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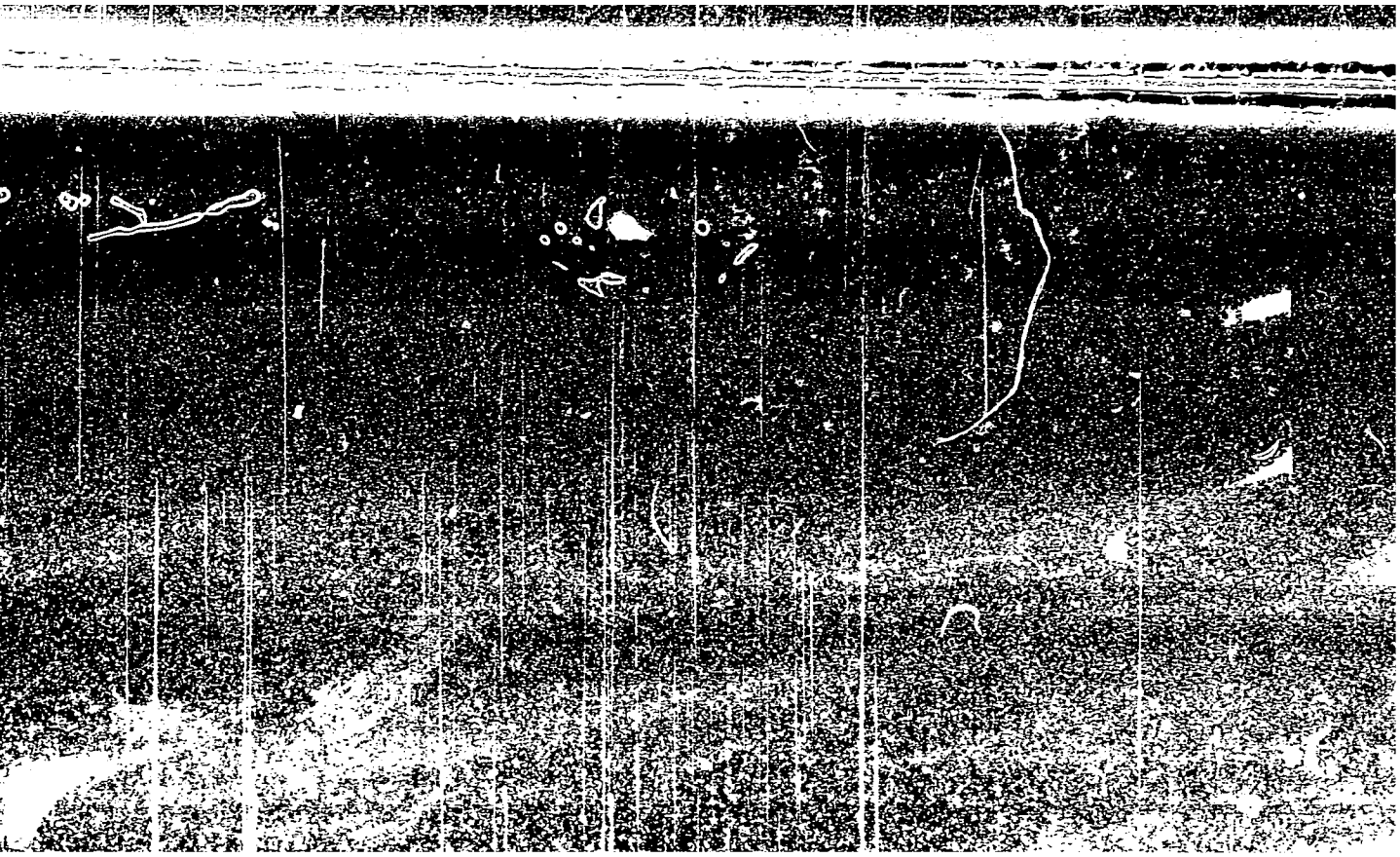

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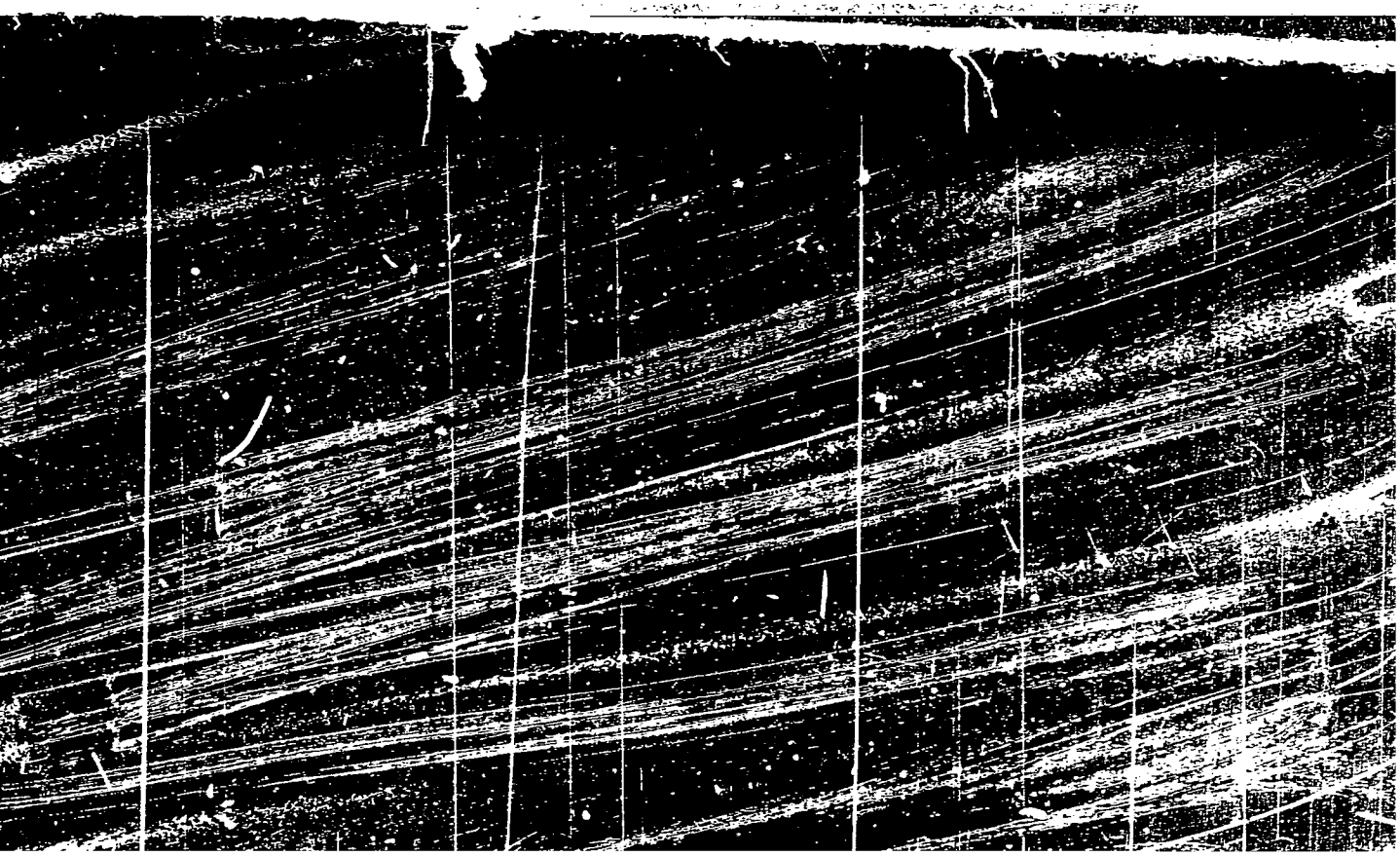

