Here, $\lambda_{ij}^{(\varkappa)}$ is the tensor of the deformation potential, $a^{(\varkappa)}(x,s)$ is the Fermi operator of second quantization corresponding to an electron with the spin s which lies in the $\varkappa$-th energy minimum of the Brillouin zone, ρ is the crystal density, $\omega_{\vec{k}\nu}$ is the frequency of the ν-th branch of the acoustic spectrum, $e_{k\nu}$ is the unit vector of polarization, $c_{\vec{k}}^{(\nu)}$ is the Bose operator of second quantization, and $E_p^{(\varkappa)}$ is the dispersion law of the electron in the $\varkappa$-th minimum. It is further assumed that no transitions take place between the various minima. In contrast to Ref. 1 (where the perturbation theory had been applied), the author uses the advanced and retarded Green's two-time temperature functions for his calculations. By way of

$$|\tilde{\omega}_{k\nu}| = |\omega_{k\nu}| - \frac{\beta n F_{-1/2}(\beta\mu)}{s2pF_{1/2}(\beta\mu)} \sum_{(\varkappa)} |f_k^{(\varkappa\nu)}|^2. \qquad (18)$$

and

Card 3/ 6

$$\sigma_k = \frac{\pi T N |F|^2 e^{-2M}}{m |k|^2} \sum_{(\nu)} \frac{(H, e_k^{(\nu)})^2}{c_\nu^2},$$

(19)

and using the symmetry properties of the tensor $\lambda_{jl}^{(\nu)}$ he obtains the following system of equations for a germanium-type cubic crystal (with its minima in the [111] -direction) and considering three directions of the phonon wave vector $\vec{k}$:

$$[110]\left\{\begin{array}{c|c|c|c} 1 & \frac{(\lambda + \lambda_{12}^{(\nu)})^2 k \sqrt{2\rho}}{\sqrt{c_{11} + c_{12} + 2c_{22}}} & \frac{8(\lambda^2 + \lambda_1^2) k \sqrt{2\rho}}{\sqrt{c_{11} + c_{12} + 2c_{22}}} & \frac{(h+k)^2}{\frac{c_{11} + c_{12} + 2c_{22}}{\rho}} + \\ 2 & 0 & 0 & + 4\Delta_1 \\ 3 & \frac{(\lambda_{13}^{(\nu)} + \lambda_{23}^{(\nu)})^2 k \sqrt{\rho}}{\sqrt{c_{12}}} & \frac{16\lambda_1^2 k \sqrt{\rho}}{\sqrt{c_{24}}} & + \frac{(h-k)^2}{\frac{c_{11} - c_{12}}{\rho}} + \frac{l^2}{\frac{c_{22}}{\rho}} + 2\Delta_3 \end{array}\right.$$

$$A = \frac{\pi T |F|^2 N (a^*)^2 e^{-2M}}{|k|^2} \qquad \Delta_\nu = \frac{-\beta n B(k, \beta\mu)}{2\pi\rho F_{1/2}(\beta\mu)} \sum_{(\nu)} |f_k^{(\nu)}|^2,$$

Card 4/6

λ and λ_1 are independent components of the tensor of the deformation potential, $\sigma_{\vec{k}}$ is the intensity of diffuse scattering in the point $\vec{H}+\vec{k}$ of the inverse space, $\vec{H}(hkl)$ is the lattice node vector in the inverse space, N is the number of atoms in the scattering volume, m is the atomic mass, c_ν is the observed velocity of the ν-th branch, F is a structural factor, and e^{-2M} is a temperature factor. $\sigma_{\vec{k}}$ is given in A-units. Δ_ν is simplified for non-degenerate electrons to become

$\Delta_\nu = -\frac{\beta\bar{n}}{2\rho z}\sum_{(\alpha)}\left| f\frac{(\alpha\nu)}{k}\right|^2$; for the sound velocity, the following holds:

$\tilde{c}_\nu^2 = c_\nu^{(o)2} + 2\Delta_\nu$. Unlike the case of isotropic electron-phonon interaction, the correction to the phonon spectrum due to anisotropic interaction can be determined also if the carrier concentration is constant. The correction for sound velocity is, in a semiconductor with an electron concentration of 10^{17} cm^{-3}, of the order of 10%, and the same applies to

metals. V. L. Bonch-Bruyevich is thanked for having formulated the problem and for discussions. There are 1 table and 5 references: 2 Soviet and 3 non-Soviet. The latter read as follows: J. Bardeen, W. Shockley. Phys. Rev., 80, 72, 1950; C. Herring a. E. Vogt. Phys. Rev., 101, 3, 944, 1956; R. James. The optical Principles of The Diffraction of X-Rays. London, 1950.

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

SUBMITTED: January 27, 1961

S/181/62/004/010/031/063
B108/B104

AUTHOR: Khachaturyan, A. G.

TITLE: Determination of the elastic energy of the pair interaction of impurity atoms in a crystal lattice

PERIODICAL: Fizika tverdogo tela, v. 4, no. 10, 1962, 2840-2844

TEXT: The energy of the purely elastic interaction of two impurity atoms in a crystal lattice is calculated in the atomistic approximation of the discontinuous structure of the crystal. The final formula

$$V^{pp'}(\mathbf{k}) = -\exp i(\mathbf{k}, \mathbf{h}_p - \mathbf{h}_{p'}) \sum_{(s)} \frac{(\tilde{P}_n^*(\mathbf{k}, p'), \varepsilon_s)(\tilde{P}_n(\mathbf{k}, p)\varepsilon_s)}{m\omega_s^2(\mathbf{k})}. \quad (14)$$

obtained by expressing the functions in the energy of the system due to impurity atoms by their Fourier components is applied to the calculation of the diffusion scattering of X-rays by face-centered interstitial solutions. $\varepsilon_s(\vec{k})$ and $\omega_s(\vec{k})$ are the unit vector of polarization and the

Card 1/2

frequency of the s-th branch of the phonon spectrum. $\omega_s(\vec{k})$ is known from experiments for many substances. If it is not known, $\omega_s^2(\vec{k})$ and $\tilde{F}_n(\vec{k},p)$ can be expressed approximately by the elastic moduli and by the dependence of the linear expansion coefficient on the concentration (M. A. Krivoglaz, Ye. A. Tikhonova. UFZh, 4, 297, 1958; 174, 1960). F_n characterizes the chemical interaction of the foreign atom with the solvent atoms.

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

SUBMITTED: May 29, 1962

Card 2/2

KHACHATURYAN, A.G.

Determining the elastic energy of pair interaction of impurity atoms in the crystal lattice. Fiz.tver.tela 4 no.10:2840-2844 O '62. (MIRA 15:12)

1. Insitut fiziki metallov i metallovedeniya, Moskva.
(X-ray crystallography)

KHACHATURYAN, A.G.

Using the method of two-timed Green's functions to the ordered alloy problem. Fiz. met. i metalloved. 13 no.4:493-501 Ap '62. (MIRA 16:5)

1. Institut metallovedeniya fiziki metallov TSentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii.
(Alloys--Metallography) (Crystal lattices)

S/181/63/005/001/002/064
B102/B186

AUTHOR: Khachaturyan, A. G.

TITLE: Application of the Green function method to the thermodynamics of interstitial solutions

PERIODICAL: Fizika tverdogo tela, v. 5, no. 1, 1963, 15-20

TEXT: In a previous paper (FTM,4,4,1962), the author used the method of retarded and advanced Green functions to study the equilibrium of a two-component ordered solid solution. Here the thermodynamic equilibrium of an interstitial solution is considered in a similar way, viz., by assuming that this solution can be regarded as a system of interacting solute particles in the periodic field of the solvent atoms. The model Hamiltonian $\mathcal{H}_2 = U_2(c(x))$ forms the basis of the theoretical investigations; if the place x is occupied by an interstitial atom, $c(x) = 1$; otherwise $c(x) = 0$; U_2 is the total pair interaction of all interstitial atoms. In second-quantization representation,

$$\mathcal{H}_2 = -\mu \sum_{(x)} a(x)\,a(x) + \frac{1}{2} \sum_{(x,\,x')} V(x,\,x')\,a(x)\,a(x)\,a(x')\,a(x'), \quad (1,3)$$

Card 1/4

Application of the Green function ...

where $V(x,x')$ is the pair interaction energy of two interstitial atoms located at x and x', while $\bar{a}(x)$ and $a(x)$ are the production and annihilation operators in Heisenberg representation, subject to the Fermi anticommutation rules. Introducing the two-time Green function $G(x) = \langle\langle \bar{a}(x,x_0) \mid a(x,x_0')\rangle\rangle$, using the approximation

$$\langle\langle a(y)\,a(y)\,\bar{a}(x) \mid a(x)\rangle\rangle \simeq \langle a(y)\,a(y)\rangle G(x) +$$

$$+\langle a(y)\,\bar{a}(x)\rangle\langle\langle a_y \mid a\rangle\rangle = n(y)\,G(x) + \delta(x,\,y)(1-n_y)\,G_y,$$

and

$$\left\{\omega + \sum_{(y)} V(x,\,y)\,n(y)\right\} G(x) = \frac{1}{2\pi}, \qquad (2,3)$$

leads to

$$n(x) = (\exp[-\beta\mu + \beta\sum_{(y)} V(x,\,y)\,n(y)] + 1)^{-1}. \qquad (2,4)$$

for the occupation number. The solution of this equation for high temperatures reads $n(x) = \bar{n}$, where n is the mean concentration of the interstitial atoms. The case is then considered where a unit cell of solvent contains more than one interstitial, numbered in terms of p; this gives

$$V(x,\,x') = V^{pp'}(x-x') = V^{pp'}(\mathbf{R} + \mathbf{h}_p - \mathbf{R}' - \mathbf{h}_{p'}), \qquad (2,5)$$

where $\vec{R}$ and $\vec{R}'$ are the radius vectors of the unit cells, and $\vec{h}_p$ and $\vec{h}_{p'}$

those of the interstitials p and p' within the cell. The expression

$$\delta n(\mathbf{R}+\mathbf{h}_p) = -\beta n(1-n)\sum_{(p',\mathbf{R}')} V^{pp'}(\mathbf{R}+\mathbf{h}_p-\mathbf{R}'-\mathbf{h}_{p'})\,\delta n(\mathbf{R}'+\mathbf{h}_{p'}). \quad (2,7)$$

finally yields the set of linear homogeneous equations

$$\delta n^p(\mathbf{k}) = -\beta n(1-n)\sum_{(p')} V^{pp'}(\mathbf{k})\,\delta n^{p'}(\mathbf{k}), \quad (2,8)$$

$$\delta n^p(\mathbf{k}) = \sum_{(\mathbf{R})} \delta n(\mathbf{R}+\mathbf{h}_p)\exp i(\mathbf{k},\mathbf{R}),$$

$$V^{pp'}(\mathbf{k}) = \sum_{(\mathbf{R})} V^{pp'}(\mathbf{R}+\mathbf{h}_p-\mathbf{h}_{p'})\exp i(\mathbf{k},\mathbf{R}).$$

which has non-trivial solutions if $\|\delta_{pp'}+\beta_k n(1-n)V^{pp'}(\mathbf{k})\| \equiv 0.$ (2,9)

The branching point β_k corresponds to the temperature at which the stability of the disordered state disappears. To determine this temperature the roots of the secular determinant of (2.9) for certain values of k must be found.

