KHEYKER, D.M.; ZEVIN, L.S.; KONSTANTINOV, I.Ye.; ALEKSEYEV, V.A.

Use of a proportional counter for X-ray diffraction analyses. Izv. AN SSSR. Ser. fiz. 26 no.3:388-394 Mr '62. (MIRA 15:2)

1. Nauchno-issledovatel'skiy institut slyudy, asbestotsementnykh izdeliy i proyektirovaniya stroitel'stva predpriyatiy slyudinoy promyshlennosti i Moskovskiy inzhenerno-fizicheskiy institut.
(Counting devices)
(X rays--Diffraction)

ZEVIN, L.S.; VOROB'YEVA, O.V.

Methods of studying the textures of thin coatings. Zav.lab. 28 no.6:694-697 '62. (MIRA 15:5)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut stekla.
(Metallic films)

L 22283-66 EWT(m)/EWP(e) WH/WW

ACC NR: AP6007262 (A) UR/0363/66/002/002/0380/0383

AUTHOR: Bogdanova, G.S.; Orlova, Ye.M.; Zevin, L.S. 38 B

ORG: State Glass Institute (Gosudarstvennyy institut stekla)

TITLE: Amount of the crystalline phase as a function of heat treatment conditions in microcrystalline glasses (Pyrocerams) of the SiO_2-Al_2O_3-BaO-TiO_2 system

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v.2, no.2, 1966, 380-383

TOPIC TAGS: glass property, ~~phase composition~~ glass, crystal growth, x ray analysis

ABSTRACT: The article reports a study of the dependence on heat treatment conditions of the amount of the crystalline phase in microcrystalline glasses of several different compositions, in which the product of crystallization is only beta celsian, and the properties of these microcrystalline glasses. The composition of the glasses corresponded to 65-85 weight % celsian. The aim of the work was investigation of the possibility of controlling the properties of microcrystalline glasses in a given system. The content of beta celsian in the microcrystalline glasses was determined by quantitative x-ray analysis. A figure shows the dependence of the amount of beta celsian on the heat treatment temperature.

Card 1/2 UDC: 661.1:542.65

L 22283-66

ACC NR: AP6007262

For all compositions, the amount of beta celsian at first increases slowly, then rapidly and, finally, attains a constant value. At a temperature of 950-1000°C, the amount of the crystalline phase and the values of the properties reach practically constant values. Further increase in temperature leads to a growth in the size of the crystals formed from about 0.2 to about 0.5 microns, but does not exert any significant effect on the properties. Orig. art. has: 3 figures.

SUB CODE: 11, 20/ SUBM DATE: 25Jul65/ ORIG REF: 002/ OTH REF: 001

Card 2/2 nst

S/048/62/026/003/008/015
B152/B102

AUTHORS: Kheyker, D. M., Zevin, L. S., Konstantinov, I. Ye., and Alekseyev, V. A.

TITLE: Application of a proportional counter to x-ray diffraction studies

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 3, 1962, 388-394

TEXT: By applying a proportional counter the authors were able to reduce the relative background level in roentgenograms. The counter had beryllium side windows and was filled with a mixture of xenon (300 mm Hg) and isopentane (30 mm Hg). The amplitude resolution ($w \approx 2.36\sqrt{1.1/N}$, N is the number of initial ion pairs produced by one quantum) for CuK_α was 13 % and the efficiency for the same line was 72 %. A block diagram of the experimental device is shown in Fig. 5. The amplification factor should be of the order of 10^5 and the noise amplitude should not exceed 1/10 of the signal amplitude. In order to reduce the background level,

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a preamplifier (factor 14) is connected in series to the counter. The CuK_α and FeK_α fluorescence lines are separated without additional changes. The FeK_β and CoK_α pulses can be separated only when a channel is displaced and the CuK_α rate is lowered. CoK_β and CuK_α are not separable. On inserting a β-filter also CuK_α and CuK_β could be resolved. The investigation shows that roentgenograms can be improved when the background pulses are uniformly spread over the amplitudes. The collaborators of the SKB of x-ray tubes, above all M. I. Teuman and Ye. M. Fridman, are thanked for their assistance in the construction of the counter body. There are 7 figures, 3 tables, and 8 references: 2 Soviet and 6 non-Soviet. The four references to English-language publications read as follows: P. J. Black, J. B. Porsyth, J. Scient. Instrum., 36, no. 9, 392 (1959); A. R. Lang, J. Scient. Instrum., 33, no. 3, 96 (1956); Jun-ichi Chikawa, J. Phys. Soc. Japan, 15, no. 4, 602 (1960); W. Parrish, T. R. Koller, Rev. Scient. Instrum., 27, no. 10, 795 (1956).

Application of a proportional... S/048/62/026/003/008/013
B152/B102

ASSOCIATION: NIIasbesttsement, Moskovskiy inzhenerno-fizicheskiy institut (Scientific Research Institute of Asbestos and Cement, Moscow Engineering Physics Institute)

Fig. 5. Block diagram of the experimental device for the proportional counter: (1) proportional counter, (2) high-voltage rectifier "Orekh", (3) preamplifier of УШ-2 (USh-2), (4) base amplifier УШ-10 (USh-10), (5) differential discriminator ААДО-1 (AADO-1), (6) intensimeter ИСС (ISS), (7) automatic recorder ЭПП-09 (EPP-09), (8) scaler, (9) electromechanical counter.

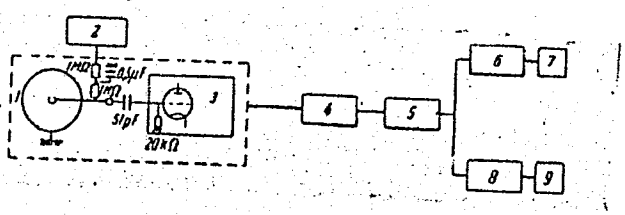

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Fig. 5

AUTHORS: Zevin, L.S. and Leyzerzon, M.S. SOV/70-4-3-24/32

TITLE: On the Question of the Position of the Potassium Ion in the Structure of Mica

PERIODICAL: Kristallografiya, 1959, Vol 4, Nr 3, pp 422-423 (USSR)

ABSTRACT: An electron density synthesis:

$$\rho_z = \sum_l F_{00l} \cos 2\pi l z$$

was made for three specimens of phlogopite. Two were Aldan phlogopites (hard and hydrated) and the other a synthetic fluor-phlogopite. The $00l$ intensities were measured with a URS-50I diffractometer. Absorption corrections were included. Test syntheses with F_c values were also made for the two cases: 1) K atoms half-way between silicate sandwiches ($z_k = 0.50$) and 2) K atoms in between the O atoms of the upper and lower sandwiches ($z_k = 0.42$ and 0.58). The object of the

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exercise was to distinguish experimentally between these hypotheses. In case 1) the K-O distances are all about 3.1 Å which is larger than the sum of the ionic radii (2.7 Å), whereas in case 2) the K ion would be in close contact with the O atoms on one side. The results showed quite decisively that $z_K = 0.50$. The considerable series termination effects do not affect this conclusion. There are 1 figure and 5 references, 4 of which are Soviet and 1 French.

ASSOCIATION: NII ASBESTTsEMENT

SUBMITTED: December 19, 1958

ZEVIN, L.S.; KHEYKER, D.M.

X-ray diffraction method for determining the dimensions of crystallites in large crystalline samples. Zav.lab. 28 no.5: 583-590 '62. (MIRA 15:6)

1. Nauchno-issledovatel'skiy institut asbotsementa.
(X rays--Diffraction) (Crystallography)

BERKOVICH, T.M.; KHEYKER, D.M.; GRACHEVA, O.I.; ZEVIN, L.S.; KUPREYEVA, N.I.