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REEL 88

REGULAR ORDER

FROM

CHIBISOV, M.I.

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

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88458

S/056/60/039/006/050/063
B006/B063

26.2357

AUTHORS: Firsov, O. B., Chibisov, M. I.

TITLE: Bremsstrahlung of Slow Electrons Interacting With Neutral Atoms

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 6(12), pp. 1770-1776

TEXT: A theoretical study has been made of bremsstrahlung arising from the collision of slow electrons ($E_e < 3$ ev) with neutral atoms. Above all, it is shown that the bremsstrahlung cross section may be represented as a function of the elastic scattering cross section of electrons by atoms. The absorption coefficient of bremsstrahlung has been calculated as well. In the introduction, the most important formulas are presented, including an expression for the intensity of radiation emitted by the electron-atom system:

$$S = \frac{4e^2}{3c^3}\nu^4\left|\int \varrho_{ab}\,\vec{r}_o d\vec{r}_o\right|^2 = \frac{4Z^2e^6}{3m^2c^3}\left|\int \varrho_{ab}\,\frac{\vec{r}_o d\vec{r}_o}{r_o^3}\right|^2$$

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Bremsstrahlung of Slow Electrons Interacting With Neutral Atoms

$\varrho_{ab}(\vec{r}_o) = (Z+1)\int \sum \psi_b^* \psi_a d\tau_1 \ldots d\tau_z, \vec{r}_o$ is the radius vector of the inciding electron. This formula holds for the case where the system passes from state a to state b, and may be used to calculate the matrix element of the dipole moment which is determined by the behavior of ϱ_{ab} inside the atom. The calculation of this matrix element requires an exact solution of the Schrödinger equation with the potential

$$U = -\sum_{i=0}^{Z} \frac{Ze^2}{|\vec{r}_i|} + \frac{1}{2} \sum_{i=0}^{Z} \sum_{k=0}^{Z}{}' \frac{e^2}{|\vec{r}_i - \vec{r}_k|}.$$

It has been shown that, at least in the classical theory, the radiation is emitted chiefly from the atom when the electron is at distances in the order of atomic dimensions. In first approximation, the disturbance of the atom by a slow electron manifests itself in the polarization of the atom. If the period of natural oscillations of the atomic dipole ($\sim 10^{-16}$ sec) is very small compared to the time of flight of the electron through the atom ($v_e < 10^8$ cm/sec) the dipole undergoes an adiabatic

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Bremsstrahlung of Slow Electrons Interacting With Neutral Atoms

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variation and $\vec{d} = \alpha\vec{E} = \alpha e\vec{r}/r^3$, where α is the polarization coefficient, and $\vec{r}$ is the radius vector of the incident electron in the nuclear system. For central collisions, $\dot{\vec{d}} = \alpha e/r^2$ and $\ddot{\vec{d}} = -2e\alpha\dot{r}/r^3 + 6\alpha e\dot{r}^2/r^4$. In addition, $\left|\ddot{d}/e\ddot{d}\right|_{r=r_{min}} = (4\varepsilon_0/e^2)r_{min}$, where $r_{min} \sim 3\cdot 10^{-8}$ cm is the value at which $-\ddot{d}/e\ddot{r}$ passes through a minimum. Hence, classical approximation shows that, if r is in the order of some atomic radii, the radiation is emitted primarily from the atomic dipole. Peripheral collisions lead to similar results. Next, the calculation of $\langle \vec{r} \rangle_{ab}$ is discussed, and several relations are derived. The intensity of radiation occurring in a gas composed of neutral atoms and electrons is studied, and the following relations are obtained for the absorption coefficient $a(\nu,k_b)$ or $a(\hbar\nu,E)$ which are defined as the probability that an energy of the frequency ν is absorbed by one electron (per cm^3 gas, per sec): $a(\nu,k_b) = \frac{\hbar k_a^2}{mk_b} n_{at} \frac{\pi^2 e^3}{\nu^2}\frac{d\sigma}{d\nu}$ and $a(\hbar\nu,E) = 5.8\frac{e^2\sigma_p(0)}{m}\left(\frac{\hbar^2}{m}\right)n_{at}\left(\frac{m}{E}\right)^{3/2}$

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$\frac{\sqrt{1 + \hbar\nu/E}\ (2 + \hbar\nu/E)}{(\hbar\nu/E)^3}$. Finally, the results obtained here are compared with the radiation occurring on ions, and it is found that at temperatures below (7-8)$\cdot 10^3$ °K between 10^{-5} - 10^3 mm Hg, the radiation of a gas is determined by the collisions between electrons and atoms. L. M. Biberman, V. Romanov, I. M. Shmushkevich, and V. Babikov are mentioned. There are 1 figure and 6 references: 4 Soviet, 1 US, and 1 German.

SUBMITTED: July 20, 1960

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

45372

S/056/63/044/001/038/067
B102/B186

24.6600
24.2120

AUTHORS: Martynenko, Yu. V., Firsov, O. B., Chibisov, M. I.

