"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, I.V.; ABRADUSHKIN, Yu.S.

Derivatives of 3-aminophenols. Part 3: N-acylaminotoluenesulfonyl and N,O-di (acylaminotoluenesulfonyl) derivatives of m-aminophenol and its homologs. Zhur. ob. khim. 34 no.11:3723-3730 N '64
(MIRA 18:1)

1. Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

L 3837-66 EWT(1)/T/EED(b)-3 IJP(c)
ACCESSION NR: AP5017496 UR/0368/65/002/006/0558/0561
771.534

AUTHOR: Kheynman, A. S.; Karaul'shchikova, R. V.; Volkova, G. S.; Parfenova, N. M.; Solov'yeva, S. M.; Vompe, A. F.; Aleksandrov, I. V.; Kurepina, G. F.; Ivanova, L. V.

TITLE: Infrachromatic materials for scientific and technical purposes

SOURCE: Zhurnal prikladnoy spektroskopii, v. 2, no. 6, 1965, 558-561

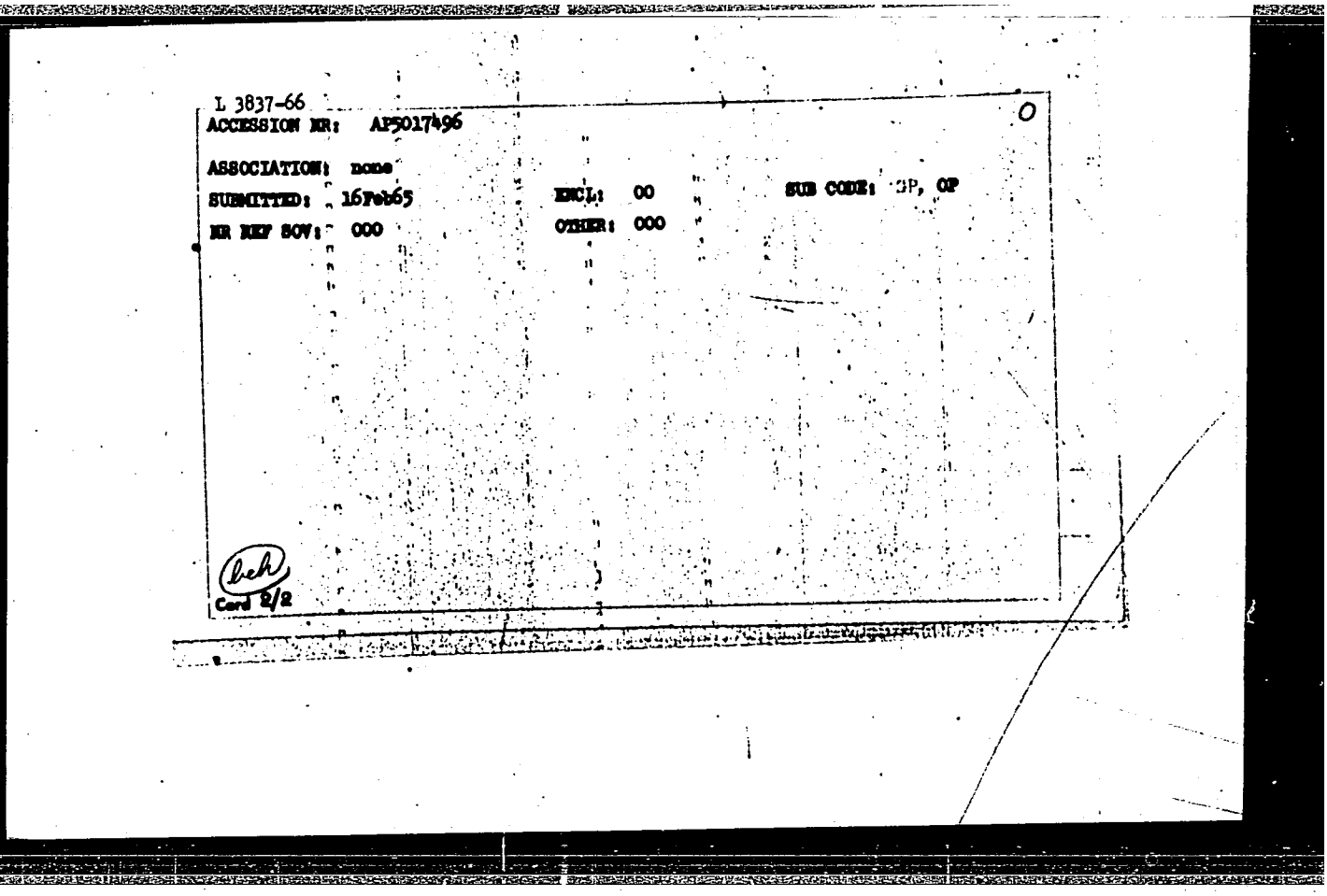
TOPIC TAGS: IR photography, photographic emulsion, photographic processing

ABSTRACT: The article summarizes the photographic properties of new infrachromatic films and plates developed at NIKFI (Scientific Research Institute of Motion Picture Photography) to increase the stability and sensitivity of infrachromatic materials used for spectroscopy, astro-photography, and other scientific purposes. Tables of the photographic characteristics of the films and plates are listed, and spectral sensitivity curves are given for all the emulsions. The appropriate development techniques are also discussed. The individual films are compared with those produced by Eastman Kodak. It is recommended in the conclusion that the available assortment of infrachromatic emulsions (11 types in the SSSR) be reduced, since Eastman produces only four types which seem to meet all the requirements. Orig. art. has: 3 figures and 4 tables.

Card 1/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2



L 3837-66
ACCESSION NR: AP5017496 O

ASSOCIATION: none

SUBMITTED: 16Feb65 ENCL: 00 SUB CODE: GP, OP

NR REF SOV: 000 OTHER: 000

leh
Card 2/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, I.V., CAnd Phys-Math Sci--(diss) "Certain problems of the theory of nuclear magnetic resonance." Los, 1958. 11 pp (Inst of Chemical Physics, Acad Sci USSR), 150 copies. Bibliography at end of book (14 titles) (KL,25-58, 106)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

20-118-4-14/61

AUTHOR: Aleksandrov, I. V.

TITLE: The Relaxation Processes in a System of Interacting Spins (Protsessy relaksatsii v sisteme vzaimodeystvuyushchikh spinov)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 118, Nr 4, pp. 675-678 (USSR)

ABSTRACT: At first, reference is made to previous papers dealing with the same subject. The author here investigates the processes of thermal relaxation of systems with several equivalent spins 1/2 within an external magnetic field $\vec{H}_0$, with respect to the mechanism of "internal" relaxation (which is caused by the interaction of the nuclear spins of a molecule). Let this field be directed along the z-axis. The dipole-dipole interaction of the nuclear magnetic moments, which effects the connection between the spin system and the thermal motion of the molecules, is relatively weak, compared with the interaction of the spin system with the external field. Therefore, these dipole-dipole interactions can be considered as perturbations and it is

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

possible to put down kinetic equations for a number of systems N_i being in the state i. This system is then specialized for the case, where a limitation to terms of the order χ is possible. On certain conditions the solution of this system for the case of two spins agrees with the result obtained by Solomon (reference 4). The set-up of the problem for three spins is illustrated by a diagram and the corresponding wave function as well as the transition probabilities are put down. In general, the process of relaxation of each component of the magnetic moment is described by two exponents. A simple exponential law is also obtained for a system of four spins. The transition probabilities determined here for a system of three spins are put down. The processes of relaxation of the longitudinal and of the transverse component of the magnetic moment proceed in the same way. The results obtained here must be taken into consideration in experiments dealing with the relaxation of the nuclear spins of molecules, which contain the groups CH_3, H_3O^+ etc. if the "internal" relaxation plays a

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

AUTHOR: Aleksandrov, I. V. 2o-119-4-12/6o

TITLE: The Calculation of the Constant of Nuclear-Magnetic Shielding (Vychisleniye konstanty yadernogo magnitnogo ekranirovaniya)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 119, Nr 4, pp. 671 - 674 (USSR)

ABSTRACT: The process suggested in the present paper for the calculation of the constant of magnetic shielding σ is based upon the method of molecular orbits. The author here studies a molecule in a homogeneous exterior magnetic field H. μ is here assumed to denote the magnetic moment of the nucleus, for which shielding is calculated. The Hamiltonian applying to this case (with immobile nuclei) is written down. Such terms of the Hamiltonian as contain vector potentials and their squares are considered to be perturbations. The eigenfunctions ϕ_n of the not perturbed Hamiltonian depend on H. The ϕ_n are here developed in series according to powers of H:

$$\phi_n = \sum_{q=o}^{\infty} H^q \phi_n^{(q)}$$

Card 1/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

methods of calculation by the wavefunction of the molecule in the case of a lacking exterior field. In conclusion the author thanks Professor N. D. Sokolov for his kindness in frequently discussing this work. There are 5 references, 2 of which are Soviet.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics AS USSR)

PRESENTED: December 7, 1957, by V. N. Kondrat'yev, Member, Academy of Sciences, USSR

SUBMITTED: November 29, 1957

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

24(7)
AUTHOR: Aleksandrov, I. V.