ASSOCIATION: Institut metallovedeniya i fizika metallov TsNIIChM, Moskva (Institute of the Science of Metals and Physics of Metals of TsNIIChM, Moscow)

S/181/63/005/001/004/064
B102/B186

AUTHOR: Khachaturyan, A. G.

TITLE: Nonlinear equations of integral type and their application to problems in ordering alloys

PERIODICAL: Fizika tverdogo tela, v. 5, no. 1, 1963, 26-35

TEXT: A method is given for the exact solution of nonlinear integral equations of the type

$$f(\mathbf{x})=\Psi\Big(\sum_{(y)}V(\mathbf{x}-\mathbf{y})f(\mathbf{y})\Big), \qquad (1,1)$$

whose general solutions take the form

$$f(\mathbf{x})=\eta_0+\sum_{(s)}\eta_s\sum_{(j)}a(\mathbf{k}_s^j)e^{i\mathbf{k}_s^j\mathbf{x}}, \qquad (1,2)$$

$\{\mathbf{k}_s^j\}$ is defined as the set of wave vectors obtained from one vector by applying all the symmetry operators of the threedimensional infinite manifold $\{X\}$. A study is made of the properties needed by $f(\vec{x})$ in order to be able to reduce the great number of possible solutions to a suitable

Card 1/4

S/181/63/005/001/004/064
B102/B186

number. The set $\{\vec{k}_s^j\}$ is designated star representation of the space group, $a(\vec{k}_s^i)$ are Fourier coefficients, and the parameter η_s characterizes the star. It is proved that, for various values of $V(\vec{x})$, $f(\vec{x})$ is a solution of (1.1) if

$$\mathbf{k}_{s_1}^{j_1}+\mathbf{k}_{s_1}^{j_1}=2\pi\mathbf{b} \qquad (1,5)$$

$$\mathbf{k}_{s_1}^{j_1}+\mathbf{k}_{s_1}^{j_1}=2\pi\mathbf{b}+\mathbf{k}_{s_1}^{j_1}. \qquad (1,6)$$

if

$$\mathbf{k}_s^j=2\pi\left(\frac{h_1\mathbf{a}_1^*}{2}+\frac{h_2\mathbf{a}_2^*}{2}+\frac{h_3\mathbf{a}_3^*}{2}\right), \qquad (1,10)$$

for the star vectors and when the following theorem is fulfilled: "The function $f_{\nu-1}(\vec{x})$ is a solution of (1.1) if each of the functions $f_0(\vec{x})$, $f_1(\vec{x})$, ... $f_{\nu-1}(\vec{x})$ from $\{f\}$ assumes 1,2,3,..... ν different values from $\{X\}$ ". This method is used to study the ordering of two-component disordered solid solutions; here it is a question of solving the equation

$$f(\mathbf{x})=\Big[\exp\big(-\beta\mu+\beta\sum_{(y)}V(\mathbf{x}-\mathbf{y})f(\mathbf{y})\big)+1\Big]^{-1}, \qquad (2,1)$$

Card 2/4

Nonlinear equations of integral ... S/181/63/005/001/004/064
B102/B186

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

SUBMITTED: July 13, 1962

Card 4/4

S/181/63/005/003/008/046
B102/B180

AUTHOR: Khachaturyan, A. G.

TITLE: Nonlinear integral equations and their application for investigating the crystal symmetry of interstitital solutions

PERIODICAL: Fizika tverdogo tela, v. 5, no. 3, 1963, 750-758

TEXT: The author continues own investigations (FTT, 5, 17 and 34, 1963) on an application of the method of Green's functions to interstitial solutions. There a method was derived for solving the nonlinear integral equations arising, and here it is generalized for lattices with more than one atom per unit cell, in order to obtain a microscopic description of interstitial solutions. Cubic body-centered and face-centered systems with interstitials arranged in octahedral symmetry are considered. The equilibrium distribution of the interstitials, which are assumed to interact between each other, is determined and discussed. Their distribution is governed by nonlinear integral equations whose singularities correspond to those of the equilibrium characteristics, while the symmetry of the solutions corresponds to the space group of the phases.
Card 1/2

The solutions of the integral equations describe the superstructures of interstitial solutions of cubic lattices. As an example the Fe-C system is considered. There are 9 figures.

ASSOCIATION: Institut metallovedeniya i fiziki metallov TsNIIChERMET, Moskva (Institute of Metal Science and the Physics of Metals of the TsNIIChERMET, Moscow)

SUBMITTED: September 24, 1962

Card 2/2

L 19159-63 EWT(1)/EWP(q)/EWT(m)/BDS/EWP(B)/ES(s)-2 AFFTC/ASD/ESD-3/SSD/
ACCESSION NR: AP3005324 IJP(C) Pt-4 JD S/0181/63/005/008/2178/2184

71
68

AUTHOR: Khachaturyan, A. G.

TITLE: Application of the Green-function method to analysis of magnetic lattices

21

SOURCE: Fizika tverdogo tela, v. 5, no. 8, 1963, 2178-2184

TOPIC TAGS: Green function, magnetic lattice, spin, interaction, isotropic Hamiltonian, Heisenberg, magnetic moment, lattice site, branching, antiferromagnetic, superstructure

ABSTRACT: The author examines a crystal magnet with spin of $\frac{1}{2}$ in each site of the magnetic lattice. Interaction of spins is described by the isotropic Hamiltonian of Heisenberg. A nonlinear equation for mean magnetic moments in lattice sites is obtained by means of two-dimensional temperature functions of Green within the framework of simplest approximations. A method is proposed for finding a solution to this nonlinear equation. The dependence of the solution on the coordinates of lattice sites furnishes information to determine the magnetic unit cell of the superstructure. The dependence of the solution on temperature describes the temperature evolution of the magnetic lattice. The branching points of the equation correspond to temperatures of phase transitions that are accompanied by change in

Card 1/2

L 19159-63
ACCESSION NR: AP3005324

3

magnetic structures. The author illustrates his method by the example of a solution for antiferromagnetic structures. "The author expresses his deep thanks to V. L. Bonch-Bruyevich and S. V. Tyablikov for repeated discussions and valuable remarks." Orig. art. has: 1 figure and 22 formulas.

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

SUBMITTED: 09Mar63 DATE ACQ: 06Sep63 ENCL: 00

SUB CODE: PH NO REF SOV: 006 OTHER: 000

Card 2/2

ACCESSION NR: AP4019825 S/0181/64/006/003/0684/0694

AUTHOR: Khachaturyan, A. G.

TITLE: Theoretical investigation of symmetry of magnetic structures in the ground state of a magnetic crystal

SOURCE: Fizika tverdogo tela, v. 6, no. 3, 1964, 684-694

TOPIC TAGS: crystal symmetry, magnetic structure, ground state, crystal lattice energy, screw structure, magnetic lattice

ABSTRACT: The author investigates the three-dimensional vectors of magnetization at 0°K. He makes the ordinary assumption that the magnetic moments are localized at sites in some crystal lattice, and he assumes that the interactions between magnetic moments are paired. He then considers the magnetic configurations that are stable relative to weak changes in interaction potentials, and he examines the problem (within the classical framework) for the case when the operators of the magnetic moment may be replaced by classical vectors. This method proves to be valid when the magnetic moment at lattice sites is much greater than the Bohr magneton. The author uses the method of T. Holstein and H. Primakoff (Phys. Rev., 58, 1098, 1940)

Card 1/2

ACCESSION NR: AP4019825

to determine the energy in the ground state within a quantum framework, but this proves to be unnecessary for the specified conditions. The author shows that an analysis of the ground state from the quantum viewpoint, using the model and Hamiltonian employed by Holstein and Primakoff, leads to the same magnetic lattice as that derived on the basis of the classical Hamiltonian. "The author thanks V. L. Bonch-Bruyevich for valuable suggestions and for aid in the work, and he also thanks S. V. Tyablikov for extremely useful discussions of the results." Orig. art. has: 38 formulas.

ASSOCIATION: Institut metallovedeniya i fiziki metallov, Moscow (Institute of Metal Science and the Physics of Metals)

SUBMITTED: 22Jul63 DATE ACQ: 31Mar64 ENCL: 00

SUB CODE: SS, EM NO REF SOV: 001 OTHER: 001

Card 2/2

KHACHATURYAN, A.G.

Certain problems in the theory of ordering in interstitial solutions. Probl. metalloved. i fiz. met. no.8:373-381 '64. (MIRA 18:7)

L 5399-66 EWA(k)/EWA(c)/EWT(l)/EWT(m)/EWP(b)/T/EWP(t) JD/LHB

ACC NR: AP5027404 SOURCE CODE: UR/0181/65/007/011/3270/3277

AUTHOR: Semenovskaya, S. V.; Khachaturyan, A. G.

ORG: Central Scientific Research Institute of Ferrous Metallurgy, Moscow (Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii im. M. P. Bardina)

TITLE: On the feasibility of simultaneously accounting for the effects of static distortions, short-range order and thermal vibrations of atoms in the diffuse scattering of x-rays by polycrystalline substitutional solid solutions

SOURCE: Fizika tverdogo tela, v. 7, no. 11, 1965, 3270-3277

TOPIC TAGS: x ray scattering, polycrystal, solid solution

ABSTRACT: A method is proposed for finding short-range order parameters from measurements of diffuse scattering of x-rays by polycrystals of substitutional binary solid solutions. This method may be used for determining short-range order parameters in the case where static distortions due to differences in atomic geometric dimensions (dimensional effect), and thermal vibrations of atoms contribute to diffuse scattering. Orig. art. has: 20 formulas.

SUB CODE: SS/ SUBM DATE: 23May65/ ORIG REF: 006/ OTH REF: 004

Card 1/1

KHACHATURYAN, A.G.

Theory of modulated structures in binary solid solutions. Kristallografiia 10 no.3:303-310 My-Je '65.
(MIRA 18:7)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii imeni N.P. Bardina.

KHACHATURYAN, A.G.

Tetragonal theory of interstitial solutions in body-centered cubic lattices. Fiz. met. i metalloved. 19 no.3:343-348 Mr '65. (MIRA 18:4)

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

KHACHATURYAN, A.G.

Some problems in the microscopic theory of tetragonal interstitial solid solutions. Dokl. AN SSSR 165 no.3:551-554 N '65. (MIRA 18:11)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii im. I.P. Bardina. Submitted April 12, 1965.

L 11970-66 EWT(1)/EWT(m)/T/EWP(t)/EWP(b) IJP(c) JD/GG
ACC NR: AP6003245 SOURCE CODE: UR/0020/65/165/006/1284/1286

AUTHOR: Khachaturyan, A. G.

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

TITLE: Some problems in the theory of ordering in crystals

SOURCE: AN SSSR. Doklady, v. 165, no. 6, 1965, 1284-1286

TOPIC TAGS: crystal theory, ordered alloy, crystal lattice structure, phase transition

ABSTRACT: The author considers the case of configurational ordering in binary alloys where one of the simple (Bravais) lattices is in the disordered state. All the conclusions made in the paper are true for more complex lattices and may be extended to cases of magnetic ordering as well. An alloy with a disordered fcc lattice is examined. The theory developed in the paper is used for determining the distribution function of the atomic density for this alloy. A consequence of the theory is that the lattice period of a phase with a density which is not described by a

Card 1/2

L 11970-66 APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000721620019-3"
ACC NR: AP6003245

formula of this type should vary with a slight change in its thermodynamic parameters. This effect has not been experimentally confirmed. Theoretical considerations also show that the Lifshits criterion is a necessary condition for phase transitions of the second kind when there are ordinary phases with a constant symmetry on both sides of the transition point. However, this criterion is not a necessary condition of phase transition when the result is a structure of the helicoidal type. The theory developed in this paper is applicable no matter what type of phase transition is responsible for the formation of the ordered phase. Orig. art. has: 7 formulas.

