessions per day was dependent on the degree of inflammation. These microdoses are considered as indicated in all inflammatory eye affections. The earlier the irradiation is commenced, the more favourable the results are. The causal treatment proper is not neglected. In uveitis, atropine therapy is indispensable. In an observation period of 3 yr., no lesions to the refractive media have been observed. In painful sty, X-ray irradiation can also successfully be applied. 40% of the treated cases of chronic blepharitis were cured. Scleritis and keratoscleritis also constitute a possible indication for irradiation, and favourable results were obtained in acute and chronic uveitis as well. Tuberculous forms of inflammation responded favourably to microdoses, so that this type of irradiation combined with antibiotics is recommended as the therapy of choice.

Lindemann - Hamburg (XIV, 12)

MOHAY, Sandor, dr.; GEHER, Ferenc, dr.

Pharmaco-radiographic examination of the stomach with Synapleg. Orv.
hetil. 103 no.38:1705-1709 9 S '62..

1. Budapest Fovaros VIII. ker. Tanacs Balassa Janos korhaza, Rontgenosztaly.
(STOMACH pharmacol) (AUTONOMIC DRUGS pharmacol)

GEHER, ISTVAN

Mathematical Reviews
Vol. 15, No. 2
Feb. 1964
Analysis

*Gehér, István. Sur une transformation d'intégrale.
Comptes Rendus du Premier Congrès des Mathématiciens Hongrois, 27 Août-2 Septembre 1950, pp. 507-518.

✓Akadémiai Kiadó, Budapest, 1952. (Hungarian. Russian and French summaries)

While in classical analysis the transformation formula for definite integrals is considered only for the case when the change to new variables represents a one-to-one transformation, this requirement has been found essentially irrelevant in modern researches in this field. Furthermore, the classical requirements concerning "smoothness" were replaced by assumptions based on the concept of absolute continuity [see for example the reviewer's book, Length and area, Amer. Math. Soc. Colloq. Publ., vol. 30, New York, 1948, part IV; these Rev. 9, 505]. The present paper contains various interesting contributions to this line of thought. The following theorem is typical of the type of results obtained. Let $f(x, y)$ be a continuous function in the

(OVER)

unit square $Q: 0 \leq x \leq 1, 0 \leq y \leq 1$. On the s -axis in (x, y, s) -space, let H be a Borel measurable set and $\varphi(s)$ a Borel measurable function on H . For each real number s , denote by $m(s)$ the exterior linear measure of the set of those points (x, y) where $f(x, y) = s$. The function $\varphi(f(x, y))$ of (x, y) gives rise to the set $E = \varphi^{-1}(H) \subset Q$. Assume that $f(x, y)$ is absolutely continuous in Q in the Tonelli sense. Then

$$\int_H \varphi(s) m(s) ds = \int_Q \varphi(f(x, y)) (f_x^2 + f_y^2)^{1/2} dx dy,$$

as soon as one of the two integrals involved exists.

T. Radó (Columbus, Ohio).

GEHER, K.

Construction of a parametric scale from three optional points. p. 26. ELEK*
TROTECHNIKA. (Magyar Elektrotechnikai Egyesulet) Budapest. Vol. 49, no. 1,
Jan. 1956.

SOURCE: East European Accessions List (EEAL), Library of Congress
Vol. 5, no. 6, June 1956

GEHER, Karoly

"Theory of linear circuits" by Zoltan Hennyey. Reviewed by
Karoly Geher. Elektrotechnika 52 no.3:141 '59.

GEHER, K

ELECTRICAL ENGINEERING, ELECTRONICS, 2
TELECOMMUNICATION ENGINEERING

65. Correlation analysis, K. Geher. *Magyar Műszaki Technika*, Vol. 10, 1969, No. 1, pp. 5-13, 9 figs.

Correlation functions are used for describing random phenomena in which probability variables occur. This method is used in statistical evaluations and is increasingly applied for investigating various problems in telecommunication. The notion autocorrelational function, its mathematical background and properties are briefly explained. The problems of wave propagation are examined by means of correlational functions especially in regard to fading phenomena. The working principles of the instrument used for calculating correlational functions are described.

1/1
cal

8m

GEHER, K.

On the range of value of the reflection coefficient and group velocity.
Periodica polytechn electr 4 no.3:199-204 '60. (EKAI 10:5)

1. Lehrstuhl der drahtgebundene Nachrichtentechnik der Technischen
Universität, Budapest.
(Telecommunication)

GEHER, Karoly

"Theory of four-terminal networks" by V.P. Szigorszkij
[Sigorskiy, Vitaliy Petrovich]. Reviewed by Karoly Geher.
Elektrotechnika 53 no.5/6:278-279 '60.