SOV/20-121-5-15/50

TITLE: The Calculation of the Constant of Nuclear Magnetic Shielding for Some Molecules (Raschet postoyannogo yadernogo magnitnogo ekranirovaniya dlya nekotorykh molekul)

PERIODICAL: Doklady Akademii nauk SSSR, Vol 121, Nr 5, pp 823 - 826 (USSR)-1958

ABSTRACT: In a previous paper a method was suggested for the constant nuclear magnetic shielding σ. This method is based on the method of the molecular orbits. The application of this method to complicated molecules is, however, connected with the usual mathematical difficulties of quantum chemistry. In the present paper a modification of the above mentioned previous paper (Ref 1) is suggested which practically allows an estimation of the constant σ of nuclear magnetic shielding. If there is no magnetic field, the wave function Ψ_o of the molecule may be represented as a product $\Psi_o = \prod_j \psi_o^j$ where

Card 1/4

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

any molecular orbit ψ_o^j may be represented as a linear combination of the atomic orbits:

$\psi_o^j = \sum_{a,q} c_{aq}^j \varphi_{aq}^o$. This index a denotes the number of the atom and the index q - the number of the atomic orbit. An expression is then given for the atomic functions in the presence of a magnetic field $\vec{H}$ with the vector potential $\vec{A} = [\vec{Hr}]/2$. The function $\Psi = \prod \psi^j$ in the presence of the magnetic field $\vec{H}$ is then investigated. By means of this function, an expression for σ may be derived by the usual variation method. The author assumes that the wave function of the molecule in the presence of a magnetic field consists of molecular orbits of the type

$\psi^j = \sum_{aq} c_{aq}^j \varphi_{aq}$ or that it is a function of the valence bonds. For the determination of σ, the first 2 terms of the expansion of the wave function into a series with

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

respect to the powers of H have to be known. The calculations are discussed and the final expression for σ is given explicitly. The function

$\Psi_o = \varphi_a^o(1)\varphi_b^o$ which describes 2 non-interacting atoms - gives a result which is sufficiently similar to the experimental value:

$\sigma^p = -0,67.10^{-5}$. The diamagnetic term calculated by means of this function is equal to $\sigma^d = 2,8.10^{-5}$ which nearly agrees with the values found by other methods. This is an indirect confirmation of the hypothesis of the local Larmor precession of the electrons. The authors calculated also the shielding constant for a proton in the C-H bonds for various types of "hybridization" of the atomic orbits of the carbon atom. The various types of hybridization cannot explain the variations of the chemical properties in the series CH_4, C_2H_4, C_2H_2. The

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

The Calculation of the Constant of Nuclear Magnetic Shielding for Some Molecules SOV/2o-121-5-15/5o

author thanks Professor N.D.Sokolov for a discussion of this paper. There are 4 references, 1 of which is Soviet.

PRESENTED: April 10, 1958, by V.N.Kondrat'yev, Academician

SUBMITTED: April 2, 1958

Card 4/4

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

9 (0), 21(0)

AUTHORS: Aleksandrov, I. V., Korst, N. N. SOV/30-59-10-42/51

TITLE: Research in the Field of Paramagnetic Resonance

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 10, pp 106-107 (USSR)

ABSTRACT: The Kazan' Branch of the Akademiya nauk SSSR (Academy of Sciences, USSR) and the Kazan' University held a regular All-Union Conference on paramagnetic resonance from June 1 to 5, 1959. Paramagnetic electron resonance and paramagnetic nuclear resonance are applied to many fields of science and engineering besides physics. Ye. K. Zavoyskiy opened the Conference. The following reports were delivered: On the structural investigation of organic and inorganic substances by the former method, reports were delivered by groups of physicists from Moscow, Kazan' and Tbilisi (A. M. Prokhorov, S. A. Al'tshuler, T. I. Sanadze and B. G. Berlava). Reports on theoretical work done in this field were given by N. N. Tikhomirova and V. V. Voyevodskiy. V. M. Chibrikin, S. P. Solodovnikov and S. I. Vetohinkin dealt with the application of this method to chemistry. Papers by L. A. Blyumenfel'd and A. E. Kolmanson showed that this method may also be applied to biology. Several reports were delivered

Card 1/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

Research in the Field of Paramagnetic Resonance SOV/30-59-10-42/51

by F. I. Skripov, N. M. Iyevskaya, Yu. S. Konstantinov, L. L. Dekabrun, Yu. Ya. Shamonin concerning the measuring technique in paramagnetic nuclear resonance. A. A. Kokin and G. V. Skrotskiy dealt with the theory of this method. A lively discussion followed the report by N. D. Sokolov concerning the influence of proton exchange on the width of the nuclear resonance line. I. V. Aleksandrov delivered a report concerning the computation of values of chemical displacement. Yu. S. Konstantinov, P. M. Borodin and F. I. Skripov reported on nuclear magnetic fluorospectroscopy. The application of paramagnetic nuclear resonance to chemistry was dealt with by R. A. Dautov and M. V. Vol'kenshteyn. V. D. Korepanov reported on the investigation of relaxation periods by means of the spin echo. F. I. Skripov reported on the quadrupole nuclear resonance. In addition to scientific institutions from Moscow, Leningrad, Kazan', the Conference was also attended by those from Perm', Krasnoyarsk, Sverdlovsk, Tbilisi and other towns. The Conference decided to adopt a number of measures to allow the series production of devices required for operating in the field of paramagnetic resonance as soon as possible. Textbooks on problems of paramagnetic resonance are also to be published.

Card 2/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

5(4)

AUTHORS: Aleksandrov, I. V., Sokolov, N. D. SOV/20-124-1-32/69

TITLE: The Hydrogen Bond and Proton Magnetic Resonance (Vodorodnaya svyaz' i protonnyy magnitnyy rezonans)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 1, pp 115-118 (USSR)

ABSTRACT: The dependence of the shielding of a proton upon the degree of the polarity of the A-H-bond can be estimated according to a method suggested by I. V. Aleksandrov (Refs 10, 11). If, as a wave function, the molecular path composed of the 1s-function of the H-atom as well as of the 2s- and 2p-Slater functions of the O-atom is selected in the form $\psi^{\circ} = N\left[\varphi_{1s} + \lambda(a\varphi^{\circ}_{2s} + b\varphi^{\circ}_{2p})\right]$, the parameter λ characterizes the degree of polarity of the bond O – H. The value of λ is near 1 and the constant σ of magnetic shielding can be determined as a function of λ. At the distance R = 1Å between the nuclei it holds with sufficient accuracy that $\Delta\sigma_1 = -1.5 \cdot 10^{-5}\Delta\lambda$. If λ increases by $\Delta\lambda = 0.3$ under the influence of the H-bond, it holds that $\Delta\sigma_1 \approx -4.5 \cdot 10^{6}$. The

Card 1/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

influence exercised by expansion of the O-H-bond can be estimated by means of the same formulas as the influence exercised by polarity. For small variations of R in the case of $\lambda = 1$ it holds that $\Delta\sigma_2 = - k. 10^{-5} \Delta R$. At $\Delta R = 0.05$ Å one finds $\Delta\sigma_2 \sim -0.5. 10^{-6}$. The influence of the donor-acceptor bond $H^+.....O$ can be approximately taken into account if the molecular orbit of this bond is represented in the form $\psi' = N' (\psi_{2p} + \beta\psi_{1s})$. If the inter-atomic distance H.....O is 1.7 Å, the contribution of this bond made towards magnetic shielding of the proton amounts to $\Delta\sigma_3 = (-0.08 + \beta + 3.6\beta^2). 10^{-5}$, and with $\beta \approx 0.2$ there follows $\Delta\sigma_3 \approx + 2.5. 10^{-6}$. If an electric field is applied σ varies by $\Delta\sigma_4 = -(5a_o^3/mc^2) E^2$, where a_o denotes the Bohr radius. The influence exercised by the second not filled electron pair (the cloud of which has an axis which is vertical to the line H....O) of the O-atom is taken into account by the formula

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

$\Delta\sigma_5 = \frac{\chi - \chi_{zz}}{R^3}$, where χ_{zz} denotes the zz-component of the diamagnetic susceptibility χ. In the case of R = 1.7 Å, $\Delta\sigma_5$ is in the interval of from + 0.2. 10^{-6} to -0.2. 10^{-6}. The data concerning the magnetic shielding of the proton in the H-bond confirm, firstly, the hypothesis that the polarity of the A-H-bond increases considerably by the formation of an H-bridge and, secondly, they agree with the hypothesis of the formation of the donor-acceptor-bond AH....B. There are 11 references, 3 of which are Soviet.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute for Chemical Physics of the Academy of Sciences, USSR)

PRESENTED: July 28, 1958, by V. N. Kondrat'yev, Academician

SUBMITTED: July 23, 1958

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

S/058/61/000/011/005/025
A058/A101

AUTHORS: Aleksandrov, I.V., Korst, N.N., Sokolov, N.D.

TITLE: Proton exchange effect on nuclear magnetic resonance line width in crystals

PERIODICAL: Referativnyy zhurnal. Fizika, no. 11, 1961, 126, abstract 11V221 (V sb. "Paramagnitn. rezonans", Kazan', Kazansk. un-t, 1960, 186 - 188)

TEXT: The authors calculate the second moment of the nuclear magnetic resonance line in ice crystals. They show that incident to proton tunneling along the hydrogen bonds the second moment decreases by $\sim$20% (on condition that the tunneling frequency is appreciably greater than the nuclear magnetic resonance line width).

I. Aleksandrov

[Abstracter's note: Complete translation]

Card 1/1

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

31754
S/058/61/000/011/004/025
A058/A101

Electric field effect ...

Numerical calculations for the H_2 molecule lead to the expression $\delta\sigma \approx 4 \cdot 10^{12}\varepsilon$ (in CGSE units).

I. Aleksandrov

[Abstracter's note: Complete translation]

Card 2/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

S/051/60/008/04/028/032
E201/E691

AUTHORS: Aleksandrov, I.V., Korst, N.N. and Sokolov, N.D.