Properties of calcium hydrosilicates. Dokl. AN SSSR 120 no. 4:853-856 Je '58. (MIRA 11:8)

1. Predstavleno akademikom P.A.Rebinderom.
(Calcium silicates)

ZEVIN, L.S.; KHEYKER, D.M.

Attachments to the URS-50I apparatus for taking photographs at high and low temperatures. Zav. lab. 24 no.5:636-638 '58.
(MIRA 11:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut VNIIasbest-tsement.

(Radiography)

ZEVIN, L. S.; ZOLINA, Z. K.; ZUBENKO, V. V.; KHEYKER, D. M.; UMANSKIY, M.M.

"The Precision Determinations of Lattice Constants"

a report presented at Symposium of the International Union of Crystallography Leningrad, 21-27 May 1959

SOV/20-120-4-45/67

AUTHORS: Berkovich, T. M., Kheyker, D. M., Gracheva, O. I., Zevin, L. S., Kupreyeva, N. I.

TITLE: Investigation of the Properties of Calcium Hydrosilicates (Issledovaniye svoystv gidrosilikatov kal'tsiya)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 4, pp.853-856 (USSR)

ABSTRACT: Several authors based their explanations of the particular features of the technical properties (strength, shrinking) of binding materials on the conceptions concerning the phase composition, the structure and the existence of individual calcium hydrosilicates in the hydrated concrete. However, the data obtained by different authors concerning the individual calcium hydrosilicates do not always agree with each other. In order to obtain a clear picture of the phase composition of complicated systems of hydrosilicates a comprehensive phase analysis must be employed. In this connection the knowledge of such constants of hydrosilicates as the interplanar spacing, the line intensity in X-ray diagrams, the temperature and the magnitude of thermal effects, the position of the absorption

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bands in the infrared spectra and similar data is necessary. Apart from these data an understanding of the technical properties of the individual hydrosilicates must be reached if the development of production methods of materials with prescribed properties is intended. In the Institute "Asbestzement" a number of the most important hydrosilicates was synthetized, and their properties were studied. The X-ray diagrams (Fig 1) were recorded by means of CuKα radiation with a nickel filter on a diffractometer of the type UPC-50I with a Geiger counter. The curves of thermal differential analysis and of weight losses on heating (Fig 2) were determined on a thermalbalance. The absorption spectra in the infrared range (Fig 3) were taken on a IKS-11 spectrometer. Electron microscope images were obtained with a microscope EM-3 with an electron-optical scale factor of 3900. The hydrosilicate C_2SH (A) which is formed in the hydration of portland concrete and which leads to a reduction of the strength of autoclave products, was synthesized by a hydrothermal treatment of a mixture of CaO with quartz sand mixed at a ratio of 2:1 at 175° during 72 hours. The hydrosilicate $C_2SH(C)$ was formed after an identical treatment of 70 hours

Investigation of the Properties of Calcium Hydrosilicates

duration. Low-basicity hydrosilicates CSH(B) with a fiber-like texture of a basicity of from 1,25-0,8 play an important part in the autoclave hardening of sandy cements and low-basicity lime-sand mixtures. Together with tobermorite they are the cause for the high strength of these minerals. They were produced by a hydrothermal treatment of a mixture of CaO- and silicagel (1:1) at 175°, for 1, 2 and 3 hours or for from 6 - 8 hours. The hydrosilicate $C_4S_5H_5$ (tobermorite) was synthesized from CaO and quartz sand (0,8:1) at 175°, and a heating for from 12 - 48 hours or of 7 days. Hydrosilicate of flint CSH(A) was produced from CaO and quartz sand with a value of C/S = 0,8 + 18 % of water at a pressure of 100 kg/cm^2 at 175°, for from 14 to 60 days. The experiments showed that the reaction of the formation of hydrosilicates is considerably slowed down in pressed samples at a steaming in autoclaves as compared to the reaction of the same initial components taken as a suspension. In spite of the existing evidence (Ref 11) stating that among calcium hydrosilicates tobermorite has the greatest crushing strength, the experiments of the authors show, that the flexure strength of the

samples does not increase with growing content of tobermorite. It can be supposed that the flexure strength of fiber-like structures is by no means inferior to that of plate-like structures, which was proved. There are 3 figures and 11 references, 3 of which are Soviet.

PRESENTED: February 5, 1958, by P. A. Rebinder, Member, Academy of Sciences, USSR

SUBMITTED: December 13, 1957

1. Calcium silicates--Properties 2. Calcium silicat s--Phase studies 3. Calcium silicates--Analysis

ZEVIN, L.S.; UMANSKIY, M.M.; KHEYKER, D.M.; PANCHENKO, Yu.M.

Diffractometric methods in precision measurements of the parameters of elementary cells. Kristallografiia 6 no.3:348-356 My-Je '61. (MIRA 14:8)

1. NIIasbesttsement i Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(X rays--Diffraction) (Crystallography)

ZEVIN, Lev Saulovich; KHEYKER, Daniel' Moiseyevich

[X-ray methods of investigating building materials] Rentgenovskie metody issledovaniia stroitel'nykh materialov. Moskva, Stroiizdat, 1965. 361 p. (MIRA 19:1)

BOGDANOVA, G.S.; ORLOVA, Ye.M.; ZEVIN, L.S.

Phase composition of pyrocerams in the system SiO_2 - Al_2O_3 - BaO - TiO_2. Izv. AN SSSR. Neorg. mat. 1 no.11:2009-2013 N '65. (MIRA 18:12)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut stekla. Submitted June 2, 1965.

SOROKIN , G.M.; OLEYNIK, I.P., doktor ekon. nauk; RYABUSHKIN, T.V., doktor ekon. nauk; DUDINSKIY, I.V., kand. ekon. nauk; MIROSHNICHENKO, B.P., kand. ekon.nauk; SERGEYEV, V.P., kand. ekon. nauk; TARNOVSKIY, O.I., kand. ekon. nauk; STOROZHEV, V.I., kand. ist. nauk; KONOVALOV, Ye.A., kand. ekon. nauk; GERTSOVICH, G.B., kand. ekon. nauk; POPOV, K.I., kand. ekon. nauk, red.; ZEVIN, L.Z., red.; NIKOLAYEV, D.N., red.; PAK, G.V., red.; GERASIMOVA, Ye.S., tekhn. red.

[The building of communism in the U.S.S.R. and cooperation among the socialist countries]Stroitel'stvo kommunizma v SSSR i sotrudnichestvo sotsialisticheskikh stran. Pod obshchei red. G.M.Sorokina. Moskva, Ekonomizdat, 1962. 334 p. (MIRA 16:2)

1. Akademiya nauk SSSR. Institut ekonomiki mirovoy sotsialisticheskoy sistemy. 2. Chlen-korrespondent Akademii nauk SSSR (for Sorokin).

(Communist countries--Foreign economic relations)

24(2), 24(7)

AUTHOR: Zevin, V. Ya.