TITLE: Slow-electron scattering from atoms

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44, no. 1, 1963, 225 - 229

TEXT: The energy dependence of the total scattering cross section for electrons of $E \lesssim 1$ ev is calculated for the case of a dipole field of the scatterer atom. The interaction potential is assumed to be of the form $U = -\alpha e^2 a^3/2r^4$, where α is the polarizability and a Bohr's radius. On introducing $\varphi(r) = rR(r)$, where $R(r)$ is the radial part of the wave function with $l = 0$, and $x = r\alpha^{-1/4}(k/a)^{1/2}$, and $\beta^2 = ka\sqrt{\alpha}$ one obtains a Schrödinger equation of the form $\varphi'' + \beta^2(1+1/x^4)\varphi = 0$; (3). For $x \gg 1$, $\varphi = A \sin(\beta x+\delta_0)$ where δ_0 is the zero scattering phase. Higher phases are neglected. (3) is invariant with respect to the substitutions $x = 1/\xi$ and $\varphi = \psi/\xi$. Then for $x \ll 1$ and $\xi \gg 1$ one obtains $\psi = B \sin(\beta\xi + \gamma)$ and $\varphi = Bx \sin(\beta/x + \gamma)$ and

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the solution of (3) is obtained as

$$x < 1$$
$$\varphi = Bx\left[\sin\left(\frac{\beta}{x}+\gamma\right)+\beta\int_{1/x}^{\infty}\sin\beta\left(\frac{1}{x}-\xi\right)\sin\left(\beta\xi+\gamma\right)\frac{d\xi}{\xi^2}\right], \quad (5)$$

$$x > 1$$
$$\varphi = A\left[\sin\left(\beta x+\delta_0\right)+\beta\int_{x}^{\infty}\sin\beta\left(x-x'\right)\sin\left(\beta x'+\delta_0\right)\frac{dx'}{x'^2}\right]. \quad (6)$$

where β^2/x^4 is considered as a perturbation. After some transformations one obtains

$$\operatorname{tg}\delta_0 = [A(\beta)+\operatorname{tg}\gamma]/[B(\beta)\operatorname{tg}\gamma-1]. \quad (7)$$

β =	0,2	0,4	0,6	0,8	1	1,2	1,4
A =	−25,33	−6,665	−3,27	−1,91	−1,201	−0,748	−0,36
B =	−637,3	−45,47	−10,87	−4,29	−2,173	−1,225	−0,70

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Slow-electron scattering from atoms

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For $x \gg 1$ and $\varphi = \sin(\beta x + \delta_0)$, $\delta_0 = -1.7\beta - \gamma + k\pi$ and $A = \tan 1.7\beta$ for $\beta > 1.8$ and $B = -\tan 1.7\beta$ for $\beta > 1.8$. The cross section is then calculated from the relation $\sigma = 4\pi \tan^2\delta_0/k^2(1+\tan^2\delta_0)$. γ can either be determined from a point of the $\sigma(E)$ curve or from the binding energy of the negative ion. The mean electron collision frequency in the gas is determined from

$$\overline{\sigma v} = \frac{4\sqrt{T}}{\sqrt{2\pi m}} \int_0^\infty \sigma(Tx)\, x e^{-x} dx, \qquad (18)$$

where $x = E/T$; averaging is carried out over the Maxwell distribution. The results of numerical examples are in good agreement with the experimental $\sigma(E)$ curves. There are 1 figure and 1 table.

SUBMITTED: July 12, 1962

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

L 26781-65 EWT(1)/EWT(m)/EPA(sp)-2/EPF(c)/EPF(n)-2/EPR/EPA(w)-2/EEC(t)/T/EWP(t)/
EWP(b)/EWA(m)-2 Pz-6/Pc-4/Pab-10/Pr-4/Ps-4/Pi-4/Pu-4 IJP(c) JD/AT

ACCESSION NR: AP5003244 S/0057/65/035/001/0117/0122

66
64
B

AUTHOR: Smirnov, B.M./ Chibisov, M.I.

TITLE: Resonance charge exchange in inert gases

SOURCE: Zhurnal tekhnicheskoy fiziki, v.35, no.1, 1965, 117-122

TOPIC TAGS: charge exchange, atom, ion, helium, neon, argon, krypton, xenon, mathematical physics

ABSTRACT: The cross section for resonance charge exchange between a noble gas ion and its atom was calculated as a function of collision velocity for He, Ne, Ar, Kr and Xe, and the results were compared with experimental data from many sources. The formula of O.B.Firsov (ZhETF 21,1001,1951) and B.M.Smirnov (ZhETF 46,1017,1964) for the charge exchange cross section was employed. The calculations were performed in the one-electron approximation with asymptotic Coulomb wave functions which were normalized by fitting them to the corresponding Hartree-Fock wave functions at the boundary of the atom. It was found that the resonance charge exchange cross section depends only weakly on the angular momentum of the incident ion. Reasonably good

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ACCESSION NR: AP5003244

2

agreement with experiment was found, and it is concluded that the relatively simple Firsov model is adequate. "In conclusion, the authors express their deep gratitude to O.B.Firsov and I.P.Flaks for valuable remarks and their interest in the work." Orig.art.has: 9 formulas, 5 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 27Feb64 ENCL: 00 SUB CODE: NP

NR REF SOV: 012 OTHER: 021

Card 2/2

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

L 26982-65 EWT(1)/EWP(m)/EPA(sp)-2/EWA(d)/EPA(w)-2/EEC(t)/T/FCS(k)/EWA(m)-2/
EWA(1) Pz-6/Pc-4/Pd-1/Pab-10/Pi-4 IJP(c) AT

ACCESSION NR: AP5003245 S/0057/65/035/001/0123/0126

58
57
B

AUTHOR: Chibisov, B. I.

TITLE: Nonstationary isothermal motion of a gas

SOURCE: Zhurnal tekhnicheskoy fiziki, v.35, no.1, 1965, 123-126

TOPIC TAGS: hydrodynamics, nonsteady flow, isothermal flow, plasma flow

ABSTRACT: The one-dimensional free dispersal of a gas is calculated for the cases of plane, spherical and cylindrical symmetry. The temperature is assumed to be always uniform but to vary with time. These calculations should be applicable to a plasma in which the electron temperature greatly exceeds the ion temperature, for in this case the rapid heat conduction by the electrons would tend to keep the temperature uniform. The velocity v and density n of the gas are assumed to have the forms $v = ax$, $n = A(b)\exp(-bx^2)$, where x is the coordinate appropriate to the symmetry under discussion, a and b are functions of time to be determined, and A is a function of b, the form of which is assumed at the start (A is a different function for each type of symmetry). These expressions are inserted in the equation of continuity, the hydrodynamic equation of motion, and the equation of ener-

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ACCESSION NR: AP5003245

gy conservation, and the resulting equations are solved for a and b as functions of time. The limiting velocity of the dispersing gas is found to be close to the velocity of sound in each case. "In conclusion, the author expresses his gratitude to O.B.Firsov for suggesting the topic and for assistance in the work." Orig.art. has: 33 formulas.