GEHER, Karoly

"Impulse technology" by L.A. Mejerowitsch. L.G. Selitschenko.
Reviewed by Karoly Geher. Elektrotechnika 53 no.5/6:279-280 '60.

GEHER, K. (Budapest XI., Stoczek u.2); ENZSOL, Gy. (Budapest XI., Stoczek u.2)

Ferrite isolators in microwave directional telecommunication which work on the resonance principle. Periodica polytechn electr 5 no.3:215-227 '61.

1. Lehrstuhl für Drahtgebundene Nachrichtentechnik, Technische Universität. Vorgelegt von Prof. Dr. L. Kozma.

23505

H/009/61/000/004/001/005
D021/D105

6,6000

AUTHORS: Géher, Károly; Czigány, Sebestyén; Forgó, Mihály; and
Villányi, Otto, Members of the Society (see Association)

TITLE: Measurement of the Budapest television chain transmission
characteristics

PERIODICAL: Magyar Híradástechnika, ¹²no. 4, 1961, 134-144

TEXT: The article reports on the measurements of the Budapest television
chain transmission characteristics, carried out by a committee of the
Híradástechnikai Tudományos Egyesület (Communication Scientific Society)
from 18 Sept to 8 Oct 1960. The purpose of the measurements was to de-
termine those characteristics of the television chain which can be mea-
sured according to general practice at each link, and to prepare for de-
tailed and exhaustive measuring to be carried out at a later date. The
measurements which embraced certain characteristics of individual links,
such as nonlinearity, square wave pulse transmission, amplitude charac-
teristic and transmission time characteristic were carried out on the

X

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4

23505

H/009/61/000/004/001/005
D021/D105

Measurement of the Budapest television

studio, the microcable, the 5-channel distributing amplifier, the micro-wave radio system, the transmitter and the receiver. Results of these measurements are shown in Table 1 and in Fig. 14, 15, 16 and 17. Due to the lack of international standards applicable to domestic communication systems, the "CCIR Recommendation Nr 267, Los Angeles, 1959" on 2,500-km-long television chains was adopted. Since the problem of correlating amplitude characteristics with wave form distortion has not yet been solved, and since this question represents the basic problem of the CCIR Recommendation, the authors summarized the results of their measurements pertaining to this subject, as shown in Fig. 18. The authors present 33 of the 250 photos taken during measurements, accompanied by appropriate explanations. The results of the authors' work found practical application by various institutions and the communication industry; Magyar Rádío és Televízió (MRT)(Hungarian Radio and Television) installed a new amplifier for compensating cable losses, the Posta Rádío Műszaki Hivatal (Postal Radio Engineering Office) amended the characteristics of the transmitter, and

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the "Orion" Plant increased the 3-db point of the amplitude characteristic of the AT-403 receiver to 4-4.2 Mc. The committee carrying out the measurements consisted, in addition to the authors, of the following members: Engineer Kázmér Csepreghy-Horváth, Laboratory head, and Engineer Sándor Steffel, both employed by the Elektromechanikai Vállalat (Electromechanical Enterprise), Károly Froemel, Engineer of the "Orion" Plant and Miklós Horváth, physicist of the MRT. There are 51 figures, 1 table and 11 references: 6 Soviet-bloc and 5 non-Soviet-bloc. The references to English-language publications read as follows: C.C.I.R. Documents of the IX-th plenary assembly, Los Angeles, 1959, Volume I. Recommendations; IRE Standards on television: Methods of testing monochrome television broadcast receivers, 1960, Prov. IRE, Jun. 1960; I.F. Macdiarmid: Wave form distortion in television links. The Post Office Electrical Engineers Journal, Jul-Oct 1959; H. Nyquist and K.W. Pflieger: Effect of the quadrature component in single sideband transmission. Bell System Technical Journal, Jan. 1940. X

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Table 1

(A)

	Non-linearity	50 kc	250 kc		amp	Tau
			Overshoot	Transition		
Studio	3.5%	+ 1%	+3.5% -1.5%	108 ns	<u>Fig.</u> 12	<u>Fig.</u> 12
Cable connecting the studio with the micro-wave radio system	-	-	-	-	<u>Fig.</u> 12	<u>Fig.</u> 12

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4818. **Non-secretory plasmocytoma** Plasmocitomul nesecretant. GEIB R., HILT M., JELEA A., OLARU C., VULPESCU S. and GOLDSTEIN Z. Clin. I. Med., Spit. 'Colentina', Bucuresti *Med. interna (Bucuresti)* 1958, 10/12 (1879-1886) Graphs 1 Illus. 2

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Nicolaescu - Bucharest