SOV/56-36-1-17/62

TITLE: The Spectrum of the Frequencies of Double Spin Resonance in the Centers of the Coloration of Alkali-Halogen Crystals (Spektr chastot dvoynogo spin-rezonansa na tsentrakh okraski shchelochno-galoidnykh kristallov)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 1, pp 116-128 (USSR)

ABSTRACT: The author determines the dependence of double spin-resonance frequencies on the orientation of a crystal in an external static magnetic field for U_2-, F_2^+- and M-centers of alkali-halogen crystals. Such an investigation is of importance because no direct experimental proof is available for the structure of some electron localization centers. The author first investigates the spin-Hamiltonian of the interaction between a localized electron and the magnetic moment of the lattice nucleus as well as a simplification of this Hamiltonian. The third part of the paper deals with U_2- centers. There exists, by the way, indirect experimental proof of the fact that the absorption-U_2- band in KCl is due to the presence of

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hydrogen atoms in the space between the lattice nodes. The author determines the frequencies of double spin resonance which occur in the interaction between the electron of a U_2^- center and the 8 neighboring nuclei. The hydrogen atom is, in this connection, assumed to be in the center of the cube. The F_2^+- center, which is discussed in the following chapter, forms a system consisting of 2 negative vacancies and an electron, which are located in an ion crystal. Formulas are written down for the frequencies of spin-nucleus transitions, which are due to the interaction of the spin of the localized electron and the magnetic moment of the k-th nucleus; these formulas relate to F_2^+- centers in the plane (100) in the symmetric case. Next, the respective results obtained by calculating the frequencies for the asymmetric model of a F_2^+- center are investigated. The last chapter of this paper discusses the M- centers. Like in the case of the F_2^+- center, two models of the M-center, viz. a symmetric and an unsymmetric

one, are calculated. Even in the symmetric case considerable differences are to be expected between the frequencies of the ions of a given group, because the ions in such a group have different positions with respect to the M-center. The author thanks M. F. Deygen for supervising work. There are 5 figures, 3 tables, and 13 references, 5 of which are Soviet.

ASSOCIATION: Brestskiy gosudarstvennyy pedagogicheskiy institut (Brest State Pedagogical Institute)

SUBMITTED: May 17, 1958

84422

S/056/60/039/004/040/048
B006/B056

24.7900 (1035, 1144, 1160)

AUTHORS: Deygen, M. F., Zevin, V. Ya.

TITLE: Spin-Lattice Relaxation of Local Electron Centers in Nonmetallic Crystals

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 4(10), pp. 1126 - 1137

TEXT: It was the purpose of the present paper to develop a theory of spin-lattice relaxation of local electron centers in nonmetallic crystals located in a strong magnetic field. In the introduction, the authors discuss the theory by Waller (Ref. 1), who assumed that the spin-lattice relaxation in strong magnetic fields is due to a change in the interatomic spacings caused by thermal lattice vibrations. This theory does, however, not suit all cases. In the present paper, the authors consider the spin-lattice relaxation as being caused by a change in the energy of the contact interaction between the spin of a localized electron and a nucleus, which is caused by thermal lattice vibrations. This relaxation mechanism has always a relaxation time τ_1 (Ref. 4) which corresponds to a process

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Spin-Lattice Relaxation of Local Electron Centers in Nonmetallic Crystals

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in which a re-orientation of the nuclear spin occurs simultaneously, which compensates the change in angular momentum. There also exists another relaxation mechanism which is due to the re-orientation of the electron spin without corresponding re-orientation of the spin of those nuclei which cause the hyperfine structure of the paramagnetic absorption lines of local electron centers (relaxation time τ_s). This division of relaxation mechanisms is reasonable also from the experimental viewpoint (for nonmetals). The theory is developed in all detail for crystals in which the wave function of the localized electron can be chosen in atomic orbit approximation. The relations obtained may be considerably simplified by studying an F-center; for a KCl-type crystal, a practical example is calculated; and for an F-center of such a crystal, the maximum and minimum relaxation times are numerically determined (corresponding to the maximum and minimum sound velocities). If the two sound velocities in KCl are $v_{long} = (4.47\text{-}3.05).10^5$ cm/sec and $v_{trans} = (1.76 - 2.90).10^5$ cm/sec, the authors obtain the relaxation times $\tau_{min} = 7.6/T$ min and $\tau_{max} = 87/T$ min. For $T = 4^\circ K$ and $H = 3000$ oe, $\tau_{min} = 1.9$ min and $\tau_{max} = 22$ min result.

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84422

Spin-Lattice Relaxation of Local Electron Centers in Nonmetallic Crystals

S/056/60/039/004/040/048
B006/B056

I. M. Dykman is mentioned. There are 12 references: 5 Soviet, 1 Japanese, 1 German, 1 British, and 4 US.

ASSOCIATION: Institut fiziki Akademii nauk Ukrainskoy SSR (Institute of Physics of the Academy of Sciences Ukrainskaya SSR). Brestskiy pedagogicheskiy institut (Brest Pedagogical Institute)

SUBMITTED: April 29, 1960

Card 3/3

24.1200 10.63 1158 1395

S/181/61/003/002/039/050
B102/B201

AUTHOR: Zevin, V. Ya.

TITLE: Spin - lattice relaxation of localized electrons (Raman effect of acoustic phonons)

PERIODICAL: Fizika tverdogo tela, v. 3, no..2, 1961, 599-606

TEXT: The work under consideration here is in continuation of a previous investigation conducted by the author together with M. F. Deygen (Ref. 1: ZhETF, 39, 1126, 1960) on single-phonon relaxation processes, and deals with a theoretical consideration of two-phonon processes. The author chiefly considered the spin-lattice relaxation caused in a strong magnetic field by the Raman effect of acoustic phonons with a magnetic contact hyperfine interaction of the spin of a localized electron with the spins of the nuclei surrounding the latter. Premises and definitions are the same as in Ref. 1. The wave function of local-electron centers is written in adiabatic approximation under the presupposition of a strong magnetic field. It is the product of three wave functions: the wave function of the electron subsystem $\psi(r)$, the heavy subsystem (product of oscillator functions) and the

spin wave function. Proceeding from the Hamiltonian of the contact hyperfine interaction of the spin of the localized electron (averaged over the wave function of the electron subsystem $\overline{\mathcal{H}}_S = \sum_{l=1}^{N} a_l \hat{S}\hat{I}_l \left|\psi(\vec{R}_l)\right|^2$, the author examined the temperature dependence of the transition probabilities at $T \ll \Theta$ and $T > \Theta$. (Θ - Debye temperature of the crystal, $\vec{R}_l$ - radius vector of the l-th nucleus which is displaced from its position of equilibrium, S, $\dot{I}_l$, are the spins of the electron and of the l-th nucleus, respectively, $a_l = 8\pi\mu\mu_l/3S\dot{I}_l$, μ is the Bohr magneton, μ_l is the nuclear magnetic moment. Summation is done over the N nuclei of the nearest neighborhood of the localized electron. Formula

$$P_{+\to-} = \frac{4\left(I_k + \frac{1}{2}\right)^2 A^2_{c.v.}}{a_0^4 v^6_{long} d^2} \int_0^{\nu_{max}} \frac{\nu^2 \exp\left(\frac{h\nu}{kT}\right)}{\left[\exp\left(\frac{h\nu}{kT}\right) - 1\right]^2} \varphi(\nu)\, d\nu. \qquad (7)$$

Spin - lattice ...

is obtained for the probability of re-orientation of the electron spin from a state with a projection onto the magnetic field $M_S = +1/2$ into the state with $M_S = -1/2$ and simultaneous Raman effect of phonons. In this formula (7), $(\dot{I}_k + 1/2)^2$ is the maximum value of the spin factor with half-integral $\dot{I}_k$; if $\dot{I}_k$ is integral, one has to put $\dot{I}_k(\dot{I}_k + 1)$; $A_{c.T.} = a_k|\psi(R_k^o)|^2$ is the constant of the hyperfine interaction of the spin of a localized electron with the k-th nucleus, a_o is a formal parameter, $\nu_{max} = k\theta/h$, v is the sound velocity, $\varphi(\nu)$ is defined by

$$\varphi(\nu) = \frac{a_0^4}{16|\psi(R_k^0)|^2} \sum \psi^k_{ijp,\ i'j'p'} \psi^k_{srq,\ s'r'q'} \varphi_{(i)}(\nu) \varphi_{(i')}(\nu). \qquad (8a)$$

$$\varphi_{(i)} = \varphi^{long}_{(i)} + 2\left(\frac{v_l}{v_t}\right)^3 \varphi^{trans}_{(i)}; \qquad (8b)$$