ASSOCIATION: none

SUBMITTED: 27Feb64 ENCL: 00 SUB CODE: ME

NR REF SOV: 003 OTHER: 000

Card 2/2

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

L 4365-65 EWT(m)/EWP(b)/EWP(t) IJP(c) JD/JG

ACCESSION NR: AP5008754 S/0056/65/048/003/0939/0945

AUTHOR: Smirnov, B. M.; Chibisov, M. I. 12 B

TITLE: Electron exchange and changes in the hyperfine state of colliding alkaline-metal atoms

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 3, 1965, 939-945

TOPIC TAGS: alkaline metal, electron exchange, hyperfine state, term difference, symmetrical state, antisymmetrical state, exchange cross section, exchange interaction

ABSTRACT: The method of L. P. Gor'kov and L. P. Pitayevskiy (DAN SSSR v. 151, 822 (1963) is used to calculate the asymptotically exact value of the term difference of the symmetrical and antisymmetrical states for two alkaline-metal atoms separated by large distances. The obtained value of the term difference is then used to calculate the cross section for the exchange of electrons and the probability of variation of the hyperfine state upon collision of these atoms. It is also shown that the exchange interaction of these atoms prevails over the Van der Waals interaction even at very large distances between nuclei. "The authors are

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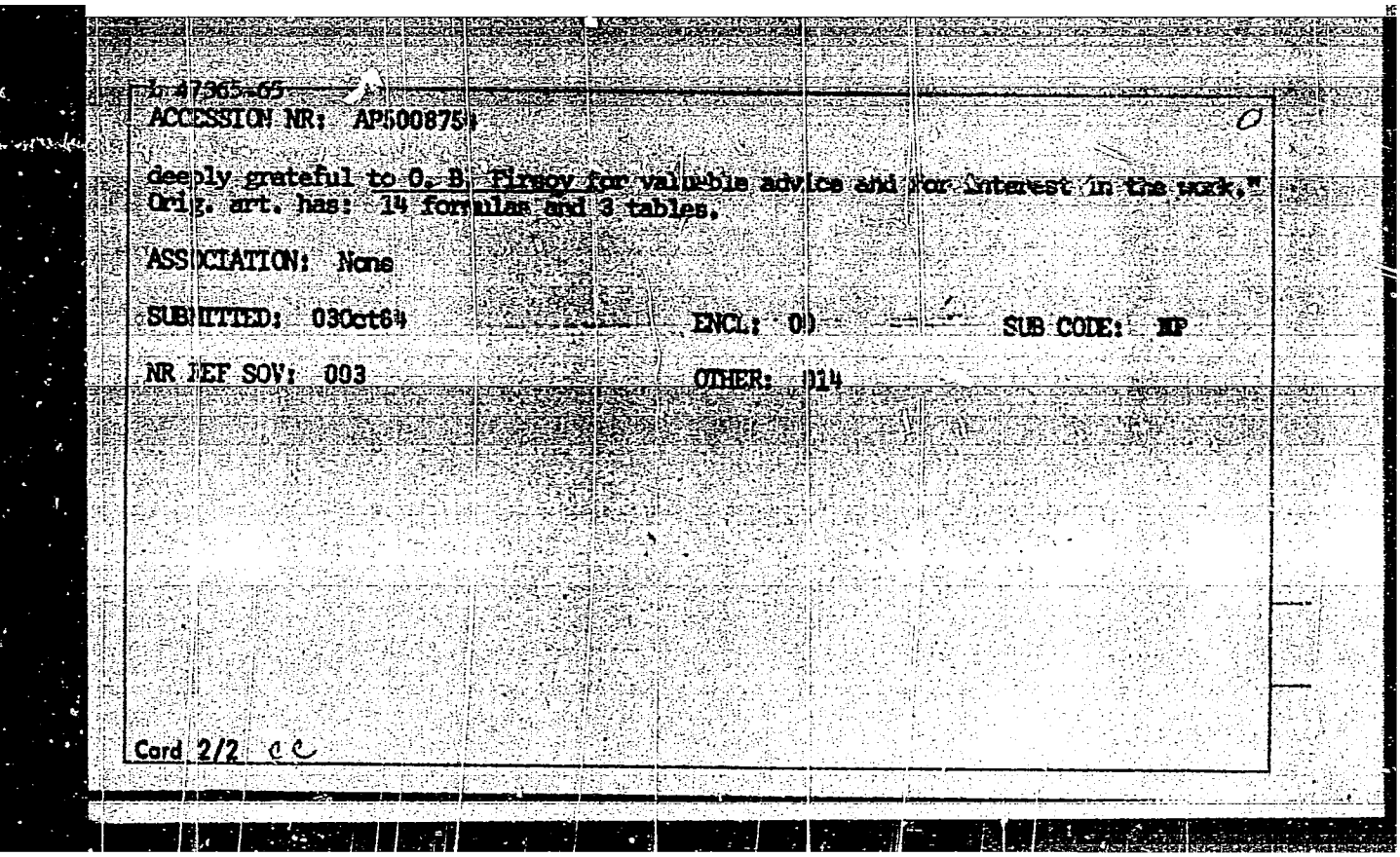

L 47365-65
ACCESSION NR: AP5008754

deeply grateful to O. B. Firsov for valuable advice and for interest in the work."
Orig. art. has: 14 formulas and 3 tables.

ASSOCIATION: None

SUBMITTED: 030ct64 ENCL: 00 SUB CODE: MP

NR REF SOV: 003 OTHER: 014

Card 2/2

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

L 2113-66 EWT(1)

ACCESSION NR: AP5024705 UR/0056/65/049/003/0841/0851

AUTHOR: Smirnov, B. M.; Chibisov, M. I.