SUB CODE: 20/ SUBM DATE: 29Apr65/ ORIG REF: 004/ OTH REF: 001

Card 2/2

L 33308-66 EWT(l)/EWT(m)/T/EWP(t)/ETI IJP(c) JD

ACC NR: AR6016223 SOURCE CODE: UR/0058/65/000/011/E031/E032

AUTHOR: Khachaturyan, A. G.

TITLE: Certain problems of the theory of ordering in interstitial solutions

SOURCE: Ref. zh. Fizika, Abs. 11E244

REF SOURCE: Sb. tr. In-t metalloved. i fiz. metallov Tsentr. n.-i. in-ta chernoy metallurgii, vyp. 36, 1964, 373-381

TOPIC TAGS: solid solution, ordered alloy, crystal lattice, crystal vacancy, martensite, iron alloy

ABSTRACT: This is a review of the author's papers on the theory of configuration ordering of the atoms of the solvent over the interstitial positions. The physical gist of the ordering phenomenon in interstitial solutions and its difference from the corresponding process in substitutional solutios are described. Cases of ordering of interstitial atoms in hcc and bcc lattices of the solvent are analyzed under conditions when the interstitial positions are octahedral voids. The structures of unit cells of the superstructures that are formed during the ordering process are predicted. The results of the author's work on ordering of interstitial atoms in bcc lattices at the expense of the energy of elastic stresses are reported. The theory of this phenomenon explains the tetragonal nature of martensite and is directly applicable to the systems Fe-C and Fe-N. [Translation of abstract]

SUB CODE: 20

Card 1/1

VARDANYANTS, L.A.; TATEVOSYAN, T.Sh., otvetstvennyy redaktor; KHACHATURYAN, A.S., redaktor; KAPLANYAN, M.A., tekhnicheskikh redaktor.

[Complex plagioclase twin crystals; with 68 illustrations] Kompleksnye dvoiniki plagioklaza; s 68 figurami. Erevan, Izd-vo Akademii nauk Armianskoi SSR, 1952. 78 p. illus. [Microfilm] (MLRA 7:10)

1. Chlen-korrespondent Akademii nauk Armyanskoy SSR (for Vardanyants). (Feldspar) (Crystallography)

KHACHATURYAN, E.A.

Mineralogy of pyrite ores of the Tanzut and Chibukhly deposits in Armenia. Izv. AN Arm. SSR. Ser. geol. i geog. nauk 10 no.3:13-20 '57. (MIRA 10:12)

1. Institut geologicheskikh nauk AN ArmSSR.
(Armenia--Pyrites)

KHACHATURYAN, E.A.

Geochemistry of ores of a pyrite formation in northern Armenia. Izv. AN Arm. SSR. geol. i geog. nauk 10 no.4:57-66 '57. (MIRA 11:2)

1. Institut geologicheskikh nauk AN ArmSSR.
(Armenia--Pyrites)

DOLUKHANOVA, Nina Ivanovna; KHACHATURYAN, E.A., otvetstvennyy red.; KAPLANYAN, M.A., tekhn. red.

[Application of a hydrochemical survey of copper and molybdenum deposits of the Armenian S.S.R.] Opyt primeneniia gidrokhimicheskoi s"emki na medno-molibdenovykh mestorozhdeniiakh Armianskoi SSR. Erevan, Izd-vo Akad. nauk Armianskoi SSR, 1958. 88 p. (MIRA 11:8)
(Armenia--Copper ores) (Armenia--Molybdenum ores)
(Water, Underground)

KHACHATURYAN, E.A.

3(5) PHASE I BOOK EXPLOITATION SOV/1923

Akademiya nauk SSSR. Otdeleniye geologo-geograficheskikh nauk. Komissiya po probleme "Zakonomernosti razmeshcheniya poleznykh iskopayemykh."

Zakonomernosti razmeshcheniya poleznykh iskopayemykh (Regularities in the Distribution of Mineral Deposits Vol 1. Moscow, Izd-vo AN SSSR, 1958. 532 p. Errata slip inserted. 2,500 copies printed.

Resp. Ed.: N.S. Shatskiy, Academician; Editorial Board: N.S. Shatskiy, Academician, D.I. Shcherbakov, Academician, N.A. Belyayevskiy, N.N. Dolgopolov, O.D. Levitskiy, Yu.M. Pushcharovskiy, G.A. Sokolov; Ed. of Publishing House: G.I. Nosov; Tech. Ed.: I.N. Guseva

PURPOSE: This book is intended for geologists and petrographers, particularly those interested in the worldwide distribution of minerals and the reasons underlying their occurrence.

COVERAGE: On the basis of particular regional studies this book attempts to establish the rules governing the distribution of metallic and non-metallic ore deposits. The work includes articles on the metallogeny of individual minerals, on broad methodological problems, and on the possibility of predicting the occurrence of a mineral in the USSR on the basis of its occurrence throughout the world. Six maps depicting the distribution of a particular mineral throughout the world are included with the work. References accompany each article.

TABLE OF CONTENTS

KHACHATURYAN, E.A.

Basic characteristics of the distribution of iron deposits in the Armenian S.S.R. Zakonom. razm. polezn. iskop. 1:407-415 '58. (MIRA 12:3)

1.Institut geologicheskikh nauk AN ArmSSR.
(Armenia--Iron ores)

KHACHATURYAN, E.A., glavnyy red.; ANANYAN, A.L., red.; KAPLANYAN, P.M., red.; PETROSYAN, I.Kh., red.; SHTIBEN, R.A., izdat. red.; AZIZBEKYAN, L.A., tekhn.red.

[Proceedings of the First Conference of Young Scientists of the Geological Institutes of the Academies of Science of Georgia, Azerbaijan, and Armenia] Trudy Pervoi Zakavkazskoi konferentsii molodykh nauchnykh sotrudnikov geologicheskikh institutov Akademii nauk Gruzinskoi, Azerbaidzhanskoi i Armianskoi SSR. Erevan, Izd-vo Akad.nauk Armianskoi SSR, 1959. 202 p. (MIRA 13:8)

1. Zakavkazskaya konferentsiya molodykh nauchnykh sotrudnikov geologicheskikh institutov akademiy nauk Gruzinskoy, Azerbaydzhanskoy i Armyanskoy SSR, 1st. 2. AN ArmSSR (for Kaplanyan). (Geology--Congresses)

KHACHATURYAN, E.A.; KODZHOYAN, A.A.

Discovery of renierite in one of the complex ore deposits in the Armenian S.S.R. Izv. AN Arm. SSR. Geol. i geog. nauki 13 no.3/4:115-121 '60. (MIRA 13:9)

1. Institut geologicheskikh nauk AN ArmSSR.
(Armenia--Renierite)

NALIVKIN, D.V., akademik, glav. red.; BELYAYEVSKIY, N.A., zam. glav. red.; TIKHOMIROV, V.V., zam. glav. red.; ASSOVSKIY, A.N., red.; MEL'NIKOV, O.D.,red.; SHATSKIY, N.S., akademik, red.[deceased]; YANSHIN, A.L., akad., red.; AKOPYAN, A.O., red.; ASLANYAN, A.T., red.; GOGINYAN, V.Ye., red.; GULYAN, E.Kh., red.; KAZARYAN, S.V., red.; MALKHASYAN, E.G., red.; KHACHATURYAN, E.A., red.; GOVORKYAN, L.M., red.vypuska; VARTANESOVA, [redacted], red. izd-va; SAROYAN, P.A., tekhn. red.

[Study of the geology of the U.S.S.R.] Geologicheskaia izuchennost' SSSR. Erevan, Izd-vo Akad. nauk Armianskoi SSR.Vol.48.[Armenian S.S.R.; period of 1951-1955] Armianskaia SSR; period 1951-1955. No.1.[Published studies] Opublikovannye raboty. 1961. 127 p. (MIRA 14:9)

(Armonia--Geology)

MAGAK'YAN, Ivan Georgiyevich; KHACHATURYAN, E.A., otv. red.; SHTIBEN, R.A., red. izd-va; AZIZBEKYAN, L.A., tekhn. red.

[Ore deposits; industrial types of metalliferous mineral deposits] Rudnye mestorozhdeniia; promyshlennye tipy mestorozhdenii metallicheskikh poleznykh iskopaemykh. Izd.2., dop. Erevan, Izd-vo AN Armianskoi SSR, 1961. 547 p. (MIRA 14:9)
(Ore deposits) (Metals, Rare and minor)

SOPKO, Pavel Filippovich; KHACHATURYAN, E.A., otv. red.; SHTIBEN, R.A., red.izd-va; SARGYAN, P.A., tekhn. red.

[Geology of the pyrite deposits of the Alaverdi ore region] Geologiia kolchedannykh mestorozhdenii Alaverdskogo rudnogo raiona. Erevan, Izd-vo AN Armianskoi SSR, 1961. 169 p. (MIRA 15:3)

(Alaverdi District—Pyrites)

KHACHATURYAN, E.A.; PARONIKYAN, V.O.

Hypogenic covelline in the ores of the Tandzut iron-pyrite deposit.
Zap.Arm.otd.Vses.min.ob-va no.2:18-21 '63. (MIRA 16:10)

MKRTCHYAN, S.S., glav. red.; MALKHASYAN, E G., otv. red.;
DOLUKHANOVA. N.I., red.; KHACHATURYAN, T.A., red.

[Problems of the geology of the Caucasus] Voprosy geologii Kavkaza. Erevan, Izd-vo AN Arm.SSR, 1964. 255 p.
(MIRA 17:10)

1. Akademiya nauk Armyanskoy SSR, Erivan, Institut geologicheskikh nauk.

KHACHATURYAN, G.

19980 KHACHATURYAN, G. Stalinskiy plan preobpazobaniya prirody. (Nauch. konferentsiya, organiz. Vsesoyuz. s.-kh. v-vom. Dek. 1948 g.) Izvestiya Akad. nauk. SSSR, Otd-niye ekonomiki i prava, 1949, No. 3, s. 188-200.

SO: LETOPIS ZHURNAL STATEY, Vol. 27, Moskva, 1949.

GOLUBKOV, P. A., KHACHATURYAN, G. G.

IVACHOV, F.

Books on the economics of agriculture. Sov. kniga. no. 7, 1952.

9. Monthly List of Russian Accessions, Library of Congress, November 1952, Uncl.

GULKANYAN, V.O.; KHACHATRYAN, G.G.

Changes in the tillering of wheat under the influence of gibberellin. Izv. AN Arm. SSR. Biol. nauki 14 no.12:9-23 D '61. (MIRA 15:3)

1. Institut zemledeliya Ministerstva sel'skogo khozyaystva Armyanskoy SSR.

(GIBBERELLIN)
(WHEAT)

USSR/Medicine - Scientists Nov/Dec 48
Medicine - Skin and Venereal Diseases

"The Fiftieth Anniversary of Professor L. M. Mashkilleyson," Docent G. Kh. Khachatur'yan, 1 p

"Vest Venerol i Dermatol" No 6

60/49T90

At a meeting 3 Jun 48, Moscow Dermato-Venereol Soc congratulated Mashkilleyson on his 50th birthday. He studied at Saratov U and the Cen Dermatol and Venereol Inst. He held various posts at the latter and at Voronezh Inst. In dermato-syphilology, he is one of the country's outstanding scientists.