The subscript (i) stands for the totality of the indices (ijsrpq), (i') for (i' j' s' p' q'). For $T \ll \theta$ one obtains

$$P_{+\to-} = P_o(kT/h)^3 \int_0^\infty \frac{x^2 \exp x}{(\exp x - 1)^2} \varphi(xkT/h)\, dx;$$ here, P_o denotes the factor

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B102/B201

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which in (7) comes before the integral. If $\varphi(xkT/h)$ is expanded into a a series, one obtains $P_{+\to-} = P_0(k/h)^3T^7(c_0 - c_1T^2 + c_2T^4 - \ldots)$. Thus, at a sufficiently low temperature, $P_{+\to-} \sim T^7$. For $T>\Theta$ one obtains $P_{+\to-} = P_0(k\Theta/h)^3(T/\Theta)^2 \int_0^1 (\nu_{max}\nu_1)d\nu_1$; a rough estimation of the integral gives $\int_0^1 (\nu_{max}\nu_1)d\nu_1 \sim \frac{1}{5}\left[\frac{N(N-1)}{2}\right]^4$. A NaCl-type lattice is considered for an example and numerical calculations are performed for F centers of KCl, with only the first coordination sphere of the F center being taken into account. When assuming that $v_{long} = (4.47\text{-}3.05)\cdot10^5$ cm/sec and $v_{trans} = (2.9\text{-}1.74)\cdot10^5$ cm/sec, one obtains

$$\left.\begin{aligned} P_{+\to-} &= 0.946\cdot10^{-3}\left(\frac{R}{a_0}\right)^4 T^3 I(T), \\ I(T) &= 205\,(0.1\,T)^4 f(T). \end{aligned}\right\} \qquad (16)$$

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Spin - lattice ...

where $f(T)$ denotes a sign-changing series, $f(T) = 1$, for $T = 0$. It is thus found that for $T \simeq 10^{\circ}K$ the relaxation due to Raman effect of acoustic phonons is more considerable than the single-phonon relaxation. If the upper limit value is taken for v_{long} and v_{trans}, one obtains $T \lesssim 15^{\circ}K$; at room temperature ($T = 291^{\circ}K$) and $a_o = 1$ A one obtains for the spin-lattice relaxation time $\tau = 1/2P_{+ \rightarrow -} \simeq 2 \cdot 10^{-5}$ sec. For $T > \theta$, $\tau \simeq 4 \cdot 10^{-5}$ sec. In reality, however, τ is about 8.5 times as large, since $a_o = 2.4$ A. There are 11 references: 5 Soviet-bloc and 4 non-Soviet-bloc.

ASSOCIATION: Brestskiy pedagogicheskiy institut (Brest Pedagogical Institute)

SUBMITTED: July 2, 1960

X

Card 5/5

ACCESSION NR: AP4041691 S/0181/64/006/007/1946/1955

AUTHORS: Zevin, V. Ya.; Shanina, B. D.

TITLE: On the theory of paramagnetic resonance in zero and intermediate magnetic fields

SOURCE: Fizika tverdogo tela, v. 6, no. 7, 1964, 1946-1955

TOPIC TAGS: electron paramagnetic resonance, energy level, eigenvector, spin, wave function dipole transition, hyperfine structure

ABSTRACT: In order to help identify the additional EPR lines that appear in zero and in intermediate magnetic fields, the authors calculate the energy levels, the eigenvectors, the spin wave functions, and the magnetic-dipole transitions for two interacting spins in the presence of axial symmetry, for the case when one of the spins is equal to 1/2 and the other spin is arbitrary. A detailed analysis is made of the probability of zero-field transitions between levels

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ACCESSION NR: AP4041691

of the hyperfine structure of a paramagnetic center in view of the interest that attaches to field-free resonance in the region below microwave frequency. Expressions for the energy levels and for the spin wave functions are also obtained for the case when the smaller of the spins is equal to unity. The small perturbations that bring about super-hfs splitting are briefly discussed. The results can be useful not only in investigations of field-free resonance at the hyperfine structure, but in calculations of the magnetic susceptibility and analysis of exchange interaction between paramagnetic centers. "The authors are grateful to Professor M. F. Deygen for reviewing the manuscript." Orig. art. has: 3 figures and 20 formulas.

ASSOCIATION: Kiyevskiy politekhnicheskiy institut (Kiev Polytechnic Institute)

SUBMITTED: 02Jan64 DATE ACQ: ENCL: 00

SUB CODE: MP NR REF SOV: 003 OTHER: 014

Card 2/2

DEYGEN, M.F.; MAYEVSKIY, V.M.; ZEVIN, V.Ya.; VITRIKHOVSKIY, N.I.

Electron paramagnetic resonance of Mn^{2+} ions in CdS. Fiz. tver. tela 6 no.9:2756-2761 S '64.

(MIRA 17:11)

1. Institut poluprovodnikov AN SSSR, Kiyev.

ZEVIN, V.Ya.; SHANINA, B.D.

Theory of paramagnetic resonance in zero and intermediate magnetic fields. Fiz. tver. tela 6 no.7:1946-1955 Jl '64. (MIRA 17:10)

1. Kiyevskiy politekhnicheskiy institut.

Card 3/3

DEYGEN, M. F.; ZEVIN, V. Ya.; MAYEVSKIY, V. M.; ROYTSIN, A. B.

"Some problems of paramagnetic resonance of local centers on semiconductors."

report submitted for Intl Conf on Physics of Semiconductors, Paris, 19-24 Jul 64.

ZEVIN, V.Ya.

Frequency spectra of double electron-nuclear spin-resonance on paramagnetic defects in crystals. Fiz.tver.tela 4 no.2:478-484 F '62. (MIRA 15:2)

1. Brestskiy gosudarstvennyy pedagogicheskiy institut imeni A.S.Pushkina.

(Paramagnetic resonance and relaxation)
(Crystals—Spectra) (Crystals—Defects)

30239
S/181/62/004/002/029/051
B101/B102

24.7900 (1055,1144,1163)

AUTHOR: Zevin, V. Ya.

TITLE: Frequency spectra of double electron-nuclear spin resonance at paramagnetic crystal defects

PERIODICAL: Fizika tverdogo tela, v. 4, no. 2, 1962, 478-484

TEXT: Proceeding from papers of G. Feher (see below) on double electron-nuclear spin resonance (DSR), the results are generalized for systems with a dipole-dipole interaction of the same order of magnitude as, or stronger than, the contact interaction. On the strength of previous papers (ZhETF, 36, 116, 1959; ZhOS, III, 660, 1957), the spin Hamiltonian of the magnetic hyperfine interaction of an electron (hole) localized in the crystal is simplified by introducing the symmetry group $G^{(k)}$ which contains one axis of rotation. The spin Hamiltonian of hyperfine interaction with the k-th nucleus acquires the form

$$\mathcal{H}_{sk} = -\frac{\mu_k}{I_k} H\hat{I}_k + a_k(\hat{I}_k\hat{S}) + D_{k1}[(\hat{I}_k\hat{S}) - 3I_{kz}\hat{S}_z]. \quad (2)$$

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Frequency spectra of double ...