TITLE: Disintegration of atomic particles by an electric field and by electron impact

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 3, 1965, 841-851

TOPIC TAGS: electron detachment, electron affinity, negative ion, electron impact, hydrogen ion

ABSTRACT: The decay of an atomic particle in a constant homogeneous electric field is considered. An asymptotically exact (in the limit of small field strengths) expression is obtained for the probability of electron detachment per unit time. The result obtained is used for determining the binding energy of an electron for a negative helium ion (the experimental dependence of the ion lifetime on the strength of the external electric field in which it decays is utilized). The electron affinity of a helium atom is found to be 0.06 ± 0.005 ev. A calculation is made of the cross section for disintegration of a negative ion by electron impact resulting in liberation of an s-electron. It is assumed that the cross section is large compared with

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ACCESSION NR: AP5024705

the characteristic size of the negative ion and that the impinging electron moves in a classical orbit. These assumptions are justified by the results. Two mechanisms of disintegration of a negative ion are considered: "squeezing" of a weakly bound electron of the negative ion by the static field of the impinging electron, and its removal as a result of variation in time of the field of the incident electron. It is shown that at high collision velocities the second mechanism yields a result which corresponds to the Born approximation. The dependence of the H-disintegration cross section on the velocity of the incident electron is compared with the results of other calculations. Orig. art. has: 2 figures and 32 formulas. [CS]

ASSOCIATION: none

SUBMITTED: 16Mar65 ENCL: 00 SUB CODE: NP,EM

NO REF SOV: 004 OTHER: 012 ATD PRESS: 4117

Card 2/2

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

L 12083-66 EWT(1)/EWA(m)-2 IJP(c) AT

ACC NR: AP5024706 SOURCE CODE: UR/0056/65/049/003/0852/0856

AUTHOR: Chibisov, M. I.

ORG: None

TITLE: Adhesion of electrons to atoms in triple collisions

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 3, 1965, 852-856

TOPIC TAGS: electron collision, atomic structure, capture cross section

ABSTRACT: The probabilities for adhesion of electrons in triple collisions of the type e + A + B and e + e + A (A, B - arbitrary monatomic system) are expressed in terms of the corresponding cross sections for the disintegration of the atomic systems A^- and B^-, by an atom and an electron, using the principle of detailed balancing. It is shown that adhesion of electrons to neutral atoms in triple encounters is more probable than photo-adhesion at target-gas densities 10^{13} -- 10^{15} cm^{-3}, which indicates that the probability of the adhesion of electrons to neutral atoms are several orders of magnitude larger than obtained by

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

L 12083-66
ACC NR: AP5024706

H. Massey (Negative Ions, Cambridge Univ. Press, 1950) and R. A. Smith (Proc. Cambridge Phil. Soc. v. 32, 482, 1936). The pressure and temperature ranges in which the rate of the reaction $e + e + A = A^- + e$ are greater than those of the reaction $e + A + A = A^- + A$ in a gas in thermal equilibrium. Author thanks B. M. Smirnov and O. B. Firsov for numerous discussions. Orig. art. has: 12 formulas.

SUB CODE: 20/ SUBM DATE: 16Mar65/ NR REF SOV: 008/ OTH REF: 003

Card 2/2

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBISOV, M.M.

Mechanization in coal mining of steeply dipping seams. Ugol' Ukr. 3 no.11:30-32 N '59. (MIRA 13:3)

1.Glavnyy inzhener shakhty im. K. Marksa tresta Ordzhonikidze.
(Coal mines and mining)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBISOV, Sergey Ivanovich; TKACHENKO, Ye.I., red.

[Work, search, initiative] Trud, poisk, initsiativa. Volgograd, Nizhne-Volzhskoe knizhnoe izd-vo, 1965. 54 p. (MIRA 18:12)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

GRITSAY, Aleksandr Petrovich; IVANOV, Nil Ivanovich; CHIBISOV, Vasiliy Dmitriyevich; NOVIKOVA, I.Ye., red.; GARINA, T.D., tekhn. red.

[Working capital of socialist industrial enterprises] Oborotnye sredstva sotsialisticheskikh promyshlennykh predpriiatii. Moskva, Vysshaia shkola, 1963. 84 p. (MIRA 16:10)
(Capital)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBISOV, V.D., kand. ekonom. nauk, dotsent; NAGORNYKH, I.A., aspirant.

Organization of and norm setting for the working capital in the shoe industry. Kozh.-obuv.prom. 5 no.10:8-10 O '63.
(MIRA 17:4)

1. Khar'kovskiy universitet imeni Gor'kogo (for Nagornykh).

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBISOV, V.D., dotsent, kand. ekonom. nauk; NAGORNYKH, I.A., aspirant

Organization and working capital norm setting for the material reserves in the enterprises of the textile industry. Tekst. prom. 24 no.8:78-80 Ag '64. (MIRA 17:10)

1. Khar'kovskaya akademiya imeni L.A. Govorova (for Chibisov).
2. Khar'kovskiy universitet (for Nagornykh).

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

ZAK, L.A.; CHIBISOV, V.V.; NAGORNYY, N.M., otv. red.; ORLOVA, I.A., red.; KORKINA, A.I., tekhn. red.

[Test programs for the BESM-2 computer] Testovye programmy dlia mashiny BESM-2. Moskva, Vychislitel'nyy tsentr AN SSSR, 1961. 24 p. (MIRA 14:8)

(Electronic digital computers--Testing)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBISOV, V.V.; SMIRYAGIN, V., otv. red.; ORLOVA, I.A., red.; POPOVA, N.S., tekhn. red.

[Extraction of square roots by the BESM-2 machine.] Operatsiia izvlecheniia kvadratnogo kornia na mashine BESM-". Moskva, Vychislitel'nyi tsentr AN SSSR, 1962. 24 p. (MIRA 16:6)

(Electronic digital computers)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

WELIKANOVA, T.M.; ANTIPOV, I.N.; CHIBISOV, V.V., otv. red.

[Work at the control desk of the BESM-2 computer; programmer's handbook.] Rabota za pul'tom BESM-2; posobie dlia programmistov. Moskva, 1965. 31 p. (Akademiia nauk SSSR. Vychislitel'nyi tsentr. Standartnye i tipovye programmy BESM-2, no.10) (MIRA 18:8)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBISOV, Ye.

This factory section will become a communist shop. Mest.prom.i khud.promys. 1 no.2/3:31-33 N-D '60. (MIRA 14:4)
(Moscow--Plastics industry)
(Communist Party of the Soviet Union--Party work)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBISOV, Ye.