60/49T90

USSR/Medicine - Scientists (Contd) Nov/Dec 48

He has written some 158 works. He became a member of VKP(b) in 1945 and received many honors.

60/49T90

KHACHATUR'YAN, Docent G. Kh.

60/49T90

REZNIKKOV, E. K., KHACHATUR'IAN, G. K.

Complications and side effects in penicillin treatment. Vest. venor. No. 4, July-Aug. 50. p. 42-3

1. Of the Clinic for Skin Diseases, Second Moscow Medical Institute imeni I. V. Stalin and the 8th Venereal Dispensary (Director— Honored Worker in Science Prof. F. N. Grinchar).

CLML 19, 5, Nov., 1950

KHACHATUR'YAN, G. K.

Penicillin therapy of syphilis. Vest. vener. no.5:22-27 Sept-Oct 1950. (CIML 20:1)

1. Of the Clinic for Skin Diseases (Director -- Honored Worker in Science Prof. F. N. Grinchar), Second Moscow Medical Institute imeni I. V. Stalin.

KHACHATURYAN, G. Kh.

Penicillin in the treatment of syphilis.. Uchen. zapski vtor. moskov. med Inst. Stalina. 1:101-110 1951 (CLML 21:3)

1. Docent. 2. Clinic for Skin Diseases (Director — Prof. F. N. Grinchar, Honored Worker in Science).

KHACHTUR'YAN, G. KH., DOCENT, RABINOVICH, M. V.

Aneurism, Aortic

Syphilitic aortic aneurism with damage of the sternum. Vest. ven. i derm. no. 5, Sept. - Oct. 1952.

9. Monthly List of Russian Accessions, Library of Congress, December 1953/2 Unclassified.

KHACHATUR'YAN, G.Kh.;DAYNYAK, A.N.;REZNIKOV, Ye.K.

Penicillin dermatitis. Sovet. med. 16 no. 6:11-13 June 1952. (CLML 22:4)

1. Of the Clinic for Skin Diseases (Director -- Prof. F. N. Grincher, Honored Worker in Science), Second Moscow Medical Institute imeni I. V. Stalin and of the 8th Venereological Dispensary.

KHACHATUR'YAN, O. Kh.; ORLOVA, K. Ye.

Therapy of purulent skin diseases. Vest. ven. i derm. no.5:6-10 S-O '55 (MLRA 9:1)

1. Iz kliniki kozhnykh i venericheskikh bolezney II MMI imeni I. V. Stalina (zav. kafedroy prof. M. M. Zheltakov)

(PYODERMA, therapy
antibiotics)
(ANTIBIOTICS, therapeutic use,
pyoderma)

Name: KHACHATUR'YAN, Grigoriy Khristoforovich

Dissertation: Treatment of Syphilitics and patients with Double Infection (Syphilis and Tuberculosis) with Repeated Courses of Penicillin

Degree: Doc Med Sci

Affiliation: Kalinin State Med Inst

Defense Date, Place: 4 Jun 56, Council of 2nd Moscow State Med Inst imeni Stalin

Certification Date: 17 Nov 56

Source: BMVO 6/57

ZHELTAKOV, M.M., professor; STUDNITSIN, A.A., professor; KHACHATUR'YAN, G.Kh., dotsent

Instruction method in a practical course on dermatology and venerology Vest.ven. i derm. 30 no.4:43-46 Jl-Ag '56. (MLRA 9:10)

1. Iz kafedry kozhnykh i venericheskikh bolezney (zav. - prof. M.M. Zheltakov) II Moskovskogo meditsinskogo instituta imeni I.V.Stalina

(EDUCATION MEDICAL
instruction method in practical course on dermatol. & venerol.)
(DERMATOLOGY, educ.
same)

KHACHATUR'YAN, G.Kh.

KHACHATUR'YAN, G.Kh., doktor meditsinskikh nauk (g. Kalinin)

Teaching and independant work of students in the dermatology department. Vest.derm. i ven. 31 no.4:36-38 Jl-Ag '57. (MIRA 10:11)
(DERMATOLOGY, educ.
train, methods in Russia)

KHACHATUR'YAN, G.Kh., doktor med.nauk

Clinical forms, pathogenesis, and treatment of acute lupus erythematosus. Sov.med. 22 no.4:3-8 Ap '58 (MIRA 11:7)

1. Zaveduyushchiy kafedroy kozhnykh bolezney Kalininskogo meditsinskogo instituta.

(LUPUS ERYTHEMATOSUS, DISSEMINATED, clin. forms, pathogen. & ther. (Rus))

KHACHATUR'YAN, O.Kh., dots., SHARAPOVA, G.Ya., assistent

Adrenocorticotropic hormone and cortisone in the treatment of acute pupus erythematosus. Vest.derm. i ven. 32 no.3:76-78 My-Je '58 (MIRA 11:7)

1. Iz kafedry kozhnykh i venericheskikh bolezney (zav. - prof. M.M. Zheltakov) II Moskovskogo meditsinskogo instituta imeni N.I. Pirogova.

(LUPUS ERYTHEMATOSUS, DISSEMINATED, ther.
adrenal cortex hormones (Rus))
(ACTH, ther. use
disseminated lupus erythemotosus (Rus))

KHACHATUR'YAN, G.Kh., prof.

"Lesions of the oral mucosa in skin and venereal disease" by B.M. Pashkov. Reviewed by G.Kh. Khachatur'ian. Vest.derm.i ven. 33 no.4 :81-82 Jl-Ag '59. (MIRA 12:11)
(SKIN--DISEASES) (MOUTH--DISEASES) (VENEREAL DISEASES)
(KHACHATUR'IAN, G.Kh.)

KHACHATUR'YAN, G.Kh., prof.; IGOSHIN, Yu.M., assistent

Tolerance to epilin. Sov.med. 25 no.1:130-134 Ja '61.
(MIRA 14:3)

1. Iz kafedry kozhnykh bolezney Kalininskogo gosudarstvennogo meditsinskogo instituta (zav.kafedroy - prof. G.Kh.Khachatur'yan).
(FUNGICIDES)

KHACHATUR'YAN, G.Kh., prof.; ORLOVA, K.Ye., kand.med.nauk;
OVSYANNIKOVA, I.D. [deceased], assistent

Condition of the liver and its role in the pathogenesis and treatment of lupus erythematosus discoides. Vest.derm.i ven. no.9:26-28 '61. (MIRA 15:5)
(LUPUS) (LIVER)

KHACHATUR'YAN, G. Kh., prof.; ORLOVA, K. Ye., kand. med. nauk

Lesion of the mucous membrane in tuberculosis of the oral cavity. Trudy KGMI no.2:52-62 '60. (MIRA 15:7)

1. Iz kafedry kozhnykh bolezney - zav. kafedroy prof. G. Kh. Khachatur'yan.

(MOUTH--TUBERCULOSIS) (MUCOUS MEMBRANE)

KHACHATUR'YAN, G.Kh., prof.

Preliminary data on the treatment of certain forms of syphilis with bicillin. Vest.derm.i ven. 33 no.5:54-58 S-O '59. (MIRA 13:2)

1. Iz kafedry kozhnykh i venericheskikh bolezney (zaveduyushchiy - prof. G.Kh. Khachatur'yan) Kalininskogo meditsinskogo instituta.
(PENICILLIN ther.)
(SYPHILIS ther.)

KHACHATURYAN, Kh.

Motion pictures for road builders. Avt.dor. 23 no.2:30-31 F '60. (MIRA 13:5)

1. Direktor kinokartiny kinostudii "Mosnauchfil'm."
(Motion pictures in industry)

KHACHATURYAN, L.M.

The extent of surgical intervention in primary melanoblastoma of the skin. Vop. onk. 11 no.6:44-51 '65. (MIRA 18:8)

1. Iz 2-go khirurgicheskogo otdeleniya (zav. - chlen-korrespondent AMN SSSR prof. A.I.Rakov) Instituta onkologii AMN SSSR (dir. - deystvitel'nyy chlen AMN SSSR prof. A.I.Serebrov).

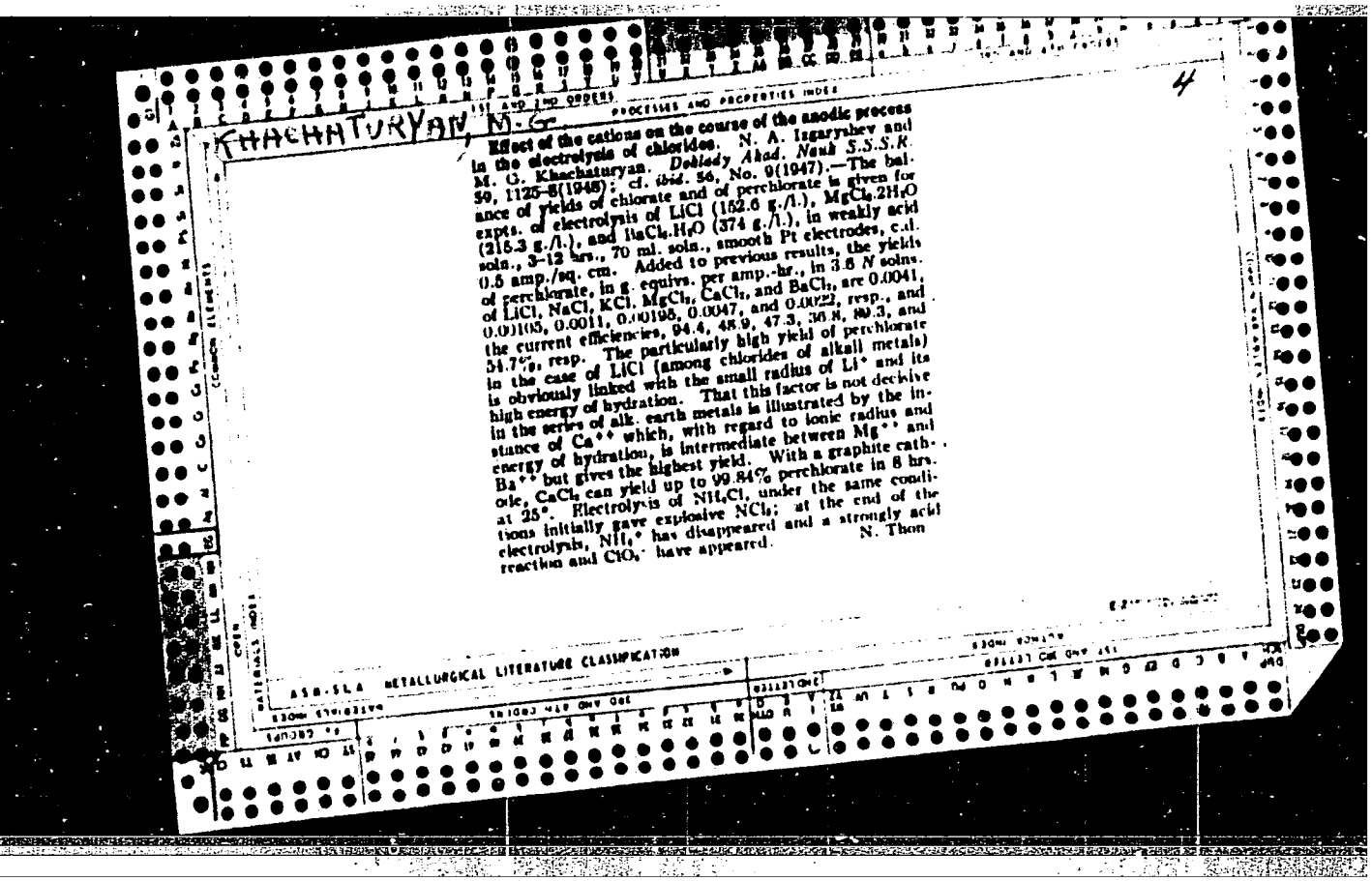
4

CA

KHACHATURYAN, M. G.