TITLE: The Effect of the Mobility of Protons on the Width of Nuclear Magnetic Resonance Lines in Crystals

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 4, pp 575-577 (USSR)

ABSTRACT: The mobility of hydrogen atoms (protons) in condensed phases may be due to internal rotation or translational transitions from one equilibrium position to another. Nuclear magnetic resonance of protons is one of the most effective methods of investigation of their mobility. The present notedescribes how the second moment of the nuclear magnetic resonance signal of protons in ice can be used to find the mechanism of proton transitions. The paper is entirely theoretical. There are 6 references, 5 of which are English and 1 from Acta Crystallographica.

SUBMITTED: October 10, 1959

Card 1/1

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

S/051/60/009/005/017/019
E201/E191

AUTHOR: Aleksandrov, I.V.

TITLE: On the Theory of the Hyperfine Structure of Electron Spin Resonance Spectra

PERIODICAL: Optika i spektroskopiya, 1960, Vol.9, No.5, pp 679-680

TEXT: The author described earlier a method of calculating the spectrum of nuclear magnetic resonance when motion of the pair of nuclei responsible for resonance is described by an effective potential in the form of a well with two minima (Ref. 1). It was assumed that the barrier height and the splitting of energy levels in the well were quite arbitrary. In the present note this method is extended to determination of the hyperfine structure of electron spin resonance spectra when the ground state of an unpaired electron is near-degenerate because of symmetry conditions (for example in ion radicals consisting of two benzene rings joined by several CH_2 groups). The paper is entirely theoretical.

There are 2 references: 1 Soviet and 1 English.

SUBMITTED: July 6, 1960

Card 1/1

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

S/074/60/029/009/004/005/XX
B013/B055

AUTHOR: Aleksandrov, I. V.

TITLE: Nuclear Magnetic Resonance and the Structure of Matter

PERIODICAL: Uspekhi khimii, 1960, Vol. 29, No. 9, pp. 1138 - 1148

TEXT: In the present publication, the author deals with nuclear magnetic resonance and the structure of matter. The present study was undertaken with a view to obtaining a clear picture of the physical fundamentals of the method of nuclear magnetic resonance and to give an idea of its application for investigating the structure of matter. The mechanism of nuclear magnetic resonance is illustrated by a scheme (Fig. 1). Some of the main fields of application of the nmr-method are listed, i.e., determination of the gyromagnetic ratio γ of the nucleus and the measurement of the chemical shift. The investigation of chemical shift, similarly to spectroscopic analysis, can be used for detecting molecules and atomic groups in a sample and determining their concentrations, the nmr method can also be applied for investigating the structure of isomers. Apart from

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

chemical shift, there may also occur a line splitting in nmr spectra, which is caused by the interaction of the magnetic moments of differently composed nuclei in a molecule. Spectra showing such line splitting and an extensive bibliography on questions concerning nuclear magnetic resonance are given in Refs. 10-12. The chemical exchange of protons is described in Ref. 13. Soon after its development, the nmr method was applied for the investigation of polymers (Refs. 14-18). Owing to the high viscosity of polymer melts, nmr spectra and chemical shift can only be studied in solutions (Refs. 19,20). A new method of double nuclear magnetic resonance was developed recently. This method was applied for the investigation of samples which were not diamagnetic. The principle of the double nuclear magnetic resonance method is to apply an alternating magnetic field to the sample while examining the electron resonance line. The frequency of this alternating magnetic field corresponds to the Larmor frequency. Interaction of the magnetic moments of nuclei and electrons leads to a modification of the electron resonance signal, which can be determined experimentally. By varying the frequency of the alternating magnetic field, in the proximity of the Larmor frequency range,

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

the nuclear resonance frequencies can be determined from the paramagnetic electron resonance spectra. Since the above-mentioned effect is caused by the interaction of the magnetic moments of nulcei and electrons, conclusions concerning the mode of electron motion in the sample can be drawn. Such investigations permit an exact determination of the electron density in paramagnetic crystals. There are 3 figures and 21 references: 2 Soviet, 12 US, 2 British, 2 Dutch, 1 German, and 1 Japanese.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics AS USSR)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

S/074/60/029/009/004/005/XX
B013/B055

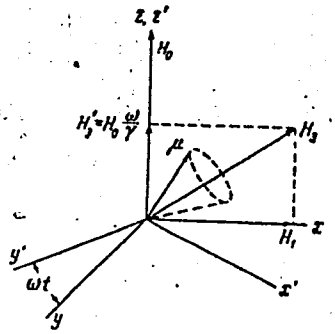


Fig. 1 Legend to Fig. 1:
Magnetic fields in a rotating coordinate system. The system xyz is immobile; the angle of rotation of the system xyz about the z=z' axis is ωt. ω is the rotation frequency of the coordinate system which corresponds to the rotation frequency of the vector of the field strength H_1. H_E' is the effective field in the rotating coordinate system at $H_1 = 0$. In the presence of the field H_1, the vector of the magnetic moment $\vec{\mu}$ precesses in the rotating system round the vector H_E which lies in the xz plane. Its angular frequency is given by $\omega_E' = \gamma H_E$.

Card 4/4

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

83129
S/020/60/133/005/006/019
B019/B054

5.4130

AUTHOR: Aleksandrov, I. V.

TITLE: Effect of Tunnelings on the Shape of the Signal of 19 Nuclear Magnetic Resonance in Crystals

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 5, pp. 1057 - 1059

TEXT: In the introduction, the author discusses the results of investigation in non-Soviet papers (Refs. 1-6) on the shape of nuclear magnetic resonance. In the investigation carried out here, the author restricts himself to magnetically weak substances, i.e., he assumes that the interaction of nuclear pairs with the remaining paramagnetic particles may be neglected, and that the time T_1 of the spin-lattice relaxation is sufficiently long. The diagram of Fig. 1 shows that the nuclei 1 and 2 move along a circular orbit in a plane whose perpendicular forms an angle α with the constant magnetic field $\vec{H}_0$. The Hamiltonian (1) $\mathcal{H} = \mathcal{H}_m - \hbar\gamma H_0(S_{z1} + S_{z2}) - W$ is written down for this system. In this

Card 1/4

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

Effect of Tunnelings on the Shape of the Signal of Nuclear Magnetic Resonance in Crystals

Hamiltonian, $\mathcal{H}_m = \mathcal{H}_m(\varphi)$ describes the collective motion of the two nuclei, the second term represents the interaction of the magnetic moments of the nuolei with the field H_0, where γ is the gyromagnetic ratio. W is the secular part of the dipole-dipole interaction of the two nuclei. Further, the author studies the effect of the tunneling of the nuclei from state I into state II on the spectrum of nuclear magnetic resonance. Moreover, he assumes that the spectrum of $\mathcal{H}_m$ consists of two adjacent levels E_1^0 and E_2^0, where $\Gamma = E_1^0 - E_2^0$. In studying the secular equation of (1), the author restricts himself to a spin 1/2, and assumes that the magnetic dipole-dipole interaction of the two nuclei is much weaker than the interaction of their magnetic moments with the constant magnetic field. Under these assumptions, the secular equation of the 8th order breaks into four secular equations of the 2nd order, from which the eigenvalues of the energy E_n and the eigenfunctions ψ_n of the system can be easily determined. The equation (3) $\psi_n = (c_1^{(n)}\chi_1 + c_2^{(n)}\chi_2)\xi_{k_n}$ holds for the

Card 2/4

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

Effect of Tunnelings on the Shape of the Signal of Nuclear Magnetic Resonance in Crystals

S/020/60/133/005/006/019
B019/B054

eigenfunctions. Here, $C_1^{(n)}$, $C_2^{(n)}$ are coefficients which can be determined from the secular equation, ξ_{k_n} are the basic spin functions, and χ_1 and χ_2 the wave functions corresponding to the two above-mentioned levels. In the calculation of the matrix elements of the secular equation it is shown that the spectrum of the nuclear magnetic resonances, under the above conditions, consists of eight lines whose frequencies may be calculated according to formula (7). Further, the author obtains from (7) a formula for the relative intensities of the lines. The formulas obtained here do not show the temperature dependence of the spectrum; the latter must be determined from the temperature dependence of the parameters. The author thanks Professor N. D. Sokolov and Ye. Ye. Nikitin for discussion of the results. There are 1 figure and 6 non-Soviet references: 4 US, 1 Japanese, and 1 British.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences, USSR)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

83129

Effect of Tunnelings on the Shape of the Signal of Nuclear Magnetic Resonance in Crystals

S/020/60/133/005/006/019
B019/B054

PRESENTED: April 9, 1960, by V. N. Kondrat'yev, Academician

SUBMITTED: April 5, 1960

Card 4/4

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, I.V.; ZHIDOMIROV, G.M.

Theory of spin-lattice relaxation in radicals in fluids.
Zhur. eksp. i teor. fiz. 40 no.6:1720-1724 Je '61.
(MIRA 14:8)

1. Institut khimicheskoy fiziki AN SSSR.
(Nuclear magnetic resonance and relaxation)
(Radicals (Chemistry))

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

26413
S/056/61/041/001/008/021
B102/B214

24.4400

AUTHORS: Aleksandrov, I. V., Zhidomirov, G. M.