S, I_k, μ, μ_k are the spins and magnetic moments of electron (hole) and nucleus, respectively; $a_k = (8\pi/3)(\mu\mu_k/SI_k)|\psi(\varrho_k = 0)|^2$, ψ being the wave function of the local electron (hole); D_{k1} is the dipole-dipole coefficient; and ϱ_k is the radius vector. Assuming a strong magnetic field and introducing a quantization axis, one finds

$$\mathcal{H}_s = \frac{\mu}{S} HM_s + M_S \sum_k \left[\sum_{p=1}^{3} \Delta_{kp}^2\right]^{1/2} I_{n_k}. \quad (3).$$

$\vec{n}_k$ is the unit vector along the quantization axis; $\hat{I}_{\vec{n}_k}$ is the projection of the spin of the k-th nucleus onto this axis; Δ_{kp} are the direction cosines of $\vec{n}_k$; and M_S is the quantum number of the projection of the electron spin onto the field $\vec{H}$. For the energy levels, one obtains $\chi = \chi_S(M_S)\prod_k \chi'_{I_k}(M_k, n_k)$ (5), where $\chi'_{I_k}(M_k, n_k)$ are the eigenfunctions

Card 2/4

of the operator $\hat{I}_{n_k}$, and $\chi_S(M_S)$ is the wave function of the electron spin. In a r-f magnetic field $\vec{H}$ the system is perturbed by the operator $\sum_k (\mu_k/I_k)\vec{H}\vec{I}_k$. The selection rules for the magnetic dipole transitions are found from Eq. (5), and for the DSR frequencies it follows from Eq. (3) that

$$h\nu_k = \left| M_s\left(-\frac{\mu_k H}{M_S I_k} + a_k + D_{k1}\right)\left[1 - 6\varepsilon_k\left(1 - \frac{3}{2}\varepsilon_k\right)(\tau_{3k}H_0)^2\right]^{1/2}\right|, \quad (7)$$

in the case of axial symmetry, where

$$\varepsilon_k = -\frac{D_{k1}}{-\frac{\mu_k H}{M_S I_k} + a_k + D_{k1}}. \quad (7a).$$

The angular dependence of ν_k can be determined by changing the orientation of $\vec{H}$ relative to the crystal. For $\mu_k H/M_S I_K \approx a_k$ the transition

Card 3/4

Frequency spectra of double ...

frequencies depend only on the dipole-dipole interaction. According to H. Woodbury and G. W. Ludwig (see below), it is demonstrated how it is possible to ascertain whether an atom is located at the lattice site of a diamond-type lattice or symmetrically in the interstice. M. F. Deygen is thanked for a discussion. There are 11 references: 4 Soviet and 7 non-Soviet. The four most recent references to English-language publications read as follows: G. Feher, Phys. Rev., 114, 1219, 1959; N. Lord, Phys. Rev. Let., 1, 170, 1958; W. C. Holton, H. Blum, C. P. Slichter, Phys. Rev. Let., 5, 197, 1960; H. Woodbury, G. W. Ludwig, Phys. Rev., 117, 102, 1960.

ASSOCIATION: Brestskiy gosudarstvennyy pedagogicheskiy institut im. A. S. Pushkina (Brest State Pedagogical Institute imeni A. S. Pushkin)

SUBMITTED: September 25, 1961

Card 4/4

ZEVIN, V.Ya.

Superfine dipole-dipole spin-lattice relaxation of local electron centers. Fiz. tver. tela 3 no. 3:910-917 Mr '61. (MIRA 14:5)

1. Brestskiy pedagogicheskiy institut.
(Paramagnetic resonance and relaxation)

ZEVIN, V. Ya., Cand. Phys-Math. Sci. (diss) "Super-Thin Interaction in Para-magnetic Resonance and Back-Screen Relaxation of Local Electron Centers in Crystals." Minsk, 1961, 9 pp (Acad. of Sci. BSSR, Combined Council of Institute of Physics, Inst. of Mathematics and Computer Technique and Dept of Solid-State Physics and Semi-conductors) 200 copies (KL Supp 12-61, 251).

ZEVIN, V. Ya.

Spin-lattice relaxation of localized electrons (Raman disperaion of acoustical phonons). Fiz. tver. tela 3 no.2:599-606 F '61. (MIRA 14:6)

1. Brestskiy pedagogicheskiy institut.
(Lattice theory)

ZEVINA, G.B.; TARASOV, N.I.

Cirripedia thoracica of the Arctic Ocean. Report No.5.
Trudy AANII 259:229-240 '64. (MIRA 17:12)

ZEVINA, G.B.; KUZNETSOVA, I.A.; STAROSTIN, I.V.

Composition of fouling in the Caspian Sea. Trudy Inst. okean. 70:3-25 '63. (MIRA 17:7)

ZEVINA, G.B.

Fouling in the White Sea. Trudy Inst. okean. 70:52-71 '63.

Thoracic cirripeds in the fouling of the Black Sea. (MIRA 17:7)
Ibid.:72-75

ZEVINA, G.B.; TARASOV, N.I.

Fauna of thoracic cirripeds on the continental coast of south-eastern Asia. Trudy Inst. Okean. 70:76-100 '63.
(MIRA 17:7)

ZEVINA, G.B.

Changes in the fouling organisms of the Caspian Sea during the last decade (1951-1961). Okeanologiia 2 no.4:715-726 '62. (MIRA 15:7)

1. Institut okeanologii AN SSSR.
(Caspian Sea--Marine fouling)

ZEVINA, G.B., Cand Bio Sci --(diss) "~~Overgrowing of~~ Overgrowth of ships and ~~hydrotechnical installations~~ hydraulic engineering structures on the Caspian sea." Mos, 1958. 15 pp (Inst of Oceanology, Acad Sci USSR). 110 copies (KL, 20-58, 95)

MALEVICH, I.I.; ZEVINA, G.B.

Materials on the oligochaete fauna of Rybinsk Reservoir. Trudy Biol. sta. "Borok" no.3:399-406 '58. (MIRA 11:9)
(Rybinsk Reservoir--Oligochaeta)

ZEVINA, G.B.

Molluska Mytilaster lineatus (Gmelin) and Dreissena polymorpha Pall. as overgrowth organisms in the Caspian Sea. Izv. AN Turk.SSR no.4: 57-62 '58. (MIRA 11:10)

1. Institut zoologii i parazitologii AN Turkmenskoy SSR.
(Caspian Sea--Mollusks)

ZEVINA, G.B.

Fouling of ships docked in the Kola Gulf (Barents Sea). Okeanologiia 2 no.1:126-133 '62. (MIRA 15:2)

1. Institut okeanologii AN SSSR.
(Kola Gulf--Fouling of ship bottoms)

3(9) SOV/26-59-7-16/55

AUTHOR: Zevina, G.B.

TITLE: New Organisms in the Caspian Sea

PERIODICAL: Priroda, 1959, Nr 7, pp 79 - 80 (USSR)

ABSTRACT: The article lists new organisms which made their way into the Caspian Sea during the last 5-6 years by clinging to ship hulls. This was made possible by the opening of the Volga-Don Canal. New crayfish, jellyfish, crabs, algae, and pearlweeds from as far as North America are now dwelling in the Caspian Sea. The article mentions the names of B.M. Logvinenko, A.D. Zinova, and R.K. Kudinova-Pasternak. There are 3 Soviet references.

ASSOCIATION: Institut okeanologii Akademii nauk SSSR, Moskva (Institute of Oceanography of the AS USSR, Moscow)

Card 1/1

ZEVINA, G.B.