The dependence of the anodic process in the electrosynthesis of perchlorates on the cation of the initial electrolyte. N. A. Izgaryshev and M. G. Khachaturyan. *Doklady Akad. Nauk S.S.S.R.* 56, 929-32(1947); *Chem. Zentr.* 1948, I, 136.—The direct electrolysis of NaCl or KCl (preferably in nonalk. soln.) to perchlorate gives a yield of only 40-50% perchlorate. Perchlorate yields of 90% are obtained in the electrolysis of $CaCl_2$ and $BaCl_2$, the electrolysis being more rapid with $BaCl_2$. Optimum conditions: temps. 24-42° and c.d. 0.5 and 0.08 amp./sq. dm. In the electrolysis of $KClO_3$ to $KClO_4$ the addn. of K_2CrO_4 is effective; an alk. reaction reduces the yield here also.

M. G. Moore



KHACHATURYAN, M.G.

4

Effect of the cations on the course of the anodic process in the electrolysis of chlorides. N. A. Izgaryshev and M. G. Khachaturyan. *Doklady Akad. Nauk S.S.S.R.* 59, 1125–8(1948); cf. *ibid.* 56, No. 9(1947).—The balance of yields of chlorate and of perchlorate is given for expts. of electrolysis of LiCl (152.6 g./l.), $MgCl_2.2H_2O$ (216.3 g./l.), and $NaCl_2.H_2O$ (374 g./l.), in weakly acid soln., 3–12 hrs., 70 ml. soln., smooth Pt electrodes, c.d. 0.5 amp./sq. cm. Added to previous results, the yields of perchlorate, in g. equivs. per amp.-hr., in 3.6 *N* soins. of LiCl, NaCl, KCl, $MgCl_2$, $CaCl_2$, and $BaCl_2$, are 0.0041, 0.00105, 0.0011, 0.00198, 0.0047, and 0.0022, resp., and the current efficiencies, 94.4, 48.9, 47.3, 36.8, 80.3, and 54.7%, resp. The particularly high yield of perchlorate in the case of LiCl (among chlorides of alkali metals) is obviously linked with the small radius of Li^+ and its high energy of hydration. That this factor is not decisive in the series of alk. earth metals is illustrated by the instance of Ca^{++} which, with regard to ionic radius and energy of hydration, is intermediate between Mg^{++} and Ba^{++} but gives the highest yield. With a graphite cathode, $CaCl_2$ can yield up to 99.84% perchlorate in 8 hrs. at 25°. Electrolysis of NH_4Cl under the same conditions initially gave explosive NCl_3; at the end of the electrolysis, NH_4^+ has disappeared and a strongly acid reaction and ClO_4^- have appeared.

N. Thon

KHACHATURYAN, M. G.

GORBACHEV, S.V.; KHACHATURYAN, M.G.

In memory of M.A. Izgaryshev. Zhur.fiz.khim. 31 no.4:928-931 Ap '57. (MLRA 10:7)

(Izgaryshev, Nikolai Alekseevich, 1884-1956)

KHOMUTOV, N.Ye.; KHACHATURYAN, M.G.; ZAKHODYAKINA, N.A.

Kinetics of anodic processes in solutions of carboxylic acid salts. Zhur.fiz.khim. 37 no.1:189-193 Ja '63. (MIRA 17:3)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni Mendeleyeva.

KHACHATURYAN, M. N., DUNAYTSEV, A. F., PANTUYEV, V. S., PROKOSHKIN, YU. D.,

"Measurement of the Panofisky Ratio by the Method of Gamma-Gamma Coincidents"

paper presented at the Intl Confernece on High Energy Physics, Rochester, N. Y. and/or Berkly California, 25 Aug - 16 Sep 1960.

69068
S/120/60/000/01/003/051
E032/E314

21.5300

AUTHORS: Pantuyev, V.S., Khachaturyan, M.N. and Chuvilo, I.V.

TITLE: A Cherenkov Spectrometer for the Measurement of Gamma-ray Energies

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, Nr 1, pp 19 - 22 (USSR)

ABSTRACT: A description is given of the construction and the principle of a Cherenkov gamma spectrometer. The spectrometer is designed for gamma-ray energy measurements in the energy interval between 100 MeV and a few GeV. The spectrometer is based on the following principle. The incident gamma quanta form electron-photon showers in a lead-glass "radiator". A considerable fraction of the energy of the shower is absorbed in the latter. The Cherenkov radiation emitted by the charged component of the shower is taken as a measure of the initial energy of the gamma quantum. The spectrometer has been calibrated using mono-energetic electrons in the energy interval between 100 and 130 MeV. Energy resolution of the spectrometer at 200 MeV is ± 40%. The spectrometer has a 100% efficiency and is linear. Figure 4 shows a

Card1/2

OZIDANIY, L.; PANTUYEV, V.S.; KHACHATURYAN, M.N.; CHUVILO, I.V.

The total cross section for interaction of neutrons with protons at the energy of 8.3 BeV. Dubna, Ob"edinennyi in-t iadernykh issledovanii, 1961. 5 p. (MIRA 14:11)
(No subject heading)

OZHDYANI, L.; PANTUYEV, V.S.; KHACHATURYAN, M.N.

Tracking a neutral particle beam by means of a gamma source.
Prib. i tekh. eksp. 6 no.2:173-174 Mr-Ap '61 (MIRA 14:9)

1. Ob"yedinennyy institut yadernykh issledovaniy.
(Particles (Nuclear physics))

PANTUYEV, V.S.; KHACHATURYAN, M.N.

Cross section for 8,3 BeV neutron interaction with nuclei.
Dubna, Ob"edinennyi in-t iadernykh issledovanii, 1962. 5 p.
(No subject heading)

S/120/62/000/005/012/036
E032/E314

AUTHORS: Ozhdyani, L., Pantuyev, V.S. and Khachaturyan, M.N.

TITLE: Application of spark discharges in scintillation technique

PERIODICAL: Pribory i tekhnika eksperimenta, no. 5, 1962, 80 - 83

TEXT: Generally, the auxiliary electronics in scintillation and Cerenkov counters are adjusted with the aid of pulse generators. This is time-consuming and inconvenient. The authors report in the present paper a method in which a relatively simple device may be used to adjust the counting apparatus under conditions very similar to the accelerator-running conditions. In this method short light pulses produced by spark discharges are simultaneously applied to a large number of counters and this simulates the passage of charged particles through the counters. Various spark generators were investigated and it was found that the best results (shortest light pulses) were obtained with high pressures and low molecular weights. Discharges in air at atmospheric pressures were also investigated.

Card 1/2

S/120/62/000/005/012/036
E032/E314

Application of spark ....

Rise times of the order of 3-4 n sec were obtained with hydrogen and air. The pulses were triggered-off by a hydrogen thyratron or a simple RC integrating circuit. Improved frequency characteristics were achieved by using a multi-electrode system of the form shown in Fig. 6. This system can be used to obtain a repetition frequency of 10^6 c.p.s. or more. Another system employed is illustrated in Fig. 7a, in which 1 is the spark gap, 2 the counter envelope, 3 phosphor, 4 the light pipe, 5 photomultiplier for the cathode and 6 is a magnetic shield. Various essentially conventional delay-line arrangements are also described. The general conclusion is that spark generators may be successfully used for the adjustment of pulse electronics operating in the n sec range. There are 11 figures.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute for Nuclear Studies)

SUBMITTED: December 26, 1961

Card 2/32

44444

S/120/62/000/006/023/029
E032/E114

9,4160

AUTHORS: Ozhdyani, L., Pantuyev, V.S. and Khachaturyan, M.N.

TITLE: Time characteristics of photomultipliers with large photocathodes

PERIODICAL: Pribory i tekhnika eksperimenta, no. 6, 1962, 119-120

TEXT: The characteristics of the ФЭУ-44 (FEU-44) and ФЭУ-45 (FEU-45) photomultipliers, which have large photocathode areas and are therefore suitable for Cherenkov and scintillation counters, were investigated. The photocathodes are semi-transparent (Sb-Cs) with a maximum sensitivity at 4 000 Å, a quantum yield of about 10% at 4047 Å and an amplification factor of about 10^6. They are both very sensitive to external fields and require careful screening. Their properties were determined with the aid of the spark generator described in a previous paper (Ya.M. Fogel', V.F. Kozlov, A.A. Kalmykov and V.I. Muratov, Zh. eksperim. i teor. fiz., v. 36, 1959, 1312) (spark length 1 ns). It was found that these photomultipliers were capable of producing pulse rise-times of 10-15 ns and were suitable for Cherenkov and scintillation counters working with fast coincidence circuits.

Card 1/2

C/026/62/018/004/007/009
F050/F003

AUTHOR: Dunaitsev, A. F., Pantuyev, V. S., Prokoshkin, Yu. D., Tang, Hsiao-wei (0781/1321/1218), and Khachaturyan, M. N.

TITLE: Measurement of the Panofsky ratio by the method of gamma-gamma coincidences

PERIODICAL: Wu Li Hsüeh Pao, v. 18, no. 4, 1962, 218-219

TEXT: There are two capture processes of stopped π^- mesons in hydrogen

$$\pi^- + p \longrightarrow \pi^0 + n \longrightarrow \gamma' + \gamma'' + n \qquad (1)$$

$$\pi^- + p \longrightarrow \gamma + n \qquad (2)$$

where p is proton and n is neutron. The ratio of probability of these two processes is called the Panofsky ratio P. A new method was devised by the authors for measuring the Panofsky ratio by means of γ - γ coincidences. Procedures follow (see

Card 1/2

Fig. 1): The injected π^- mesons are stopped in the target of liquid hydrogen. The γ-photons and γ'-photons produced respectively in reaction (2) and reaction (1) are measured by counter (A). The γ''-photons produced in reaction (1) are measured by counter (B). The ratio of reaction (2) and reaction (1) can be determined. In this experiment the energy of π^- meson beams was 6.5 Mev. The experimental P result was found to be 1.40 ± 0.08. This value agrees with the data in photoproduction and scattering of π^- mesons. Author Tang Hsiao-wei thanks Professor Wang Ka n-ch'ang (3769/3227/2490) in particular for his interest and discussions. There are 3 figures.

SUBMITTED: January 15, 1962

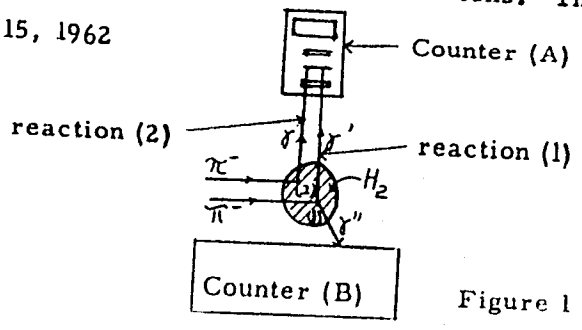


Figure 1

Card 2/2

S/056/62/042/003/044/049
B108/B102

AUTHORS: Pantuyev, V. S., Khachaturyan, M. N.