TITLE: Calculation of spin-lattice relaxation time for radicals in molecular crystals

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 1(7), 1961, 127-137

TEXT: It is shown in this paper that the anisotropy of the g factor (or the anisotropy of the hyperfine structure) in the radicals of molecular crystals may lead to a spin-lattice relaxation time of the order of 10^{-3} sec. The authors considered the spin-lattice relaxation of a radical in a magnetically dilute molecular crystal, and based their study on a spin Hamiltonian of the form $\mathcal{H} = \beta g_{\alpha\gamma} S_\alpha H_\gamma + A_{\alpha\gamma} S_\alpha I_\gamma$, where $g_{\alpha\gamma}$ and $A_{\alpha\gamma}$ are the tensors of spin-orbit and hyperfine interactions (A summation is to be made over the Greek indices). H_α is the component of the external magnetic field in the direction α; S_α and I_α are the projections of the

Card 1/7

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

spin operators of the electron and the nucleus on the α axis (the electron spin is assumed to interact with the spin of only one nucleus); and β is the Bohr magneton. Spin - orbit and hyperfine interactions are assumed to be axially symmetric, i.e., the tensors $g_{\alpha\gamma}$ and $A_{\alpha\gamma}$ are diagonal in a certain coordinate system x",y",z", rigidly attached to the radical. The orientational waves in the molecular crystal are assumed to be one-dimensional (cf. A.I. Ansel'm, N.N. Porfir'yeva. ZhETF, 19, 438, 1949), i.e. it is assumed that in the equilibrium position of the principal axis z" the tensors g and A coincide with the direction of propagation $\vec{\varkappa}$ of the vibrational wave. The deviations from the equilibrium position ζ are assumed to be small. The angle between $\vec{H}$ and $\vec{\varkappa}$ is denoted by φ. If ζ lies in the plane of $\vec{\varkappa}$ and $\vec{H}$ (the z'y' plane in Fig. 1), one obtains for the spin Hamiltonian

$$\mathcal{H} = \beta H g_{zz}(\varphi) S_z + A(\varphi) S_z I_z + \beta H g_{xz}(\varphi, \chi) S_x + A_{xz}(\varphi, \chi) S_x I_x + A_{xz}(\varphi\chi) S_x I_z, \quad (3)$$

$$g_{zz}(\varphi) = g_\perp \sin^2\varphi + g_\parallel \cos^2\varphi, \quad A_{zz}(\varphi) = A_\perp \sin^2\varphi + A_\parallel \cos^2\varphi,$$
$$g_{xz}(\varphi, \chi) = \Delta g\,[\chi \cos 2\varphi + \chi^2 \sin 2\varphi], \quad A_{xz}(\varphi, \chi) = \Delta A\,[-\chi \sin 2\varphi + \chi^2 \cos 2\varphi], \quad (4)$$
$$A_{xz}(\varphi, \chi) = \Delta A\,[\chi \cos 2\varphi + \chi^2 \sin 2\varphi], \quad \Delta g = g_\parallel - g_\perp, \quad \Delta A = A_\parallel - A_\perp.$$

Card 2/7

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

Calculation of spin-lattice ...

If the direction of polarization of the wave is rotated by 90° (χ lies in the z'x' plane; Fig. 2), one has

$$\mathcal{H} = \beta H g_{zz}(\varphi) S_z + A_{zz}(\varphi) S_z I_z + \beta H g_{xz} S_x + \beta H g_{yz} S_y + A_{xx} S_x I_x + A_{xy} S_x I_y + A_{xz} S_x I_z + A_{yx} S_y I_x + A_{yy} S_y I_y + A_{yz} S_y I_z. \quad (5)$$

$$g_{xz} = \tfrac{1}{2}\Delta g \chi^2 \sin 2\varphi, \quad g_{yz} = \Delta g \chi \cos\varphi, \quad A_{xx} = -\Delta A \chi^2 \sin^2\varphi,$$
$$A_{xy} = A_{yx} = -\Delta A\, \chi \sin\varphi, \quad A_{xz} = \tfrac{1}{2}\Delta A \chi^2 \sin 2\varphi, \quad (6)$$
$$A_{yy} = \Delta A \chi^2, \quad A_{yz} = \Delta A \chi \cos\varphi.$$

In both forms, the terms which are not important for the investigations have been neglected. For calculation of the probability of a relaxation transition between any two levels of the spin system, the spin Hamiltonian in the form

$$\mathcal{H} = \beta H g(\varphi) S_z + A(\varphi) S_z I_z + \chi R_1(\varphi) + \chi^2 R_2(\varphi) \quad (7)$$

can be used for either case. Here $R_1(\varphi)$ and $R_2(\varphi)$ are linear combinations of the spin operators with non-vanishing matrix elements for the transition considered. If the term linear in χ (transition with absorption of one orientational phonon) is considered, one obtains for the probability

Card 3/7

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

Calculation of spin-lattice ...

of one relaxation transition per unit time

$$w_{12} = \frac{2\pi}{\hbar^2} |(1|R_1|2)|^2 \langle |\chi_{n,n+1}(\omega_L)|^2 \rangle g(\omega_L) ,$$

where $(1|R_1|2)$ is the matrix element between the spin states 1 and 2, $\chi_{n,n+1}(\omega) = (n\hbar/2J\omega)^{1/2}$ is the matrix element between the nth and (n+1)th states of the rotational oscillator (whose moment of inertia is J), $g(\omega)d\omega$ is the number of the operational normal vibrations in the frequenoy interval ω to $\omega+d\omega$; the symbol $\langle\ \rangle$ denotes the averaging over the quantum number n, $\hbar\omega_L$ is the distance between the magnetic levels 1 and 2. In the linear model $\omega = \Omega_2\sqrt{1 + q\cos\eta}$; Ω_2 is the frequency of rotational oscillations of an individual molecule, when all the remaining molecules are in the equilibrium position, $0 \leq \eta \leq \pi$. One has

$$g(\omega) = \begin{cases} 2\omega(\pi q\Omega_2^2)^{-1}\left[1 - \frac{1}{q^2}\left(\frac{\omega^2}{\Omega_2^2} - 1\right)^2\right]^{-1/2} & \text{при } \Omega_2\sqrt{1-|q|} < \omega < \Omega_2\sqrt{1+|q|} \\ 0 & \text{при } \omega < \Omega_2\sqrt{1-|q|} \text{ и при } \omega > \Omega_2\sqrt{1+|q|}. \end{cases} \quad (10)$$

Card 4/7

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

Calculation of spin-lattice....

If one considers the effect of the last term in (7) (relaxation transition in which two phonons take part), one obtains analogously after averaging over n:

$$w_{12} = (2/\pi)\,(|(1|R_z|2)|/qJ\Omega_z^2)^2 \times$$

$$\times \int_{\Omega_{min}}^{\Omega_{max}-\omega_L} F(\omega)\left[\left(1-\frac{1}{q^2}\left(\frac{\omega^2}{\Omega^2}-1\right)^2\right)\left(1-\frac{1}{q^2}\left(\frac{(\omega+\omega_L)^2}{\Omega^2}-1\right)\right)\right]^{-1/2} d\omega, \qquad (12)$$

$$F(\omega) = \exp(\hbar(\omega+\omega_L)/kT)/[(\exp(\hbar\omega/kT)-1)(\exp(\hbar(\omega+\omega_L)/kT)-1)].$$

A lower bound of (12) is

$$w_{12} \geqslant \frac{2}{\pi}\left(\frac{|(1|R_z|2)|}{qJ\Omega_z^2}\right)^2 \frac{\exp(\hbar\Omega_{max}/kT)}{(1-\exp(\hbar\Omega_{max}/kT))^2}(\Omega_{max}-\Omega_{min}). \qquad (13)$$

In the most interesting case $\hbar\Omega_z/kT \ll 1$, one has

$$w_{12} = \frac{2}{\pi}\xi(q)\left(\frac{|(1|R_z|2)|}{q\Omega_z^2 J}\right)^2 \frac{1}{\Omega_z}\left(\frac{kT}{\hbar}\right)^2, \qquad (14)$$

$$\xi(q) = \frac{27q^2(\sqrt{1+|q|}-\sqrt{1-|q|})}{4[1+1/3\sqrt{1+3q^2}][3q^2-1+\sqrt{1+3q^2}]}.$$

Card 5/7

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

Calculation of spin-lattice...

Finally, an estimate is given for a specific case (transition 1/2, $1/2 \rightarrow -1/2, -1/2$). It is found that $1/T_1 = w_{12} \approx 5 \cdot 10^7 T^2/\nu^5 J^2$, where $\nu = \Omega_2/2\pi$. If $J = 100.10^{-40}$ g·cm^2, $T = 200^\circ$K, one has $1/T_1 = w_{12} \gtrsim 2 \cdot 10^3$ sec^{-1}. The result that T_1 can be essentially smaller than the value 1 sec expected according to Ref. 3, agrees with the result obtained in the laboratory of V. V. Voyevodskiy at the Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AS USSR). The authors thank Professor A.S. Kompaneyets and Professor N. D. Sokolov for discussions. There are 2 figures and 7 references: 4 Soviet-bloc and 3 non-Soviet-bloc. The three references to English-language publications read as follows: Ref. 1: H. M. McConnel. J.Chem.Phys. 25, 709, 1956; Ref. 3: D.I.E. Ingram. Tree Radicals as studied by Electron Spin Resonance, London, 1958; Ref. 5: I.H. van Vleck. Phys.Rev. 57, 426, 1940.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences USSR)

SUBMITTED: December 19, 1960

Card 6/7

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, I.V.; VETCHINKIN, S.I.; KARYAGIN, S.V.

Theory of superfine splitting anisotropy in electron paramagnetic resonance spectra of free radicals. Dokl. AN SSSR 143 no.4:890-893 Ap '62. (MIRA 15:3)

1. Institut khimicheskoy fiziki AN SSSR. Predstavleno akademikom V.N.Kondrat'yevym.

(Radicals (Chemistry)--Spectra)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

45354

S/181/63/005/002/043/051
B102/B186

5.4400

AUTHORS: Kazanskiy, V. B., Pariyskiy, G. B., Aleksandrov, I. V., and Zhidomirov. G. M.