Fouling of hydraulic structures in the Caspian Sea. Trudy Inst. okean. 49:65-96 '61 (MIRA 15:1)
(Caspian Sea--Marine fouling)

ZEVINA, G.B.; STAROSTIN, I.V.

Qualitative and quantitative changes in fouling in the Caspian Sea following the opening of the Volga-Don Canal. Trudy Inst. okean. 49:97-107 '61. (MIRA 15:1)

(Caspian Sea--Marine fouling)

ZEVLEVER, M. Ye.

PHASE I BOOK EXPLOITATION SOV/5395

Bol'shakov, Konstantin Vasil'yevich, Sergey Aleksandrovich Vorob'-yev, Mikhail Abramovich Dymshits, Leonid Yefimovich Yefimenko, and Mikhail Yeleazarovich Zevlever

Modernizatsiya metallorezhushchikh stankov; iz opyta khar'kovskikh zavodov (Modernization of Metal-Cutting Machine Tools; From the Experience of Khar'kov Plants) [Khar'kov] Khar'kovskoye knizhnoye izd-vo, 1960. 163 p. Errata slip inserted. 3,600 copies printed.

Eds.: S. A. Vorob'yev, Candidate of Technical Sciences, Docent, and I. P. Lyalyuk; Tech. Ed.: M. I. Limanova.

PURPOSE: This book is intended for workers and technical personnel dealing with metal cutting.

COVERAGE: Experience gained by [technically] advanced Khar'kov enterprises in the modernization of lathes, vertical boring mills, planers and shapers, drilling machines, gear-cutting

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machines, grinding machines, and other metal-cutting machine tools is discussed. Concrete examples are given which demonstrate the economic effectiveness of equipment modernization. No personalities are mentioned. There are no references.

TABLE OF CONTENTS:

ZEWIERZEJEW, A.

The trackless system of opencast mining. p. 124.

PRZEGLAD GORNICZY. Stowarzyszenie Naukowo-Technicz ne Inzynierow i Technikow Gornictwa, Katowice, Poland, Vol. 15, No. 3, March, 1959.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 9, September, 1959. Uncl.

ZEWIERZEJEW, A., mgr., inz.

A new method of coal extraction. Przegl techn 81 no.7:15-17 '60.

ZEWIERZEJEW, A., mgr., inz.

What is less expensive: coal, crude oil, natural oil or electricity?
Przegl techn 81 no.22:7-9 Je '60.

ZAGOSKINA, Ye.D.; SIKORSKIY, K.P.; ZEVINA, A.N., otv. red.; VORONKOV, M.I., red.

[Recommended mathematics curriculum for the second half of the 1962-1963 school-year (grade 5 to 11)] Primernyi plan raboty po matematike vo vtorom polugodii 1962-1963 uchebnogo goda (V-XI klassy). Moskva, 1963. 83 p. (MIRA 16:8)

1. Moscow. Gorodskoy institut usovershenstvovaniya uchiteley. 2. Direktor Moskovskogo gorodskogo instituta usovershenstvovaniya uchiteley (for Zevina).
(Mathematics--Study and teaching)

ZEY, A. N.

ZEY, A. N. -- "Melanosis of Tomatoes and Measures to Combat It in the Bashkir ASSR." Author's abstract of a dissertation submitted at the Omsk Agricultural Inst imeni S. M. Kirov. Omsk, 1955. (Dissertation for the Degree of Candidate in Agricultural Sciences)

SO: Knizhnaya Letopis', No 1, 1956

Zevin, R.D.

408-X WELD ASSEMBLY OF ST LL FRAMEWORK OF HIGH BUILDINGS (IN RUSSIAN) M.M. Sakhnovskii and A. D. Zevin. Avto. Svlo (Welding) v. 21, Mar. 1950, p. 18-19.

- Possibility of attaching horizontal braces to the body of columns in the framework of high buildings without use of the "overhead" weldin position. Optimum gap between brace and column is indicated. Steel backings were found more applicable than asbestos or copper. (X general, T 26, CH)

ZEVINA, G., kand.biolog.nauk, mladshiy nauchnyy sotrudnik

Changes of ship fouling in the Caspian Sea following the opening of the Volga-Don Canal. Mor.flot 23 no.2:35 F '63.
(MIRA 16:2)

1. Institut okeanologii AN SSSR.
(Caspian Sea—Fouling of ship bottoms)

ZEVIN, G. Ya. and BAYANOVA, M. G.

"Material Connected With the Diphtheria Epidemic in the Towns of Frunze and Osh," Trudy Instituta Epidemiologii i Mikrobiologii Ministerstva Zdravookhraneniya Kirgizskoy SSR, Frunze, Vol 1, 1951, pp 24,25.

ZEVIN, G. Ya.

"Experiments With the Shick Reaction With Respect to the Antidiphtheria Immunity of Groups of Children in the Town of Frunze," Trudy Instituta Epidemiologii i Mikrobiologii Ministerstva Zdravookhraneniya Kirgizskoy SSR, Frunze, Vol 1, 1951, 26, 27.

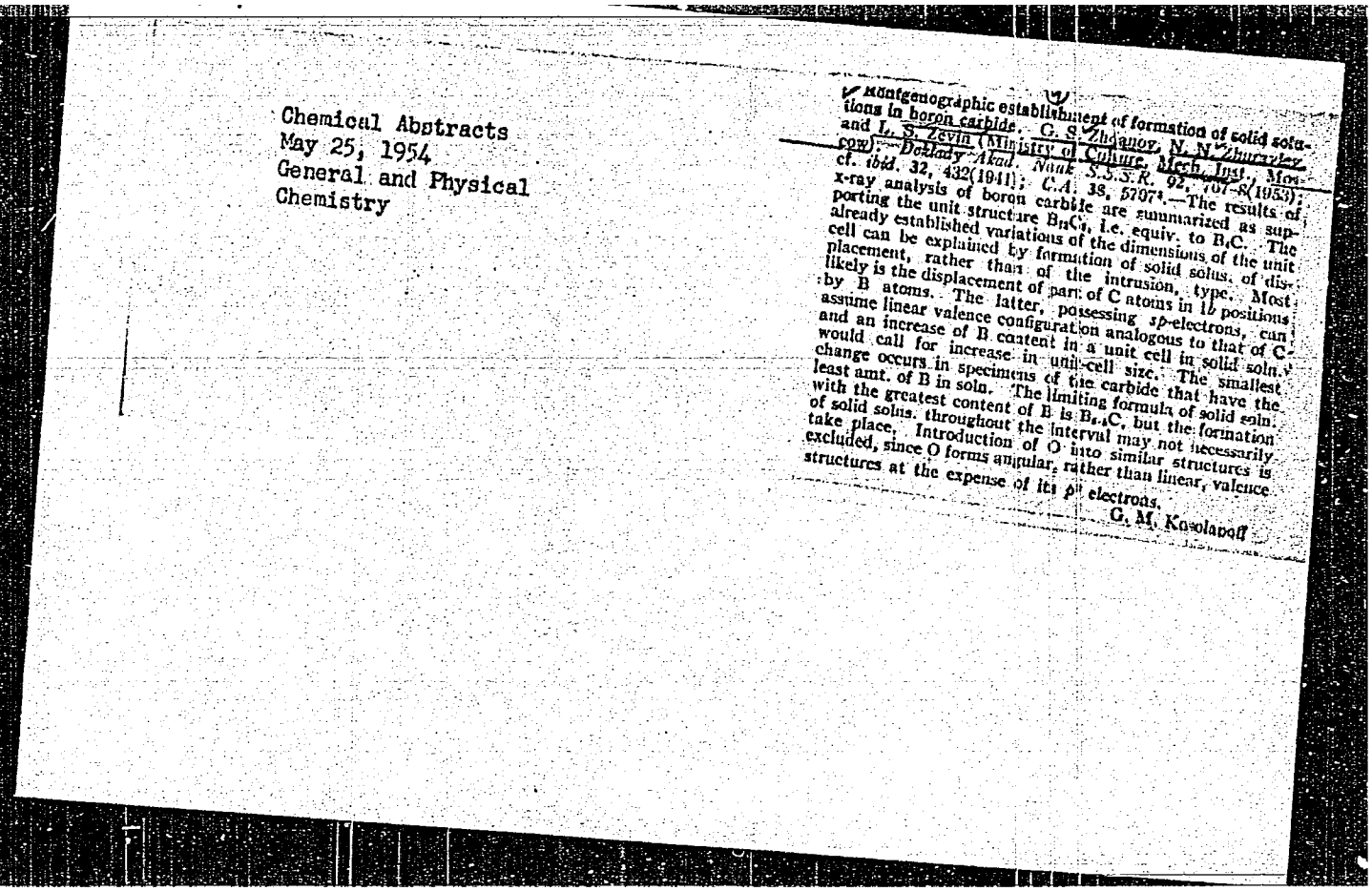
USSR.