TITLE: Interaction cross section of 8.3-Bev neutrons with nuclei

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 3, 1962, 909-910

TEXT: The total and inelastic scattering cross sections for 8.3-Bev neutrons on C, Al, Cu, Sn, and Pb nuclei were measured at the proton synchrotron of the OIYaI. The measurements were made by varying the distance target and detector. The C, Cu, and Pb specimens were respectively 20.33, 53.47, and 60.50 g/cm^2 thick. The results (Tables 1,2) show that the inelastic scattering cross sections are constant over a large energy range. The observed decrease in total scattering cross section with increasing energy is due to the decrease in diffraction scattering. A theoretical treatment will be given in a subsequent paper. V. I. Veksler and I. V. Chuvilo are thanked for interest and discussions, L. P. Zinov'yev and the synchrotron team for their careful work. There are 1 figure, 2 tables, and 4 references: 1 Soviet and 3 non-Soviet. The

three references to English-language publications read as follows: T. Coor et al. Phys. Rev., 98, 1369, 1955; J. H. Atkinson et al. Phys. Rev. Lett., 2, 168, 1959; P. H. Barrett. Phys. Rev., 114, 1374, 1959.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: January 11, 1962

Table 1. Interaction cross section (mbr) of neutrons with nuclei as depending on the angle θ (degrees).

Table 2. Total and inelastic interaction cross sections (mbr) as depending on neutron energy. Legend: (1) energy, Bev.

L 11376-63 BDS

S/120/63/00/002/017/041

AUTHOR: Maly, B., Pantuyev, V. S., and Khachaturyan, M. N.

TITLE: Twelve-channel amplitude analyzer

PERIODICAL: Pribory i tekhnika eksperimenta, March-April 1963, v. 8, no. 2, 73-75

TEXT: The article describes a pulse-amplitude analyzer designed for nuclear spectroscopy. Pulses from a continuous spectrum are converted into pulses with 12 discrete amplitudes and distributed into the different channels by an LP-1 tube. The channel width is 5.79 v, the nonuniformity of the channels is ± percent, the threshold stability is ± 0.2 percent over 8 hr, and the dead time is 30 μsec. The analyzer was used for calibrating a total-absorption Cherenkov spectrometer. There are three figures.

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy (Joint Institute for Nuclear Research)

SUBMITTED: June 18, 1962

ja/ll

Card 1/1

KHACHATURYAN, M.N.; LANTUKH, V.I.

Cherenkov spectrometer for measuring the energy of gamma quanta. Prib. i tekh. eksp. 8 no.6:29-32 N-D '63. (MIRA 17:6)

1. Ob"yedinennyy institut yadernykh issledovaniy.

S/056/63/044/004/040/044
B102/B186

AUTHORS: Khachaturyan, M. N., Pantuyev, V. S.

TITLE: Total neutron-neutron interaction cross section at an energy of 8.3 Bev

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44, no. 4, 1963, 1411 - 1412

TEXT: The total neutron-neutron interaction cross section was measured in the proton-synchrotron of the OIYaI. The neutron detector was a telescope consisting of scintillation counters and a total-absorption lead-glass Cherenkov counter; the monitor was a telescope consisting of three scintillation counters. The cross section was measured by a difference method with two targets (H_2O and D_2O) of 50.01 and 55.60 g/cm^2, respectively. For E_n = 8.3 Bev the result was σ_{nn} = 31.5 ± 1.7 mb. Since the cross section additivity is violated due to screening, ($\sigma_{nd} = \sigma_{nn} + \sigma_{np} - \frac{1}{4\pi}\sigma_{nn}\sigma_{np}\langle r^{-2}\rangle$, Glauber, Phys. Rev. 100, 242, 1955) the correction factor is calculated. It was found to amount to 8 mb, which is a close agreement with Glauber's value of 7.2 mb.

Card 1/2

Total neutron-neutron interaction... S/056/63/044/004/040/044
B102/B186

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: January 12, 1963

Card 2/2

BEKKER, B.I.; PANTUYEV, V.S.; SVIRIDOV, V.A.; KHACHATURYAN, M.N.

Measurement of the cross section of the $C^{12}(p, pn)C^{11}$ reaction at an energy of 9 Bev. Zhur. eksp. i teor. fiz. 45 no.4:1269-1270 O '63. (MIRA 16:11)

1. Ob"yedinennyy institut yadernykh issledovaniy.

ACCESSION NR: AP4009098 S/0056/63/045/006/1808/1810

AUTHORS: Khachaturyan, M. N.; Pantuyev, V. S.

TITLE: Total cross section for the interaction between neutrons and protons at 5.5 GeV

SOURCE: Zhurnal eksper. i teoret. fiziki, v. 45, no. 6, 1963, 1808-1810

TOPIC TAGS: neutron proton interaction, np interaction cross section, np total cross section

ABSTRACT: The total cross section for the interaction of 5.5 GeV neutrons with protons was measured with apparatus previously described (ZhETF v. 42, 392 and 909, 1962; ZhETF v. 44, 1411, 1963), using targets of polyethylene and carbon 48.53 and 41.56 g/cm^2 thick, respectively. Some 1000 experimental points were obtained by alternately exposing the polyethylene and carbon to approximately 10--15

Card 1/2

ACCESSION NR: AP4009098

accelerator operating cycles. These points were then analyzed with an electronic computer. The total cross section was found to be 41.2 ± 1.7 mb. "The authors are grateful to Academician V. I. Veksler for collaboration and interest in the work. We are greatly indebted to I. V. Chuvilo for help and continuous attention, to V. I. Ivanov for help during the measurement, to programmer Yang Fu-ch'ing of the OIYaI computation center, and to L. P. Zinov'ev, M. I. Yatsuta, and the entire proton synchrotron crew for prolonged stable operation of the accelerator." Orig. art. has: 1 figure.

ASSOCIATION: Ob"yedinenny*y institut yaderny*kh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: 12Jun63 DATE ACQ: 02Feb64 ENCL: 00

SUB CODE: PH NO REF SOV: 004 OTHER: 005

Card 2/2

PANTUYEV, V.S.; KHACHATURYAN, M.N.

Pulse height analysis with photographic recording on a moving film. Atom.energ. 16 no. 5:444-446 My '64. (MIRA 17:5)

ACCESSION NR: AP4019254 S/0056/64/046/002/0813/0814

AUTHORS: Bekker, B. I.; Pantuyev, V. S.; Sviridov, V. A.; Khachaturyan, M. N.

TITLE: Diffusion losses of C-11 nuclei in the activation of plastic films by high energy protons

SOURCE: Zhurnal eksper. i teor. fiz., v. 46, no. 2, 1964, 813-814

TOPIC TAGS: carbon 11 nuclei, loss of carbon 11, carbon 11 loss, proton beam intensity measurement, carbon 11 diffusion loss, polyethylene, ethylene and propylene copolymer

ABSTRACT: Since the loss of C^{11} nuclei from activated plastic films used to measure the accelerator internal proton beam intensity can introduce appreciable errors, and since these losses have been found to vary from one batch of plastic to another, the authors measured these losses in samples of the same plastic then used in

Card 1/2

ACCESSION NR: AP4019254

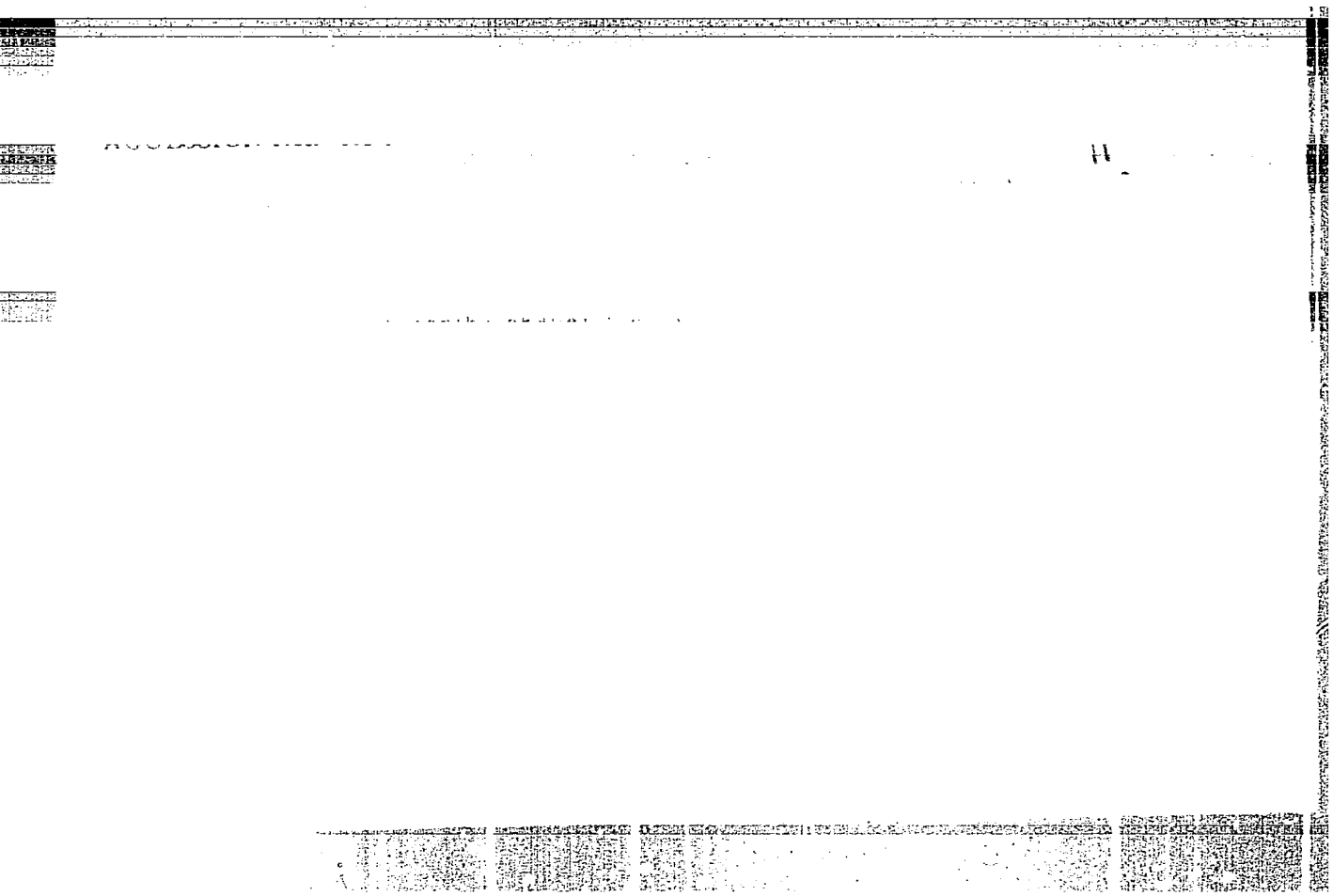
one of their experiments (International Conference on High-Energy Physics, CERN, 1962). Stacks of polyethylene film and of films of a copolymer of ethylene with propylene, 0.2 to 20 mg/cm^2 thick, were irradiated by the internal proton beam of the proton synchrotron at 9 GeV. The percentage loss due to diffusion was measured with a 95 mg/cm^2 polystyrene scintillator. The diffusion losses obtained under different exposures ranged from 9 to 14% with an average of 11.8 $\pm$ 1%. These losses were found to be independent, over a wide energy range, of both radiation intensity and energy or character of irradiating particles. "The authors are grateful to M. Shafranov and L. Strunov for help and useful discussions."