TITLE: Investigation of the interaction of free radicals with the surface of a solid (silica gel) by the e.p.r spectra

PERIODICAL: Fizika tverdogo tela, v. 5, no. 2, 1963, 649 - 659

TEXT: The authors give a detailed analysis of the e.p.r. spectra of atomic hydrogen, methyl, ethyl and polymer radicals adsorbed on several types of silica gels (specific surfaces 290, 300, and 700 m^2/g). The studies were made in order to obtain information on the nature and the geometry of binding and the motions in the adsorbed state. The e.p.r. spectra were taken at λ = 3.2 cm and a hf modulation frequency of 1 Mc. The epr spectrum of adsorbed hydrogen is characterized by a hyperfine splitting constant of A = 1411±0.1 Mc (for free hydrogen it is A_o = 1420.40 Mc) and a great asymmetry of the components. On the basis of the present authors' earlier results (Kinetika i kataliz I, no. 4, 539, 1960) the hyperfine splitting

Card 1/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

Investigation of the ...

constants $A_\perp$ and $A_\parallel$ for $\vec{H} \perp \vec{E}$ and $\vec{H} \parallel \vec{E}$) are calculated:

$$A_\perp = A_{xx} = A_{yy} = A - \frac{47}{60}\frac{\mu_e\mu_n}{a_0^3}\lambda^2; \quad (4a)$$

$$A_\parallel = A_{zz} = A + \frac{47}{30}\frac{\mu_e\mu_n}{a^3}\lambda^2; \quad (4b)$$

$$A = \frac{8}{3}\frac{\mu_e\mu_n}{a^3}(1 - 15.5\lambda^2) = A_0(1 - 15.5\lambda^2); \quad (4c)$$

$\lambda = a^2E/e$. The anisotropy of hyperfine splitting is obtained as

$$A_\parallel - A_\perp = \frac{47}{20}\frac{\mu_e\mu_n}{a^3} = \frac{141}{160}A_0\lambda^2. \quad (5);$$

z $\parallel$ E and perpendicular to the surface. The anisotropy of the g-factor, $\Delta g = g_\parallel - g_\perp$, is very weak ($\sim 10^{-6}$) and not to be observed in experiment. The polarization energy of the hydrogen atom in the E field was obtained as ~1 kcal/mole. The e.p.r. spectrum of deuterium atoms adsorbed on SiO_2 is considerably narrower and is symmetrical, with smaller amplitudes of the side components. The e.p.r. spectrum of the methyl radicals was measured at -196°C; it consists of four hyperfine structural lines with a distance of 23.1±0.1 oe and with an amplitude ratio of 1 : 8.5 : 13 : 2.5. instead of 1 : 3 : 3 : 1. This can be ex-

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

plained by the loss of rotational degrees of freedom of CH_3 on adsorption. The e.p.r. spectrum of the ethyl radical consists of 12 lines and can be considered as quadruplet arising on hyperfine interaction of the unpaired electron with the protons of the CH_3 group, each quadruplet line being split into a triplet due to interaction with the CH_2 protons. The e.p.r. spectrum of the polymer radical consists of six broad poorly resolved components (~25 oe distance). The results show that the e.p.r. spectra of adsorbed radicals differ considerably from those of free radicals or of radicals stabilized in solid polycrystalline matrices. The surface effect becomes apparent in a reduction of the hyperfine splitting constant (for hydrogen in a deformation of its electron shell) and in a change of the character of motion due to losses of degrees of freedom or of equilibrium positions of the radicals in the matrices. There are 9 figures and 1 table.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR, Moskva (Institute of Chemical Physics AS USSR, Moscow)

SUBMITTED: September 27, 1962

Card 3/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, I.V.; KESSENIKH, A.V.

Theory of spin-lattice relaxation of polymer radicals in a solid. Fiz. tver. tela 6 no. 4:1006-1012 Ap '64.
(MIRA 17:6)

1. Nauchno-issledovatel'skiy fiziko-khimicheskiy institut imeni Karpova, Moskva.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, Igor' Vladimirovich; SOKOLOV, N.D., otv. red.

[Theory of nuclear magnetic resonance] Teoriia iadernogo magnitnogo rezonansa. Moskva, Nauka, 1964. 206 p.
(MIRA 17:10)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

L 17137-65 EWT(1)/T AFWL/AS(mp)-2/SSD/ASD(a)-5/AE ETR/RAEM(c)/RAEM(1)/
ESD(gs)/ESD(t)/IJP(c)
ACCESSION NR: AP5000556 S/0051/64/017/006/0944/0946

AUTHOR: Aleksandrov, I. V.; Pukhov, K. K.

TITLE: Contribution to the theory of EPR spectra of molecules in the triplet state in polycrystals

SOURCE: Optika i spektroskopiya, v. 17, no. 6, 1964, 944-94(

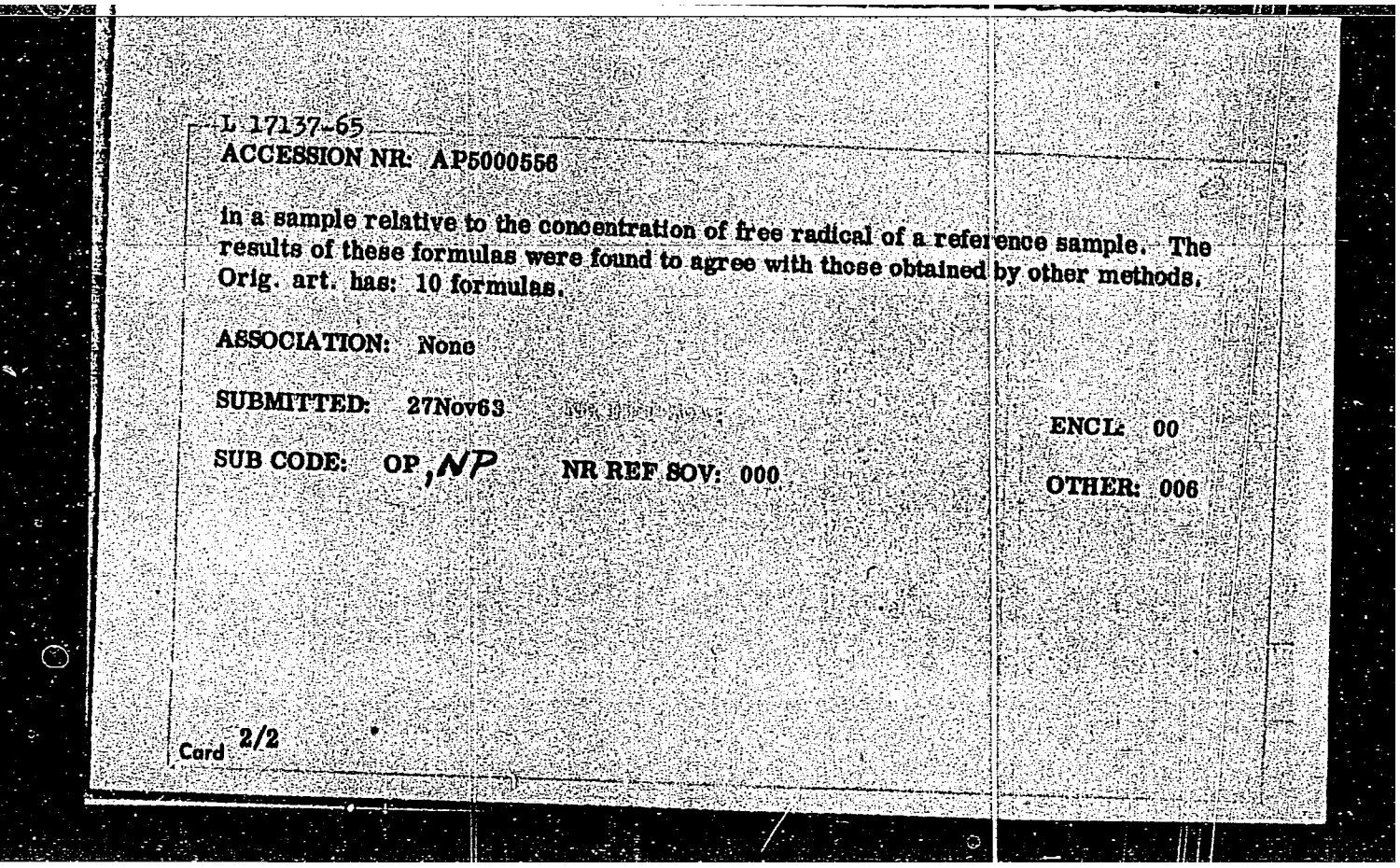
TOPIC TAGS: electron paramagnetic resonance, line splitting, spin orbit interaction, dipole dipole interaction, triplet state, polycrystal

ABSTRACT: The constants for the splitting of the triplet level due to magnetic dipole dipole interaction of the unpaired electron spin or due to the spin-orbit interaction are determined for the case of molecules with arbitrary symmetry. The first and second moments of the absorption lines, which are functions of the splitting constants, are calculated and a relation is established between these moments which can be readily observed in experiment) and the splitting constants. In the case of a strong field, a formula is derived making it possible to determine the concentration of triplet molecules

Card 1/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2



L 17137-65
ACCESSION NR: AP5000556

in a sample relative to the concentration of free radical of a reference sample. The results of these formulas were found to agree with those obtained by other methods. Orig. art. has: 10 formulas.

ASSOCIATION: None

SUBMITTED: 27Nov63 ENCL: 00

SUB CODE: OP, NP NR REF SOV: 000 OTHER: 006

Card 2/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

L 56013-65 EWT(1)/EPF(c)/EEC(t) P1-4 IJP(c) WW/GG
ACCESSION NR: AP5012881 UR/0379/65/001/001/0080/0092

21
20
B

AUTHOR: Aleksandrov, I. V.