Steps into the future. Mest.prom.i khud.promys. 2 no.3:20-21 Mr '61. (MIRA 14:4)
(Agricultural machinery)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBISOV, Ye. (g. Yaroslavl')

At a snail's pace. Mest.prom.i khud.promys. 2 no.5:27 My '61.
(MIRA 14:5)

(Yaroslavl—Construction industry)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBISOV, Ye. (g.Pushkino, Moskovskoy obl.)

Neighbors help each other. Mest.prom.i khud.promys. 2 no.7:2-3 Jl '61. (MIRA 15:1)
(Moscow--Metallurgical plants--Labor productivity)
(Socialist competition)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBISOV, Ye. (g.Makeyevka, Stalinskoy oblasti)

Glass factory of Makeyevka. Mest.prom.i khud.promys. 2 no.10: 9-10 O '61. (MIRA 14:11)

1. Spetsial'nyy korrespondent zhurnala "Mestnaya promyshlennost i khudozhestvennyye promysly".
(Makeyevka—Glass factories)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

FEYGENBERG, I.M. (Moskva); POGIBKO, N.I. (Khar'kov); CHIBISOV, Yu.K. (Moskva); KAMINSKAYA, P.Z. (L'vov); CHALISOV, M.A.

Discussion. Probl. ud. psikh. 9:298-307 '61. (MIRA 15:2)
(MENTAL ILLNESS)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBISOV, Yu.K.

Disorders in psychic functions and their restoration in reactive states. Prob.sud.psikh.10: 65-80 '61. (MIRA 16:7)
(PSYCHOSIS) (HYSTERIA)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBISOV, Yu.K.

Functional personality dissociation syndrome in the clinical aspects of reactive states. Trudy Gos.nauch.-issl.inst.psikh. 27:292-299 '61. (MIRA 15:10)

1. TSentral'nyy nauchno-issledovatel'skiy institut sudebnoy psikhiatrii imeni V.P.Serbskogo. Dir. - dotsent G.V.Morozov. (PERSONALITY, DISORDERS OF) (FORENSIC PSYCHIATRY)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBISOV, Yu.K.

Structure and dynamics of the "animalistic" syndrome in the framework of various types of the course of chronic hysterical reactions. Probl. obshchei i sud. psikh. no.14:197-213 '63. (MIRA 18:9)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

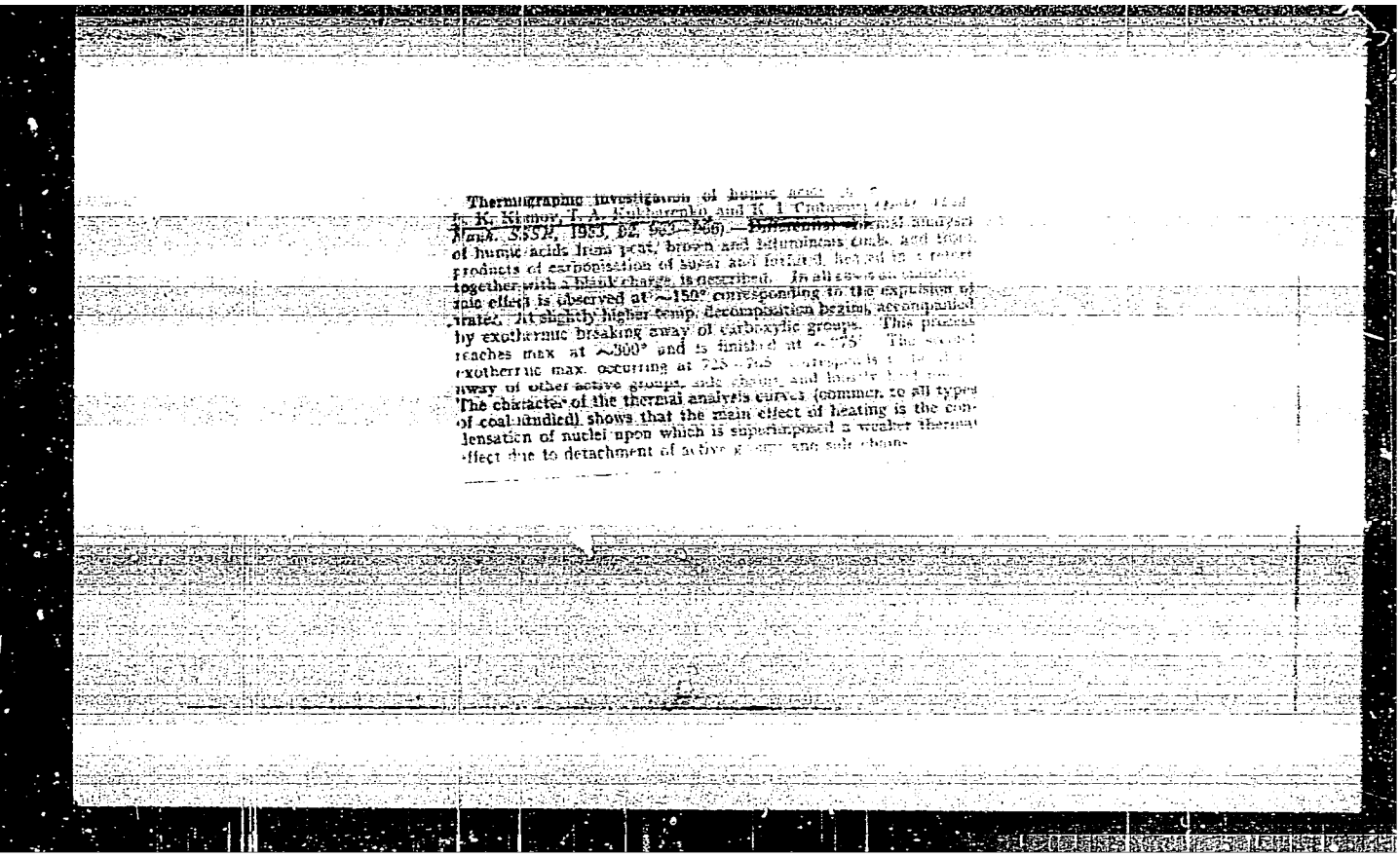
"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

KANAVETS, P.I.; CHERNYKH, V.I.; CHIBISOVA, K.I.