ASSOCIATION: Ob"yedinenny*y institut yaderny*kh issledovaniy (Joint Institute of Nuclear Research)

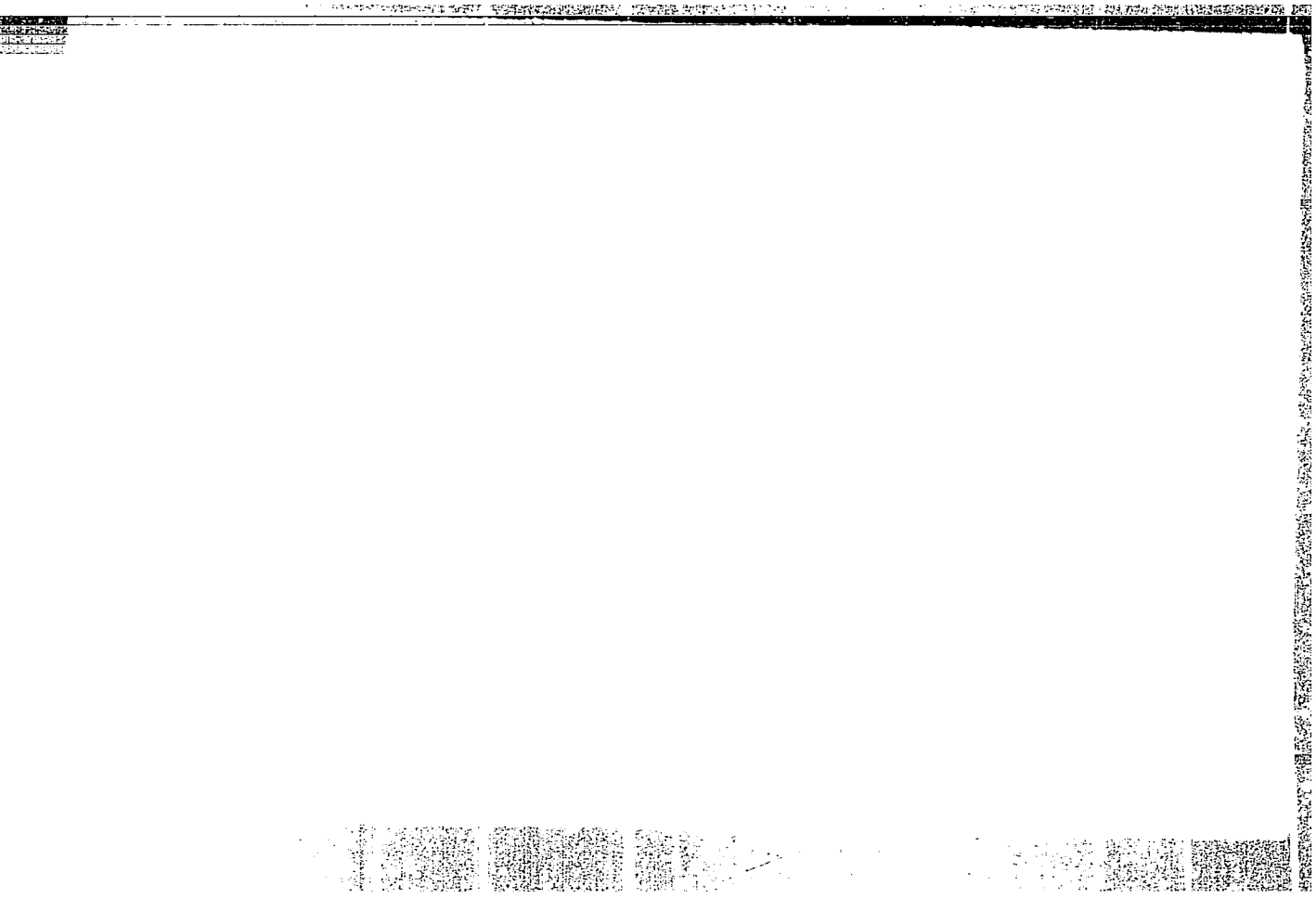
SUBMITTED: 030ct63 DATE ACQ: 27Mar64 ENCL: 00

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

Card 2/2



APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000721620019-3"



APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000721620019-3"

S. Khachaturyan, M.

[illegible] neutrons

Yadernaya fizika, v. 1, no. 1, 1965, [illegible]

[illegible] total cross section, total [illegible] energy NN interaction,

[illegible] information concerning the [illegible] interaction

[illegible] hypothesis concerning the asymptotic behavior of cross sections in the high-energy [illegible]. Consequently, the total cross section for the nn and np interactions has been [illegible] conditions [illegible] neutrons having

ACCESSION NR: AP5007715

... energies of 2.8, 3.9, 5.5, 6.9, and 8.3 GeV. The results

E_n, GeV	2,8	3,9	[illegible]	[illegible]	8,3
$\sigma_t(np)$, mb	33,1±2,6	43,4±1,6	41,2±1,7	39,3±1,[illegible]	40,8±1,[illegible]
$\sigma_t(nn)$, mb:			34,8±1,6		31,5±1,7

are in good agreement with theoretical (np) values calculated using the Regge pole theory. ... average screening correction of 7.8 ± 2 mb agrees well with the theoretical value of ...

... detail. The authors thank Academician V. I. Veksler for his cooperation and ...

... Institute for Nuclear ...

Card 2/3

L 41601-65
ACCESSION NR: AP5007716

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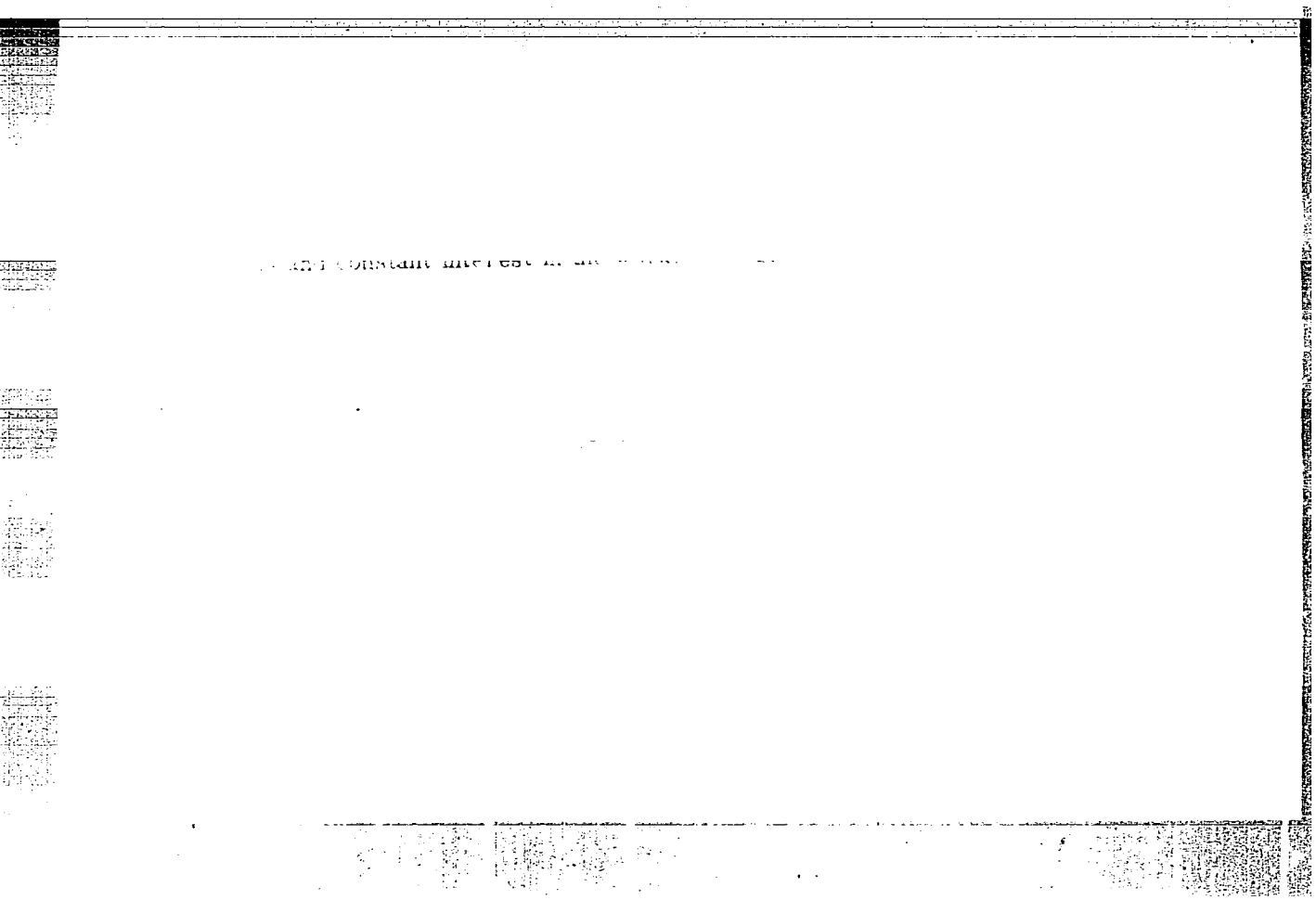
SUBMITTED: 01Jul64 ENCL: 00 SUB CODE: NP

NO REF SOV: 004 OTHER: 013

3/3

in the energy domain above 1 GeV are usually obtained using chambers, and they therefore represent only an estimate of the upper limit of the charge exchange cross section. Con-



APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000721620019-3"

KIRILLOVA, L.F.; NIKITIN, V.A.; PANTUYEV, V.S.; SVIRIDOV, V.A.; STRUNOV, L.N.; KHACHATURYAN, M.N.; KHRISTOV, I.G.; SHAFRANOVA, M.G.; KOREEL, Z.; ROB, L.; DAMYANOV, S.; ZLATEVA, A.; ZLATANOV, Z.; YORDANOV, V. [Iordanov, V.]; KANAZIRSKI, Kh.; MARKOV, P.; TODOROV, T.; CHERNEV, Kh.; DALKHAZHAV, N.; TUVDENDORZH, D.

Elastic pp and pd-scattering at small angles in the energy range 2 - 10 Bev. IAd. fiz. 1 no.3:533-539 Mr '65. (MIRA 18:5)

1. Ob"yedinennyy institut yadernykh issledovaniy. 2. Vysshaya tekhnicheskaya uchilishche, Praga (for Korbel, Rob). 3. Fizicheskiy institut Bolgarskoy Akademii nauk, Sofiya (for Damyanov, Zlateva, Zlatanov, Yordanov, Kanazirski, Markov, Todorov, Chernev). 4. Institut khimii i fiziki, Ulan-Bator, Mongol'skaya Narodnaya Respublika (for Dalkhazhav, Tuvdendorzh).

GAZARYAN, K.A.; PANTUYEV, V.S.; KHACHATURYAN, M.N.

Nanosecond light pulse generator. Prib. i tekh. eksp. 10 no.1:161-163 Ja-F '65. (MIR 18:?)

1. Ob"yedinennyy institut yadernykh issledovaniy.

L 42938-65 EWT(1)/EWT(m)/T/EWA(h) Pz-6/Peb IJP(c) AT

ACCESSION NR: AP5006536 S/0056/65/048/002/0767/0769

AUTHOR: Akimov, Yu. K.; Kalinin, A. I.; Nikitin, V. A.; Pantuyev, V. S.; Sviridov, V. A.; Sidorov, A. I.; Khachaturyan, M. N.