TITLE: The theory of paramagnetic spin-lattice relaxation in solids

SOURCE: Teoreticheskaya i eksperimental'naya khimiya, v. 1, no. 1, 1965, 80-92

TOPIC TAGS: spin lattice relaxation, phonon, paramagnetic resonance

ABSTRACT: Spin-lattice relaxation processes were described using the correlation function method, which was extensively used in studies of paramagnetic relaxation in liquids. A method is proposed for calculation of spin-lattice paramagnetic relaxation time T_1 in an isotropic solid which is described by the Debye structural model. Formulas are derived which reduce the problem of calculating T_1 to the determination of the form of the spin-phonon hamiltonian, which is a function of the spins of the paramagnetic particle and the coordinates of its atoms. These formulas explain the change in T_1 throughout the whole temperature interval from a single standpoint. The discrepancy between the experimental data and the Kronig-Van Vleck theory at low temperatures was explained. The article indicates changes

Card 1/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

L 56013-65
ACCESSION NR: AP5012831

to be made in the theory which eliminate these discrepancies. The probability of the spin-lattice relaxation transition in a radical with anisotropic *g* factor is calculated by way of example. Orig. art. has: 53 formulas.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR, Moscow (Institute of Chemical Physics AN SSSR)

SUBMITTED: 05Oct64 ENCL: 00 SUB CODE: SS, NP

NO REF SOV: 005 OTHER: 005

Card 2/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

L 56012-65 EWT(1)/EPF(c)/EEC(t) Pi-4 IJP(c) WW/GG

ACCESSION NR: AP5012032 UR/0379/65/001/001/0093/0099

24
23
B

AUTHOR: Aleksandrov, I. V.

TITLE: The shape of electron paramagnetic resonance lines in magnetically diluted solid specimens. Report II

21

SOURCE: Teoreticheskaya i eksperimental'naya khimiya; v. 1, no. 1, 1965, 93-99

TOPIC TAGS: paramagnetic resonance, phonon

ABSTRACT: In electron paramagnetic resonance (EPR) spectroscopy a number of solids behave in such a way that the width of the absorption line is not dependent on the interaction between paramagnetic particles, but is a function of the particles themselves and their interaction with the lattice. The shape of EPR lines for radicals in polycrystalline material is generally determined by the anisotropy of the g-factor or the hyperfine structure constants. The article investigates the shape of the line of the EPR signal in a magnetically diluted solid, produced by the spin-lattice interactions. It is shown that Bloch's equations, which lead to the Lorentz form of the absorption line, may be used in actual crystals in the case of

Card 1/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

L 56012-65

ACCESSION NR: AP5012832

$S = \frac{1}{2}$, because of the finite free path of the phonon. In an ideal harmonic crystal the secular terms of the spin-lattice interaction produce a narrow line which approaches a δ-function in the center and a Gaussian curve at the tails. Orig. art. has: 38 formulas.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR, Moscow (Institute of Chemical Physics AN SSSR)

SUBMITTED: 05Oct64 ENCL: 00 SUB CODE: NP, SS

NO REF SOV: 004 OTHER: 004

Card 2/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, I.V.

Spin-lattice relaxation of radicals in the solid phase. Teoret. i eksper. khim. 1 no.2:211-220 Mr-Ap '65. (MIRA 18:7)

1. Institut khimicheskoy fiziki AN SSSR, Moskva.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, I.V.; KESSENIKH, A.V.

Isotropic superfine interaction and spin-lattice relaxation of radicals in the solid phase. Part 4. Teoret. i eksper. khim. 1 no.2:221-228 Mr-Ap '65. (MIRA 18:7)

1. Institut khimicheskoy fiziki AN SSSR, Moskva i Nauchno-issledovatel'skiy fiziko-khimicheskiy institut imeni L.Ya.Karpova, Moskva.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

SAKUN, V.P.; BUCHACHENKO, A.L.; ALEKSANDROV, I.V.

Analysis of electron paramagnetic resonance spectra of some polyradicals in the presence of unpaired electron exchange. Teoret. i eksper. khim. 1 no.2:269-271 Mr-Ap '65. (MIRA 18:7)

1. Institut khimicheskoy fiziki AN SSSR, Moskva.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, I.V.; KAZANSKIY, V.B.; MIKHEYKIN, I.D.

Electron paramagnetic resonance studies of the structure of active centers of chromium oxide catalysts for ethylene polymerization. Kin. i kat. 6 no.3:439-447 My-Je '65. (MIRA 18:10)

1. Institut khimicheskoy fiziki AN SSSR.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

L 45649-65 EPF(c)/EWT(1)/EEC(t) Pi-4 IJP(c) GG/WW

ACCESSION NR: AP5008746 S/0056/65/048/003/0869/0878

17
15
B

AUTHOR: Aleksandrov, I. V.

TITLE: Spin-lattice paramagnetic relaxation and the shape of the EPR signal line in a magnetically dilute solid 21

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 3, 1965, 869-878

TOPIC TAGS: paramagnetic relaxation, epr line, spin lattice relaxation, line shape, spin phonon interaction, magnetic dilution

ABSTRACT: A method used in the theory of paramagnetic relaxation in liquids and gases, where the spin-lattice interaction is described in terms of the spectral density of a heat reservoir, is extended to include solids. General formulas are obtained for the spin-lattice relaxation times of the direct and Raman processes. These formulas relate the relaxation time to the coefficients of the spin-phonon Hamiltonian and the parameters of the solid. Spin-lattice relaxation of radicals in a solid is considered as an example. The shape of EPR lines in a solid, due to

Card 1/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

L 45649-65

ACCESSION NR: AP5008746

2

spin-lattice interaction, is considered. It is shown that in the harmonic approximation no narrowing of the EPR lines takes place as a result of the vibrational motion of the nuclei. The absorption line is Gaussian in its wings, and the phenomenological Bloch equations are not applicable. If anharmonicity or the finite mean free path of the phonon is taken into account, the line has a Lorentz shape. "The author thanks T. N. Khazanovich for discussions." Orig. art. has: 34 formulas.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences SSSR)

SUBMITTED: 13Sep64 ENCL: 00 SUB CODE: EM, SS

NR REF SOV: 006 OTHER: 008

Card 2/2 fb

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

7-1-5/12

AUTHORS: Aleksandrov, I. V., Zmeyenkova, A. V.

TITLE: The Evolution of Rocks During Progressive Metamorphosis (Shown by the Example of the Middle Formation of the Krivoi Rog Series)
(Evolyutsiya porod pri progressivnom metamorfizme (Na primere sredney svity Krivorozhskoy serii))

PERIODICAL: Geokhimiya, 1958, Nr 1, pp. 47-59 (USSR).

ABSTRACT: The pre-Cambrian Krivoi Rog series (called also Saksagan series) is divided into three layers; the middle consists alternatively of rocks rich and poor in iron (ore- and schist horizons). According to the changes of the content of minerals in the course of metamorphosis three groups of rocks can be distinguished:
A. Rich in aluminum and comparatively poor in iron.
B. Rich in aluminum and iron; with two subgroups:
1) Chlorite- and quartzchlorite slate.
2) Magnetite-chlorite- and magnetite-stilpnomelane slate.
C. Rich in iron and very poor in aluminum.
The mineral content is given for each group and their formation is discussed.

Card 1/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

The Evolution of Rocks During Progressive Metamorphosis 7-1-5/12
(Shown by the Example of the Middle Formation of the Krivoi Rog Series)

The changes in the chemical composition are shown in a diagram which contains 75 analyses, the abscissa is formed by the atomic percents of the most important components, the ordinate by the value of Fe^{2+} + Fe^{3+} of the analysis in question. The reaction of the individual chemical elements in the course of metamorphosis is discussed; here it can be distinguished between:
1) Elements the content of which is not changed to a considerable extent in the case of progressive metamorphosis. iron.
2) Elements the content of which changes in the course of the process, an increase in the one rock corresponds, however, to a decrease in another. silicon, aluminum, magnesium.
3) Elements the content of which only in- or decreases. sodium, potassium, CO_2.
Rearrangements to this extent can occur only by the transport of solutions. In the course of metamorphosis there was almost equilibrium between rock and solutions. During metamorphosis solutions various also according to their composition are bound to have been formed in the rocks of various composition.

Card 2/3 There are 3 figures, 2 tables, and 6 references, 6 of which are Slavic.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

The Evolution of Rocks During Progressive Metamorphosis (Shown by the Example of the Middle Formation of the Krivoi Rog Series) 7-1-5/12

ASSOCIATION: Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy AS USSR, Moscow
(Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo AN SSSR Moskva)

SUBMITTED: July 13, 1957.

AVAILABLE: Library of Congress.

1. Geology 2. Metamorphosis-Stone 3. Rock-Analysis

Card 3/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

AUTHOR: Aleksandrov, I. V. 7-58-3-14/15

TITLE: Discussion (Diskussiya)
On the Conclusions Drawn by D.S. Korzhinskiy With Respect to the Phase Rule (O vyvodakh D.S. Korzhinskogo, svyazannykh s pravilom faz)

PERIODICAL: Geokhimiya, 1958, Nr 3, pp. 280-282 (USSR)

ABSTRACT: D.S. Korzhinskiy is of the opinion that the usual formula for the phase rule ($n = k + 2 - r$) does not reflect all properties of open systems with completely free variable components. He therefore introduces to the phase rule not only such intensive parameters as pressure, temperature, chemical potential, but also extensive parameters such as internal energy, entropy, volume, and mass. The opinion of D.S. Korzhinskiy is given (Ref 1). To this the author raises the following objecticns:
1.- In the derivation of the phase rule only intensive parameters enter as independent quantities for the following reasons: firstly the equilibrium does not depend on the dimensions of the phases, secondly the equilibrium between the phases is determined by the following equations:

Card 1/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

Discussion. On the Conclusions Drawn by D.S. Korzhinskiy With Respect to the Phase Rule 7-58-3-14/15

$$T' = T'' = \ldots = T^r$$
$$P' = P'' = \ldots = P^r$$
$$\mu_1' = \mu_1'' = \ldots = \mu_1^r$$
$$\ldots\ldots\ldots\ldots\ldots$$
$$\mu_k = \mu_k = \ldots = \mu_k^r$$

where T denotes temperature, P - pressure, ... chemical potentials of the components.