548.736.4 : 537.312.62

11566. The structures of superconductors. VI. X-ray crystallographic study of the structure of the low-temperature modification of Bi_2Pd. L. S. ZEVIN, G. S. ZHDANOV AND N. N. ZHURAVLEV. *Zh. eksper. teor. Fiz.*, 25, No. 6 (12) 751–4 (1953) *In Russian.*

The dimensions of the monoclinic unit cell of α-Bi_2Pd were found to be $a = 12{\cdot}74 \pm 0{\cdot}01$, $b = 4{\cdot}25 \pm 0{\cdot}02$ and $c = 5{\cdot}665 \pm 0{\cdot}005$ Å, with $\beta = 102° 35' \pm 10'$. The space group is $C2/m$, $\rho_{obs.} = 11{\cdot}5$ g/cm³ and $Z = 4$. The Bi and Pd atoms lie in the planes of symmetry with the parameters (x, y, z): Bi I (0·156, 0, 0·321); Bi II (0·076, ½, 0·796); and Pd (0·226, 0, 0·820). The structure is closely related to those of β-Bi_2Pd and BiPd.

A. L. MACKAY



Chemical Abstracts
May 25, 1954
General and Physical
Chemistry

Roentgenographic establishment of formation of solid solutions in boron carbide. G. S. Zhdanov, N. N. Zhuravlev, and L. S. Zevin (Ministry of Culture, Mech. Inst., Moscow). *Doklady Akad. Nauk S.S.S.R.* 92, 767–8(1953); cf. *ibid.* 32, 432(1941); *C.A.* 38, 5797⁴.—The results of x-ray analysis of boron carbide are summarized as supporting the unit structure B_nC, i.e. equiv. to B_4C. The already established variations of the dimensions of the unit cell can be explained by formation of solid solns. of displacement, rather than of the intrusion, type. Most likely is the displacement of part of C atoms in 1*b* positions by B atoms. The latter, possessing *sp*-electrons, can assume linear valence configuration analogous to that of C, and an increase of B content in a unit cell in solid soln. would call for increase in unit-cell size. The smallest change occurs in specimens of the carbide that have the least amt. of B in soln. The limiting formula of solid soln. with the greatest content of B is $B_{4.4}C$, but the formation of solid solns. throughout the interval may not necessarily take place. Introduction of O into similar structures is excluded, since O forms angular, rather than linear, valence structures at the expense of its p^{II} electrons.

G. M. Kosolapoff

Zevin, V. Ya.

51-6-20/25

AUTHOR: Zevin, V. Ya.

TITLE: The Spin-Hamiltonian for Interaction of a Localized Electron in a Crystal with Magnetic Nuclear Moments. (Spin-gamil'tonian vzaimodeystviya lokalizovannogo elektrona v kristalle s magnitnymi momentami yader.)

PERIODICAL: Optika i Spektroskopiya, 1957, Vol. III, Nr. 6, pp. 660-664. (USSR)

ABSTRACT: Studies of paramagnetic resonance in F-centres of alkali-halide salts and in donor impurities in silicon show that at sufficiently low temperatures broadening of paramagnetic resonance lines is essentially due to the interaction of a localized electron with magnetic moments of nuclei of the crystal (Refs.1-3). It was therefore of interest to find the spin-Hamiltonian for such an interaction. First a general expression for this Hamiltonian is obtained and then the author discusses the case when the smoothed wave-function of an impurity centre is

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The Spin-Hamiltonian for Interaction of a Localized Electron in a Crystal with Magnetic Nuclear Moments. 51-6-20/25

spherically symmetrical. Expressions for the coefficients of the spin-Hamiltonian are obtained and the appropriate spin-Hamiltonian for an F-centre is discussed. The paper is entirely theoretical. The author thanks M. F. Deygen for directing this work. There are 5 references, of which 3 are Russian and 2 English.

SUBMITTED: June 26, 1957.

AVAILABLE: Library of Congress.

Card 2/2

AUTHORS: Deygen, M. F., Zevin, V. Ya.

SOV/56-34-5-13/61

TITLE: The Dependence of the Hyperfine Structure of F-Centers on the Orientation of the Crystal in an External Magnetic Field (Zavisimost' sverkhtonkoy struktury F-tsentra ot oriyentatsii kristalla vo vneshnem magnitnom pole)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol. 34, Nr 5, pp. 1142-1147 (USSR)

ABSTRACT: Taking into account the results of previous papers, the authors find a general expression for the spin interaction between an F-center electron and the angular moments of the first and second coordinational spheres surrounding the nuclei by using the continuous and orbital models of F-centers in KCl type lattices. The investigation of the anisotropy of the coefficients of the spin Hamiltonian leads to a good consistency with the results obtained by G. Feher (Feyer)'s experiments. First, the explicit form of the spin Hamiltonian of the interaction of the localized electron in a crystal with the magnetic moment of the k-th nucleus of the lattice is given. The authors take into account the interaction with the nuclei of the first and second coordination spheres, as this inter-

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action is the most essential one. The form of the ψ-function depends on the model of the F-center. In the case of the continuous model (using the method of the effective mass and the approximation of strong coupling) one may write $\psi = \varphi(r)\sum_k c_k \psi_k(\varrho_k)$ where $\varphi(r)$ denotes the wave function that is spherically symmetric with respect to the lattice defect. $\psi_k(\varrho_k)$ denotes the atomic 4s-functions of K and Cl. The authors then give an explicit expression for the ψ-function taking into account the contribution of the first and of the second coordination spheres and also of the central ion Cl^-. This expression is specialized for the model of the F-center. The authors first investigate the hyperfine interaction of the F-center electron with one of the nuclei of the first coordinate sphere. The corresponding expression for H_k is given explicitly. The authors then derive the spin Hamiltonian of the hyperfine interaction of the F-center electron with the chlorine nucleus of the second coordinate sphere. Some differ-

The Dependence of the Hyperfine Structure of F-Centers on the Orientation of the Crystal in an External Magnetic Field SOV/56-34-5-13/61

ences between the results of this paper and those obtained by Feher (Feyer) are mentioned. There are 1 figure, 2 tables, and 10 references, 7 of which are Soviet.