TITLE: A method for studying elastic *pp*-scattering in the high energy region using semiconductor counters

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 2, 1965, 767-769

TOPIC TAGS: proton scattering, high energy proton scattering, proton semiconductor counter

ABSTRACT: The possibility of studying high energy proton elastic scattering in the region of weak transmitted impulses $1.5 \cdot 10^{-4} GeV^2/c^2 \leq -t \leq 1.5 \cdot 10^{-2} GeV^2/c^2$, using semiconductor nuclear particle detectors is shown experimentally. The experiments were conducted on the synchrophasotron at the Joint Institute of Nuclear Investigations. The proposed method is applicable for investigations in the region of weak transmissions for any reaction of the type $a+b \to a+d$. In fig. 1 of the Enclosure (case *a*), a sharp peak is seen for protons transmitted with an energy of 2.2Mev.

Card 1/3

L 42988-65
ACCESSION NR: AP5006536

The peak width at the semi-peak points, covering about 330Kev or 15%, was determined basically by Coulomb scattering of protons transmitted to the target and by test geometry. For comparison (case *b*), the distribution of particles emitted from the same target under identical conditions, along mean free paths in a 25% photographic emulsion, is given. The peak for elastically scattered protons has a halfwidth of $\Delta E/E \approx$ 18%, i.e., somewhat wider scattering than obtained with a semiconductor counter. "In conclusion the authors thank L. I. Lipidus and I. V. Chuvilo for interest in the work, and also V. F. Kushniruk and L. N. Strunov for assistance in the experiment." Orig. art. has: 1 figure, 1 formula.

ASSOCIATION: Ob"yedinenyy institut yadernykh issledovaniy (Joint Institute of Nuclear Investigations)

SUBMITTED: 03Dec64 ENCL: 01 SUB CODE: NP, EC

NO REF SOV: 001 OTHER: 001

Card 2/3

L 42988-65
ACCESSION NR: AP5006536

ENCLOSURE: 01

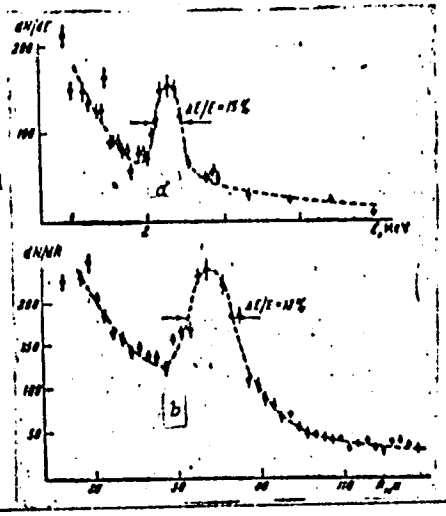


Fig. 1. Spectra of particles emitted at an angle of 87.7° from a target $(CH_2)_n$ bombarded by a beam of 10Gev protons: *a*--energy distribution measured with a semiconductor counter; *b*--distribution by mean free paths in a 25% diluted gelatin photoemulsion

JD
Card 3/3

L 27058-66 EWT(m)/EWP(v)/EWP(j)/T/EWA(h)/EWA(l) IJP(c) WW/RM

ACC NR: AP6007841 SOURCE CODE: UR/0120/66/000/001/0201/0202

AUTHOR: Matveyeva, Ye. N.; Permyakova, M. F.; Rubina, O. G.; Khachaturyan, M. N. 54

ORG: Joint Institute of Nuclear Research, Dubna (Ob"yedinennyy institut yadernykh issledovaniy) B

TITLE: Optical cement for joining organic-glass light pipes to photomultipliers

SOURCE: Pribory i tekhnika eksperimenta, no. 1, 1966, 201-202

TOPIC TAGS: cement, organic glass, phenyl compound, polystyrene, optic material, optic piping, adhesion, photomultiplier/FEU-29 photomultiplier

ABSTRACT: The authors investigated a cement based on polystyrene, using phenylcyclohexane (of scintillator purity, VTU-ORU 74-57, Khar'kov Chemical-Reagent Plant), with an aim at finding a substitute for the various hitherto employed high-boiling-point compounds, which have a low yield. The most suitable cement viscosity can be adjusted by varying the polystyrene content (from 20 to 50 wt.% of phenylcyclohexane). Although the cement becomes more viscous in time, it does not solidify and the parts fastened with it can be easily replaced. Other advantages are good adhesion and absence of chemical interaction with the crystals or light pipes, and the fact that phenylcyclohexane is commercially available. The spectral characteristics of the cement were measured by means of a plastic scintillator in optical contact with the photocathode of a photomultiplier (FEU-29) and exposed to 5.27-Mev α particles from Am^{243}. The pulse-height spectrum obtained with the cement agreed within experimental

Card 1/2 UDC: 666.9: 535.8

L 27058-66
ACC NR: AP6007841

accuracy with that obtained with mineral oil. One of the cement compositions has been in operation for five years without turning yellow or developing bubbles. The spectral test procedure and the preparation of the cement are briefly described. Orig. art. has: 2 figures and 1 table.

SUB CODE: 11, 09, 20/ SUBM DATE: 29Jan65/ ORIG REF: 001/ OTH REF: 001

Card 2/2

L 24301-66 EWT(m) DIAAP 17C

ACC NR: AI6006795 SOURCE CODE: UR/0386/66/003/001/0015/0021

AUTHOR: Zolin, L. S.; Kirillova, L. F.; Liu, Ch'ing-ch'iang; Nikitin, V. A.; Pantuyev, V. S.; Sviridov, V. A.; Strunov, L. N.; Khachaturyan, M. N.; Shafranova, M. G.; Korbel, Z.; Rob, L.; Devinski, P.; Zlatanov, Z.; Markov, P.; Khristov, L.; Chernev, Kh.; Dalkhazhav, N.; Tuvdendorzh, D.

ORG: [Zolin, Kirillova, Liu, Nikitin, Pantuyev, Sviridov, Strunov, Khachaturyan, Shafranova] Joint Institute of Nuclear Research, Dubna (Ob"yedinennyy institut yadernykh issledovaniy); [Korbel, Rob] Czechoslovakian Higher Technical School, Prague (Cheshskoye vysshaye tekhnicheskoye uchilishche); [Devinski, Zlatanov, Markov, Khristov, Chernev] Physics Institute, Bulgarian Academy of Sciences, Sofia (Fizicheskiy institut Bolgarskoy akademii nauk); [Dalkhazhav, Tuvdendorzh] Institute of Physics and Chemistry, Mongolian Academy of Sciences, Ulan Bator (Institut fiziki i khimii Mongol'skoy akademii nauk)

TITLE: Real part of the pn scattering amplitude in the energy interval 2--10 Gev

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 3, no. 1, 1966, 15-21

TOPIC TAGS: proton scattering, neutron scattering, scattering amplitude, differential cross section, deuteron reaction

ABSTRACT: On the basis of experimental data obtained by the authors on elastic pd scattering in the energy interval 1--10 Gev, and information on pp scattering amplitude in this energy range, the authors determined the real part of the scattering

Card 1/2

L 24301-66

ACC NR: AP6006795

amplitude by means of an experiment involving registration of slow recoil deuterons from a film target of deuterated polyethylene 0.5--0.6 μ thick. The investigated range of the squared momentum transfer was $0.003 < |t| < 0.2$ (Gev/c)^2. Plots are presented of the differential cross sections vs. the square of the momentum transfer and an empirical formula is given for these plots. The value obtained for the total cross section of elastic pd scattering at 6 Gev is several times smaller than that measured by others. In the small-angle region of pd scattering, constructive interferences were observed between the Coulomb and nuclear scatterings. From the obtained real part of the pd scattering amplitude, and from a comparison of the obtained data with earlier measurements by the authors of the pp scattering amplitude of the same energies (ZhETF v. 50, 76, 1966), the estimated real part of the pn scattering amplitude is +0.2, -0.06, -0.45, and -0.40 for 2, 6, 8, and 10 Gev respectively. The small nonzero real part of the pn scattering amplitude agrees with data obtained at CERN (G. Bellettini et al., Internat. Conf on Elementary Particles, Oxford, 1965). Orig. art. has: 2 figures, 3 formulas, and 2 tables.

SUB CODE: 20/ SUBM DATE: 12Nov65/ ORIG REF: 005/ OTH REF: 005

Card 2/2

L 21802-66 EWT(m)/T

ACC NR: AP6012191 SOURCE CODE: UR/0386/66/003/008/0336/0340

AUTHOR: Azimov, M. A.; Basova, Ye. N.; Gulyamov, U. G.; Igamberdiyev, K. R.; Kolesnik, V. G.; Pantuyev, V. S.; Silivestrov, L. V.; Khachaturyan, M. N.

ORG: Joint Institute of Nuclear Research (Ob"yedinennyy institut yadernykh issledovaniy); Institute of Nuclear Physics, AN UzSSR, Tashkent (Institut yadernoy fiziki AN UzSSR)

TITLE: Differential cross section of charge exchange of 4.8-Gev/c π^- mesons with protons

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 3, no. 8, 1966, 336-340

TOPIC TAGS: pion, charge exchange, differential cross section, spark chamber, Gamma radiation, meson, proton

ABSTRACT: The authors present preliminary results of the measurement of the differential cross section of the reaction $\pi^- + p \rightarrow n + \pi^0$ by a method described earlier (Preprint OIYaI, R-2436, Dubna, 1965), of detecting high-energy π^0 mesons with the aid of a spark chamber and a total-absorption Cerenkov counter. Unlike other methods, this method makes it possible to measure with good accuracy both the angle and the energy characteristics of γ quanta from π^0 meson decays. The

Card 1/2

L 21802-66
ACC NR: AP6012191

setup was irradiated in a beam of 4.8-Gev/c π^- mesons from the OIYaI proton synchrotron. The measurements were made by a difference method using polyethylene and carbon targets. From the energy and angular distributions of the cases when two γ quanta were registered in the chamber the authors calculated the differential and total cross section of the reaction, with corrections evaluated for the following effects: (a) probability of conversion of two γ quanta in the lead converter, (b) probability of conversion of at least one of the γ quanta in the target or in the scintillation-counter material, (c) muon contamination of the beam, and (d) attenuation of the beam in the target. The averaged forward charge-exchange cross section was found to be 0.49 ± 0.1 mb/(Gev/c)^2, or 0.33 ± 0.07 mb/sr in units of solid angle (c.m.s.) (compared with 0.28 mb/sr from calculation based on the dispersion relations and the known data on the total cross sections of the π^+p and π^-p interactions. The total cross section of the reaction, calculated with account of the experimental geometry and published data on the differential charge-exchange cross section at large 4-momentum transfer is equal to 0.11 ± 0.02 mb. The authors thank V. G. Grishin and M. I. Podgoretskiy for useful discussions, S. V. Mukhin, S. V. Rikhvitskiy, and I. N. Semenyushkin for the opportunity to use the pion channel, and I. V. Chuvilo, M. D. Shafranov, and I. M. Gramenitskiy for collaboration. Orig. art. has: 2 figures and 2 formulas.

SUB CODE: 20/ SUBM DATE: 8Mar66/ ORIG REF: 002/ OTH REF: 004

Card 2/2 PB

KHACHATURYAN, M. Kh.

"The Role of the Relative Intensity in the Stimulation of the Cortical Centers in the Functioning of Conditioned Reflex Connections of the Second Signal System." Cand Biol Sci, Second Moscow State Medical Inst imeni I. V. Stalin, Moscow, 1955. (KL, No 12, Mar 55)

SO: Sum. No. 670, 29 Sep55--Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)