Only intensive parameters enter these equations and this is further proof of the fact that only intensive parameters are used in the derivation of the phase rule.

2.- For the purpose of deriving the phase rule D.S. Korzhinskiy uses the equation $dU = TdS - PdV + \mu_1 dm_1 + \ldots + \mu_k dm_k$, m ... m denoting the mass of the components. However, in order to exclude the dimensions of the phase it is sufficient to assume one of the extensive parameters (U, S, V, m_1 ... m_k) as being constant. The supplementary additions to the phase rule made by D.S. Korzhinskiy cannot be described as very good. There are 4 references, which are Soviet.

Card 2/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

Discussion. On the Conclusions Drawn by D.S. Korzhinskiy With Respect to the Phase Rule 7-58-3-14/15

SUBMITTED: January 31, 1958

1. Chemical equilibrium 2. Mathematics

Card 3/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

SOV/7-59-4-8/9

3(8)
AUTHOR: Aleksandrov, I. V.

TITLE: On Peculiarities in the Evolution of Rocks of the Krivoy Rog Series in Alkaline Metasomatosis (Ob osobennostyakh evolyutsii porod Krivorozhskoy serii pri shchelochnom metasomatoze)

PERIODICAL: Geokhimiya, 1959, Nr 4, pp 364 - 377 (USSR)

ABSTRACT: The basis of this paper is an analysis diagram in which more than 80 analyses are summarized (Fig 3). The diagram was constructed in such a way that the gram-atomic percentage of Si, Al, Fe^{3+}, Fe^{2+}, Mg, Ca, Na, K, C (from the carbonates) were plotted versus the sum of the gram-atomic percentage of Fe^{3+} and Fe^{2+}. Data obtained by Ya. N. Belevtsev, V. S. Domarev, R. P. Dubinkina, A. P. Nikol'skiy, Z. V. Novikova, R. P. Petrov, A. S. Pavlenko, N. P. Semenenko, A. I. Tugarinov, M. S. Tsybul'skaya, S. P. Chumakova, I. V. Aleksandrov were used for this purpose. Five analyses are given numerically (Table 2); they were carried out by I. V. Aleksandrov and A. V. Zmeyenkova. Since the solutions acting at the same time were of different composition, they cannot originate from

Card 1/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

the same source. An interstitial solution of the metamorphic rocks is assumed which had different composition according to its origin from either mica schists or from rocks rich in iron. The metasomatosis took place at increasing temperature and on regressive metamorphism. From mica schists albitites and chlorite-muscovite-albite-schist were formed, from quartz-magnetite-amphibole schists magnetite-alkali amphibole schist, from amphibole-magnetite-quartzites magnetite-alkali-amphibole-aegirine rocks, and aegirinites. In zones of intense impregnation alkali amphibole-magnetite ores resulted from quartzites containing iron. The alkali metasomatosis can be characterized as follows: Sodium is precipitated, silicium is removed, Al, Fe and Mg usually remain inert, iron is oxidized on the formation of aegirine and alkali amphiboles, to a lesser degree on formation of martite. The investigation was carried out under direction of A. I. Tugarinov. The author expresses his gratitude to L. V. Dmitriyev, A. S. Pavlenko, F. V. Syromyatnikov, A. I. Tugarinov and V. V. Shcherbina for valuable advice, to A. V. Shustrov for his assistance in carrying out the graphic

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

On Peculiarities in the Evolution of Rocks of the Krivoy Rog Series in Alkaline Metasomatosis SOV/7-59-4-8/9

work. There are 4 figures, 2 tables, and 4 Soviet references.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo, AN SSSR, Moskva (Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy, AS USSR, Moscow)

SUBMITTED: May 21, 1958

Card 3/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, I. V., CAND GEOL-MIN SCI, "GENETIC ~~CHARAC-~~ peculiarities ~~TERISTICS~~ OF SODIUM METASOMATOSIS IN THE KRIVOY ROG AREA." MOSCOW, 1960. (ACAD SCI USSR, INST OF GEOLOGY OF ORE DEPOSITS, PETROGRAPHY, MINERALOGY AND GEOCHEMISTRY). (KL, 3-61, 206).

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, I.V.

Comments on N.I.Nakovkik's article "Determining quantitative changes in matter during hydrothermal metamorphism." Zap. Vses. min. ob-va 89 no.1:130-132 '60. (MIRA 13:10)

1. Institut geokhimii i analiticheskoy khimii imeni V.I. Vernadskogo AN SSSR.
(Organic matter) (Metamorphism (Geology))

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, I. V.; PAVLENKO, A. S.; TUGARINOV, A. I.

"Geochemical features of alkalinermatasomatic phenomena"

Paper submitted at the International Geological Congress XXI Session - 1960 (Reports of Soviet Geologists) Problem No. 1, 15-24 Aug. 61

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

TUGARINOV, Aleksey Ivanovich; PAVLENKO, Aleksey Stefanovich; ALEKSANDROV, Igor' Vasil'yevich; SHCHERBINA, V.V., otv. red.; IVANOV, I.P., red. izd-va; POLYAKOV, T.V., tekhn. red.

[Geochemistry of alkaline metasomatism] Geokhimiia shchelochnogo metasomatoza. Moskva, Izd-vo Akad. nauk SSSR, 1963. 201 p. (MIRA 16:7)
(Metasomatism) (Geochemistry)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, K.

Arsenic content in the tobacco of Bulgarian cigarettes. Doklady BAN 14 no.5:539-542 '61.

1. Submitted by Academician D. Orahovats[D. Orakhovats]

(Arsenic) (Tobacco)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, KHRISTO

"Elektricheski mrezhi i tsentrali; uchebnik za VIII klas na tekhnikumite po elektrotekhnika. Sofiya (Narodna prosveta) 1951. 408 p. (Electric network and powerhouses; a textbook for the eighth year of electrical engineering schools.)

SO: Monthly List of East European Accessions, L. C. Vol. 2 No. 7, July 1953, Uncl.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, K.

Feb 52

USSR/Geophysics - Hydraulics

"Earth-Sucking Equipment," K. Aleksandrov

Priroda, No 2, p 8

States that hydromechanization, which is the use of water to handle, move, and pack ground, is the most effective advanced method in earthwork operations at the Kuybyshev, Stalingrad, and Tsimlyanskaya hydroelectric constructions. Remarks that the Tsimlyanskaya earthen dam will be 12.8 km long, and already totals more than 25 million cubic m of earth packed in 1951 alone. The daily amount of alluvium in the sluicing operations has reached as much as 200,000 cubic m.

263T93

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

USSR/Electronics - Receivers
Exhibitions

Aug 52

"Short-Wave Receivers for Amateur Communications (Survey of Exhibits at the 10th All-Union Radio Exhibition)," K. Aleksandrov

"Radio" No 8, pp 35-39

Description and photographs of a number of short-wave receivers. First prize was awarded to V. Komylevich of Leningrad for his 11-tube short-wave superheterodyne with double-frequency conversion.

226T30

Author deplores the fact that no good, simple short-wave receiver which could be constructed by radio amateur novices was shown at the exhibition.

226T30

ALEKSANDROV, K.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

SOV/84-59-10-48/53

AUTHOR: Aleksandrov, K.

TITLE: Away from the Propeller !

PERIODICAL: Grazhdanskaya aviatsiya, 1959, Nr 10, p 34 (USSR)

ABSTRACT: 1) USSR: Reader Ostapchuk complained of the presence in the complete sets of radio stations and ground radar stations of a number of useless parts. The deputy chief of the Upravleniye svyazi i radiosveto-obespecheniya poletov GUGVF (Directorate for Means of Communications with Aircraft, Radio and Light Navigational Aids of GUGVF) Panagriyev informs this periodical that complete sets earmarked for deliveries in 1960 will be checked and freed of any excessive parts.

2) A radioman of the Parbigskiy airport, Kornilov, wrote about the unavailability of special work clothes for radiomen who work as engine mechanics and as battery room men. The acting chief of the Otdel truda i zarabotnoy platy GUGVF (Department of Labor and

Card 1/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

Wages of GUGVF), Smirnov, informs this periodical, that the chief of the Zapadno-Sibirskoye upravleniye GVF (West-Siberian Administration of GVF), Shiryayev, was instructed to furnish the needed work clothes.

3) A repair installation directed by I. Ivasik, where the working out of an automatic line for washing aircraft engine parts has not yet been completed after 2 years of "effort" is criticized.

4) The Gor'kiy airport, where the permanent conference on production, directed by V. Fadeyev, has convened only once in a year is cited. The minutes of this single meeting have been lost. There are 3 drawings and 1 caption drawing.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, K.

Attachement for rolling fabrics. Prom.koop.no.2:15 F '56.
(Textile machinery) (MLRA 9:7)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, K.

Hydraulic hand truck-loader. Sov. torg. 36 no.5:42-43 My '63.
(MIRA 16:5)
(Loading and unloading--Equipment and supplies)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, K.

Arsenic content in Bulgarian cigarettes. Vop. onk. 8 no.11:48-50 '62. (MIRA 17:6)

1. Nauchno-issledovatel'skiy onkologicheskiy institut (dir.- prof. Ves. Mikhaylov). Sofiya, Narodnaya Respublika Bolgariya.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, Kr.

Labeled atoms in biochemical analysis. Suvrem. med. Sofia 8 no.3:66-72 1957.