ASSOCIATION: Institut fiziki Akademii nauk Ukrainskoy SSR (Institute of Physics, AS Ukr SSR)

SUBMITTED: November 10, 1957

1. Perturbation theory 2. Crystals--Magnetic factors 3. Crystals --Lattices 4. Mathematics--Applications

Card 3/3

DEYGEN, M.F.; ZEVIN, V.Ya.

Effect of the orientation of crystals and an external magnetic field on the hyperfine structure of F-centers [with summary in English]. Zhur. eksp. i teor. fiz. 34 no.5:1142-1147 My '58. (MIRA 11:6)

1. Institut fiziki Akademii nauk Ukrainskoy SSR.
(Crystal lattices) (Potassium chloride--Magnetic properties)

TARASOV, N.I.; ZEVINA, G.B.; PAVLOVSKIY, Ye.N., akademik, glavnyy red.; BYKHOVSKIY, B.Ye., red.; VINOGRADOV, B.S., red.; SHTAKEL'BERG, A.A., red.; STRELKOV, A.A., red.; SERGEYEVA, G.I., red. izd-va; SMIRNOVA, A.V., tekhn. red.

[Barnacles (Cirripedia thoracica) in the seas of the U.S.S.R.] Usonogie raki (Cirripedia thoracica) morei SSSR. Moskva, Izd-vo akad. nauk SSSR, 1957. 263 p. (Fauna SSSR, no.69). (MIRA 11:3)

1. Direktor Zoologicheskogo instituta AN SSSR (for Pavlovskiy).
(Cirripedia)

Levina, G.B.

ZEVINA, G.B.; TARASOV, N.I.

New species of barnacles from the Soviet territorial waters of the Black Sea. Trudy SBS 8:341-346 '54. (MIRA 11:1)
(Black Sea--Cirripedia)

ZEVINA, G.B.

Overgrowing of ship bottoms in the Caspian Sea. Trudy Gidrobiol. ob-va 8:305-320 '57. (MIRA 11:3)

1. Institut okeanologii AN SSSR.
(Caspian Sea--Marine biology) (Ships--Painting)

LEVINA

AKUMUSHKIN, I.I.; BARANOVA, Z.I.; BRODSKIY, K.A.; VIRKETIS, M.A.; VOLODCHENKO, N.I.; GALKIN, Yu.I.,; GUR'YANOVA, Ye.F.; DOGEL' V.A.; D'YAKONOV, A.M.; ZEVINA, G.B.; IVANOV, A.V.; KIR'YANOVA, Ye.S.; KOBYAKOVA, Z.I.; KOLTUN, V.M.; KONZHUKOVA, Ye.D.; KOROTKEVICH, V.S.; KLYUGE, G.A.; LOZINA-LOZINSKIY, L.K.; LOMAKINA, N.B.; NAUMOV, D.V.; PERGAMENT, T.S.; RESHETNYAK, V.V.; SAVEL'YEVA, T.S.; SKARLATO, O.A.; SOKOLOV, I.I.; STRELKOV, A.A.; TARASOV, N.I.; USHAKOV, P.V.; SHCHEDRINA, Z.G. YAKOVLEVA, A.M.; USHAKOV, P.V., obshchiy rukovoditel'; PAVLOVSKIY, Ye.N., akademik, redaktor; STRELKOV, A.A. redaktor; BRODSKIY, K.A., redaktor; ARONS, R.A., tekhnicheskiy redaktor.

[Atlas of invertebrates of the Far East seas of the U.S.S.R.] Atlas bespozvonochnykh dal'nevostochnykh morei SSSR. Moskva, Izd-vo Akad.nauk SSSR, 1955. 240 p., 66 plates. (MLRA 8:10)

1. Akademiya nauk SSSR. Zoologicheskiy institut.
(Soviet Far East--Invertebrates)

ZEVINA, G.B.

AUTHOR: ZEVINA, G.B. PA - 3374

TITLE: Cirripeds. (Balanus improvisus Darwin and B.eburneus Gould) in Overgrowths on Ship-Bottoms and Hydrotechnical Constructions of the Caspian Sea)
(Usonogiye raki (Balanus improvisus Darwin i B.eburneus Gould) v obrastaniyakh sudov i gidrotekhnicheskikh sooruzheniy Kaspiyskogo morya, Russian).

PERIODICAL: Doklady Akademii Nauk SSSR, Vol 113, Nr 2, pp 450 - 453, 1957 (U.S.S.R.)

ABSTRACT: Cirripeds are the most common components of overgrowths on sea-going vessels. On the ship bottom they are often carried into regions far away from their original domain, where, under favourable conditions, they can propagate and colonize new regions. Thus Balanus eburneus came from North America into the Black Sea, many other organisms from the southern hemisphere into the northern one etc. The Caspian Sea turned out to be especially favourable for the naturalization of several intervertebrates and a few fishes from the Black Sea. Thus, the B.improvisus (1955) came here from the Black Sea through the Volga-Don-Canal. In 1956 also Balanus eburneus was found here (on stakes and buoys in the Krasnovodsk-bay and on wooden stakes of the Orguchinskiy-island, here in connection with Balanus improvisus). Balanus improvisus

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is obviously distributed all over the sea. An exception is the Baku-bay where the water contaminated by mineral oil obviously is not suited for cirripeds. When comparing the Caspian specimens of both kinds with those from the Black Sea some differences became evident: Balanus improvisus shows solid, thickwalled shells and is considerably larger, which apart from its vast distribution gives evidence of favourable conditions prevailing here. Balanus eburneus colonizes in the Krasnovodsk-bay on shells of the mollusk Mytilaster lineatus (also imported) and is smaller than specimen from the Black Sea. It might during the short period not have been able yet to attain its maximum size. In the Caspian as well as in the Asov Sea Balanus improvisus competes with Mytilaster lineatus in finding room to settle on vacant surfaces. Balanus improvisus is frequently found on ships, whereas Balanus eburneus occurs more rarely. The cirriped overgrowths do not only retard the speed of ships but also intensify the corrosion of the hull. They cur through the paint with the sharp edges of their shells and give seawater access to the metal. When growing they shove away the layer of paint and thus penetrate under the paint. The phenomenon of these crustaceans in the Caspian Sea makes it necessary to apply an anti-overgrowth paint with an admixture of DDT if necessary, as a coating for ships and buoys.

Cirripeds. PA - 3374

(1 Illustration, 1 schedule, 10 citations from Slav publications)

ASSOCIATION: Institute for Oceanology of the Academy of Science of the USSR
PRESENTED BY: I.I.SHMALGAUZEN, Member of the Academy
SUBMITTED:
AVAILABLE: Library of Congress

Card 3/3

ZEVINA, G.B., kand.biolog.nauk

Growth of the Caspian Sea fauna. Priroda 51 no.4:118-119 Ap '62. (MIRA 15:4)

1. Institut okeanologii AN SSSR, Moskva.
(Caspian Sea--Invertebrates)

ZEVINA, G.B.

Barnacles of the genus Scalpellum Leach collected by the Soviet Antarctic Expedition on the R. V. "Ob'" in Antarctic and sub-Antarctic waters. Issl. fauny morei 2:252-253 '64. (MIRA 17:10)

1. Institut okeanologii AN SSSR.

BARASHKOV, G.K.; ZEVINA, G.B.

Mass development of Teredo megotara Hanley (Teredinidae, Mollusca) in the Zelenetskaya Bay of the Barents Sea. Zool. zhur. 43 no.8: 1238-1240 '64. (MIRA 17:11)

1. Murmanskiy morskoy biologicheskiy institut i Institut okeanologii AN SSSR, Moskva.

ZEVL, Jiri, dr.

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