Thermographic investigation of fluxed ore-fuel granules prepared by the method of chemical catalysis. Trudy IGI 22:31-34 '63. (MIRA 16:11)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0



Thermographic investigation of humic acids [illegible] K. Klimov, T. A. Kukharenko, and K. I. Chitusova [illegible] *Nauk. SSSR*, 1953, 62, 963–966).—Differential thermal analysis of humic acids from peat, brown and bituminous coals, and from products of carbonisation of sugar and fatigued, heated in a retort together with a blank charge, is described. In all cases an endothermic effect is observed at ~150° corresponding to the expulsion of water. At slightly higher temp. decomposition begins, accompanied by exothermic breaking away of carboxylic groups. This process reaches max. at ~300° and is finished at ~375°. The second exothermic max. occurring at 725–765 [illegible] away of other active groups, side chains, and [illegible]. The character of the thermal analysis curves (common to all types of coal studied) shows that the main effect of heating is the condensation of nuclei upon which is superimposed a weaker thermal effect due to detachment of active groups and side chains.

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

KANAVETS, P.I.; CHIBISOVA, K.I.; CHERNYKH, V.I.; MELENT'YEV, P.N.

Thermographic investigation of coal granules for the purpose of studying their behavior during thermal decomposition. Trudy IGI 22:136-146 '63. (MIRA 16:11)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

TVERDOKHLEBOV, L.S.; CHIBISOVA, O.S.

Variations in quality of normal molasses during the production season. Sakh.prom. 32 no.9:4-9 S '58. (MIRA 11:11)

1. Stalinskaya gruppovaya laboratoriya.
(Molasses)

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

MEKLER, L.B.; CHIBISOVA, V.A.; FRIZYUK, S.G.; NAUMOVA, V.K.

Simple method of analyzing fluorescein-protein conjugates.
Vop. virus. 9 no.5:631-634 S-O '64. (MIRA 18:6)

1. Institut virusologii imeni Ivanovskogo (dir.- deystvitel'nyy chlen AMN SSSR prof. V.M. Zhdanov) AMN SSSR, Moskva.

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

L 54958-65 EWT(m)/EPF(c)/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4 WW/RM
ACCESSION NR: AP5012100 UR/0191/65/000/005/0005/0007
678.674.01:536.495:543.872

AUTHOR: Kovarskaya, B. M.; Strizhkova, A. S.; Chibisova, Ye. I.; Gintsberg, E. G.; Mikhaylova, Z. V.; Kaganova, Ye. L.

TITLE: Thermooxidative degradation of unsaturated polyesters

SOURCE: Plasticheskiye massy, no. 5, 1965, 5-7

TOPIC TAGS: polyethylene glycol ester, maleic acid ester, sucolnic acid ester, phenic acid ester, polyhydrophthalate, unsaturated polyester, polyester degradation, thermooxidative degradation, styrene copolymerization, cyclohexanone peroxide, cobalt naphthenate, polyester hardening

ABSTRACT: The following polyesters were studied: polydiethylene glycol maleate succinate 1.0:0.5:0.5 (polyester I), polyethylene glycol maleate diphenate 1.0:0.5:0.5 (polyester II), and polyhydrophthalate 1.0:0.4:0.6 (polyester III). The polyesters were also hardened by copolymerization with styrene in the presence of a reducing system of cyclohexanone peroxide and cobalt naphthenate. The oxidation kinetics of the polyesters were followed by measuring the change in the gas pressure in the system. The thermal oxidation of the nonhardened polyesters is characterized by a substantial evolution of gases which begins at 130C and increases markedly with rising temperature and initial oxygen pressure.

Card 1/2

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

L 54058-65
ACCESSION NR: AP5012100 O

Appreciable induction periods were observed in the oxidation of the hardened and non-hardened polyester resins. Polyester III was studied in a circulation device which made it possible to freeze out the degradation products and determine the thermal oxidation kinetics only from the absorption of oxygen in the system; induction periods were observed at the end of which the reaction displayed autoacceleration. This indicated a radical-chain mechanism proceeding with degenerated branching. The oxidation of a styrene-containing solution of polyester III to which organic stabilizers had been added also indicated this mechanism. The influence of various initiators used for the hardening of unsaturated polyesters was manifested only at high temperatures (about 250C). The products of the thermal oxidation of polyester III were identified. Orig. art. has: 7 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 004 OTHER: 001

Card 2/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

L 2166-66 EWT(m)/EPF(c)/EWP(j)/T/ETC(m) RM/WW
ACCESSION NR: AP5024508 UR/0191/65/000/010/0042/0044 31 B

AUTHOR: Gintsberg, E. G.; Chibisova, Ye. I.; Kovarskaya, B. M.

TITLE: Polarographic investigation of the products of thermo-oxidative destruction of polyester resins based on maleic and chlorendic anhydrides and ethylene glycol

SOURCE: Plasticheskiye massy, no. 10, 1965, 42-44

TOPIC TAGS: polyester plastic, polarographic analysis, oxidative degradation, chemical mechanics

ABSTRACT: The products obtained from thermal oxidation of a polyester resin were analysed polarographically to help establish the mechanics of the destructive process. The polyester investigated was based on diethylene glycol, maleic and chlorendic anhydrides (1.1:0.4:0.6 molar ratio), cured with benzoyl peroxide and diethanolamine in styrene (30% styrene in the initial solutions). It was heated at 240C for 1-4 hours under an initial oxygen pressure of 200 mm Hg. Formaldehyde, acetaldehyde, benzaldehyde and maleic acid were identified. No fumar-

Card 1/2

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

L 2166-66
ACCESSION NR: AP5024508 0

ic acid was present. Orig. art. has: 4 figures

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: OC, MT

NR REF SOV: 007 OTHER: 002

Card 2/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

ACC NR: AP6006717 (A) SOURCE CODE: UR/0303/66/000/001/0004/0009

AUTHOR: Sorokin, M. F.; Chibisova, Ye. I.