1. Iz Onkologichniia institut (Direktor: prof. V. Mikhailov)
(ISOTOPES,
in biochem. analysis (Bul))
(CHEMICAL ANALYSIS,
labeled isotopes in biochem. analysis (Bul))

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

BULGARIA / General Problems of Pathology. Tumors. U
Comparative Oncology. Human Tumors.

Abs Jour : Ref. Zhur - Biologiya, No. 3, 1959, 13677

Author : Aleksandrov, Kr.
Inst :
Title : On the Problem of Hyperestrogenisation in Mammary-Gland Carcinoma.

Orig Pub : Sovrem. med., 1957, 8, No. 10, 93-99

Abstract : In 25 patients with mammary-gland carcinoma, the secretion of estrogens (I) in urine was studied according to the modified method of Kober. In 8 patients, the amount of I was within normal limits (37-48 gamma); in 9, it was somewhat higher than normal, but within the margin of error of the method (56-60 gamma) and, in 8, approximately two times higher than normal (682-110

Card 1/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, Krum

Contrivance for sectioning electrophoregrams produced on paper.
Lab. delo 5 no.3:59 My-Je '59. (MIRA 12:6)

1. Iz Onkologicheskogo instituta, Sofiya.
(PAPER ELECTROPHORESIS)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, Kr.

Studies on the content of glutathione in the blood in cancer patients. Suvrem.med.,Sofia no.9/10:106-114 '59.

1. Iz Nauchnoizsledovatelskiia onkologichen institut - Sofiia. Direktor: prof. Ves. Mikhailov.
(NEOPLASMS blood)
(GLUTATIONE blood)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, Kr.

The mechanism of action of chemotherapeutic substances against cancer.
Suvrem med., Sofia no.6:98-106 '60.
(NEOPLASMS ther.)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, Kr.

The content of arsenic in Bulgarian cigarettes. Suvrem med., Sofia no.2:105-108 '61.

1. Nauchno-izsledovatelski onkologichen institut, Sofiia. (Direktor: prof. Ves. Mikhailov.)

(ARSENICALS chem) (TOBACCO chem)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, Kr.

Results of electrophoretic analyses of blood serum proteins of patients with cancer. Vop. onk. 7 no. 4:64-69 '61. (MIRA 14:4)

1. Iz Nauchno-issledovatel'skogo onkologicheskogo instituta (dir. - prof. V.Mikhaylov), Sofiya, Narodnaya Respublika Bolgarii. Adres avtora: Narodnaya Respublika Bolgariya, Sofiya-Drvenitsa, Onkologicheskiy institut.
(CANCER) (BLOOD PROTEINS) (PAPER ELECTROPHORESIS)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

STRATEV, Il.; ALEKSANDROV, Kr.

Microelements of copper and zinc in the prevention and treatment of diseases caused by radiation. Doklady BAN 14 no.5:543-546 '61.

1. Institut oncologique de recherches scientifiques, Sofia. Note presentee par D. Orachovatz, [Orakhovats, D.] member de l'Academie.

(Radioactivity) (Atomic medicine)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV K.

(220)

Sofia, Khigiena, vol 5, no 1, January-February 1962 (136)

1. "The Problem of Preventive Medicine in a Socialist Society," Professor X.I. BARSUKOV, Chief of the Department of the History of World Public Health, "N.A. Semashko" Institute of Public Health Organization and the History of Medicine, Moscow; pp 4-10.

2. "On the Virus Etiology of Tumors," P. ANDONOV; pp 11-25.

3. "On the Antigenic Similarity between Normal and Malignant Tissues in Man and Mice," I. BASHKAYEV and M. BOYEVA of the Virus Laboratory (headed by Professor V.V. GORCHILOV) of the "P.A. Khertsen" Institute (Professor A.N. Novikov, Director), Moscow; pp 26-31.

4. "Cancerous Substances in a Surrounding Medium and the Possibilities of Protection," K. ALEKSANDROV of the Oncological Institute in Sofia; pp 32-36.

5. "Humanism and Medicine," Professor A. PANEV; pp 37-45.

6. "Occupational Diseases in Bulgaria 1959-1960," Mircho MIRCHEV; pp 46-49.

7. "Fundamental Problems in the Labor Pathology of Agricultural Workers," Docent Khristo KHADZHIOLOV, Director of the Clinic for Occupational Diseases, Sofia; pp 50-55.

8. "Preventive Medicine with Sodium Citrate during Lead Production and Its Therapeutic Application in the Treatment of Chronic Lead Poisoning," Dr. S. STANCHEV of the okrug sanitation-epidemic station (Dr. I. TODOROV, chief physician) in Varna; pp 56-59.

9. "The Diagnostic Significance of Certain Indicators for Changes in the Higher Nervous Activity in the Event of Lead Poisoning," V. SAVADZHIEV, V. STOEV, and G. PETKOV of the Department of Hygiene and Labor Hygiene and the Clinic for Occupational Diseases (Professor L. TS/PETKOV, head of department), with the health unit of "Factory 12" headed by Dr. G. PETKOV; pp 60-62.

— 1/1 —

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ANDREEV, St.; AIEKSANDROV, Kr.

Object of chemical research in the light of contemporary natural science. Spisanie BAN 7 no.1/2:93-99 '62.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ANDREEV, St., ALEKSANDROV, Kr.

The subject of chemistry in the light of modern natural science.
Bŭlg. khim. 4 no.2:1-6 '62.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, Krum

Kryton 85, a universal labeled atom. Priroda Bulg 13 no.6: 74-75 N-D '64.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, K.A., kandidat tekhnicheskikh nauk.

Put the construction of school buildings on a mass-production basis. Gor.khoz.Mosk. 25 no.3:25-29 Mr '51. (MLRA 7:10)
(Moscow--Schoolhouses) (Schoolhouses--Moscow)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, K.A.; RABINOVICH, E.M.

Portable tablelike scaffold to be used in interior decorating. Suggested by K.A.Aleksandrov, E.M.Rabinovich. Rats.i izobr. predl.v stroi. no.12:44-46 '59. (MIRA 13:5)

1. Po materialam Glavmosstroya, Moskva, Sovetskaya pl., d.2/6.
(Scaffolding)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, K.B., kandidat tekhnicheskikh nauk, dotsent.

Some causes of unsatisfactory operation of lightning protectors in electric locomotives. Sbor. LIIZHT no.149:40-49 '55.
(Lightning protection) (MLRA 9:6)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, K.B., kand.tekhn.nauk, dots.

Wave parameters of electric traction motors. Sbor.LIIZHT no.159:112-123 '58. (MIRA 12:2)
(Electric railway motors)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, K.B., kand.tekhn.nauk

Limiting of commutational overvoltages on electric rolling stock.. Elek. i tepl. tiaga 4 no. 12:15-17 D '60. (MIRA 14:1)
(Railroads--Rolling stock) (Electric protection)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, Konstantin Borisovich, kand.tekhn.nauk, dotsent; NOVIKOV, Mikhail Nikolayevich, assistent; PAVLOVSKIY, Vladislav Vital'yevich, assistent

Experimental study of pulse processes in the traction network of the N60 electric locomotive. Izv. vys. ucheb. zav.; elektromekh. 4 no.12:66-74 '61. (MIRA 15:1)

1. Kafedra teoreticheskikh osnov elektrotekhniki Leningradskogo instituta inzhenerov zheleznodorozhnogo transporta (for Aleksandrov, Pavlovskiy). 2. Kafedra elektricheskoy tyagi Leningradskogo instituta inzhenerov zheleznodorozhnogo transporta (for Novikov). (Electric locomotives) (Electric railroads--Current supply)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

NOVIKOV, M.N., inzh. (Leningrad); ALEKSANDROV, K.B., kand.tekhn.nauk, dotsent (Leningrad)

Calculation of external overvoltages in the power network of the N60 electric locomotive. Elektrichestvo no.6:27-31 Je '62. (MIRA 15:6)

(Electric locomotives)
(Electric railroads--Current supply)
(Electric protection)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, K.B., kand.tekhn.nauk (Leningrad)

Protection of a.c. lines against atmospheric overvoltages.
Zhel.dor.transp. 44 no.1:43-47 Ja '62. (MIRA 14:12)
(Electric lines)
(Lightning protection)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, K.B., kand.tekhn.nauk

Measures against overvoltages on N60 electric locomotives. [Trudy] LIIZHT no.193:41-47 '62. (MIRA 15:12)

1. Leningradskiy institut inzhenerov zheleznodorozhnogo transporta.

(Electric locomotives)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, K.B., kand.tekhn.nauk

Protection of the power supply systems of a.c. railroads from lighting strokes. [Trudy] LIIZHT no.193:212-228 '62. (MIRA 15:12)

1. Leningradskiy institut inzhenerov zheleznodorozhnogo transporta.
(Electric railroads--Wires and wiring)
(Electric railroads--Current supply)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

ALEKSANDROV, Konstantin Borisovich, kand.tekhn.nauk, dotsent; NOVIKOV, Mikhail Nikolayevich; PAVLOVSKIY, Vladislav Vital'yevich, assistent

Overvoltage on the main collector of the N60 electric locomotive. Izv.vys.ucheb.zav.; elektromekh. 6 no.2:217-223 '63. (MIRA 16:4)

1. Kafedra teoreticheskikh osnov elektrotekhniki Leningradskogo instituta inzhenerov zheleznodorozhnogo transporta (for Aleksandrov, Pavlovskiy). 2. Kafedra elektricheskoy tyagi Leningradskogo instituta inzhenerov zheleznodorozhnogo transporta (for Novikov).

(Electric locomotives)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2

SKLYAROV, A.Ye.; ALEKSANDROV, K.B.

Method for testing the electric strength of the insulation of the sections of traction motor windings. Sbor. nauch. trud. EINII 2:174-185 '62. (MIRA 16:8)

(Electric insulators and insulation—Testing)
(Electric railway motors—Windings)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820017-2"