ORG: none

TITLE: Polyester varnish resins containing anhydride of 1,4,5,6,7,7-hexachlorobicycle--(2,2,1)-5-heptyl-2,3-dicarboxylic acid

SOURCE: Lakokrasochnyye materialy i ikh primeneniye, no. 1, 1966, 4-9

TOPIC TAGS: phthalic anhydride, polyester plastic, varnish, paint, lacquer, polycondensation, aliphatic alcohol, polyhydroxy aliphatic alcohol

ABSTRACT: Kinetics of the polycondensation of the anhydride of 1,4,5,6,7,7-hexachlorobicyclo-(2,2,1)-5-heptyl-2,3-dicarboxylic acid with ethyleneglycol, glycerine, and xylitol was studied in the 140-230°C range. The molar ratios of anhydride to glycol were of 1:1 to 1:2.5 and the reaction duration was 2-6 hr. The properties of the reaction products as coatings were compared to those based on phthalic anhydride. The rates of the polycondensation reaction and the energies of activation are graphed and tabulated. It was found that this polycondensation is a two-stage reaction. The first of these stages is fast, almost independent of temperature, and leads to the formation of the acidic esters. The second stage, highly temperature dependent, was found to be a second order reaction. The activation energies of the polycondensation reactions involv-

UDC: 667.633.263.3

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

ACC NR: AP6006717

ing glycerine and xylitol were found to be 17-18 kcal/mol and that involving ethyleneglycol was found to be 14.5 kcal/mol. All the polycondensation products have lower acid numbers than those of the corresponding products based on phthalic anhydride. It is claimed that these polycondensation products lead to higher quality varnishes and paints than those based on phthalic anhydride. Orig. art. has: 8 figures, 6 tables.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 005

Card 2/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

L 08799-67 EWT(m)/EWP(j) IJP(c) RM
ACC NR: AP6030852 (A, N) SOURCE CODE: UR/0191/66/000/009/0042/0045

AUTHOR: Chibisova, Ye. I.; Kovarskaya, B. M.; Pshenitsyna, V. P.; Puzakova, Z. A.; Kaganova, Ye. L.

ORG: none

TITLE: Degradation of unsaturated polyesters

SOURCE: Plasticheskiye massy, no. 9, 1966, 42-45

TOPIC TAGS: polyester resin, pyrolysis, oxidation, polyester plastic, phthalic anhydride, synthetic material

ABSTRACT: The kinetics of thermal and oxidative degradations of polyesters based on ethylene glycol and maleic anhydride and on dichlorohydrinpentaerythrite and maleic- and phthalic anhydrides were studied. The kinetics of thermal degradation were studied in the 200-400°C range by following the pressure drop in the system and by IR spectroscopy. Oxidative degradation was studied in the 180-240°C range and at an initial oxygen pressure of 200-500 mm Hg. The low values of the activation energy of thermal degradation in all polyesters indicate that the process proceeds via a complex mechanism. The involvement of the free radical type intermediates in the thermal degradation is suggested. The IR spectra indicate that thermal degradation in polyesters involves the cleavage of the C-O bonds of the ester groups. The IR spectra showed that the

Card 1/2

UDC: 678.019.3 : [678.674'64'522'448+
+678.674'522'448'420

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

L 08799-67

ACC NR: AP6030852

products of the oxidative degradation of the polyesters contain acetaldehyde, formaldehyde, benzaldehyde, and maleic anhydride. It is concluded that the oxidative degradation mechanism in polyesters involves an attack of oxygen on the α-carbon of the styrene-group and the subsequent formation of hydroperoxide-type intermediates. Unsaturated compounds were also detected in the products of oxidative degradation of the polyesters. Orig. art. has: 7 figures and 1 table.

SUB CODE: 07// SUBM DATE: 00/ ORIG REF: 003/ OTH REF: 005

Card 2/2 nst

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

ACC NR: AR6032315 SOURCE CODE: UR/0081/66/000/010/S037/S037

AUTHOR: Sorokin, M. F.; Chibisova, Ye. I.

TITLE: The synthesis and study of polyester with chlorendic anhydride and polyantomic alcohols

SOURCE: Ref. zh. Khimiya, Part II, Abs. 10S249

REF SOURCE: Tr. Mosk. khim. tekhnol. in-ta im. D. I. Mendeleyeva, vyp. 48, 1965, 208-213

TOPIC TAGS: polymerization, polycondensation, multiatomic alcohol, chlorendic anhydride, polyester

ABSTRACT: A study was made on the reaction of polycondensation of chlorendic anhydride with polyatomic alcohols (ethylene glycol, glycerin and xylitol) in different ratios of the initial substances. A study was also made on the effect of the reaction time and temperature on the process of condensation polymerization of chlorendic anhydride with polyatomic alcohols. It was found that during condensation polymerization of chlorendic anhydride or phthalic anhydride with the above alcohols, the reaction occurred more rapidly with chlorendic acid. [Translation of abstract]

Card 1/1 SUB CODE: 07/

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBIZOV, G.A., inzhener.

Preventing landslides. Put.i put.khoz. no.4:38-40 Ap '57.
(Landslides)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBIZOV, G.A., inzh.

More attention should be paid to the roadbed. Puti i put. khoz. no.4:11-12 Ap '59. (MIRA 13:3)
(Railroads—Maintenance and repair)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBIZOV, G.A., inzh.

Elimination of track heaving is the most important problem.
Put' i put.khoz. no.12:3-5 D '59. (MIRA 13:4)
(Railroads--Track)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBIZOV, G.A., inzh.

Roadbed protection in reservoir areas. Put' i put.khoz. 4 no.6: 16-17 Je '60. (MIRA 13:7)
(Railroads--Maintenance and repair)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBIZOV, G.A., inzh.; KOROL'KOV, N.M., inzh., retsenzent;
VOROTNIKOVA, L.F., tekhn. red.

[Maintenance of earth dams] Soderzhanie zemlianogo polotna.
Moskva, Izd-vo "Transport," 1964. 258 p. (MIRA 17:4)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBIZOV, G.A., inzh.

Stabilization of Volga slopes. Put' i put.khoz. 4 no.10:5-8 O '60. (MIRA 13:9)

(Volga Valley--Shore protection)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBIZOV, G.A., inzh.

Improve the quality of roadbed construction and maintenance.
Put' i put.khoz. 6 no.5:40-41 '62. (MIRA 15:4)
(Railroads--Track)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBIZOV, Grigoriy Alekseyevich; CHLENOV, M.T., kand. tekhn. nauk, retsenzent; NENASHKINA, Z.I., inzh., retsenzent; MOROSHIN, P.V., dots., retsenzent; SERGEYEVA, A.I., inzh.red.; USENKO, N.A., tekhn.red.

[Mechanized methods of eliminating frost heave] Mekhanizirovannye sposoby likvidatsii puchin; opyt puteitsev Vostochno-Sibirskoi, Yuzhno-Ural'skoi i Zapadno-Sibirskoi dorog. Moskva, Transzheldorizdat, 1963. 55 p. (MIRA 16:3)
(Frozen ground) (Railroads—Construction)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

VALEYEV, A.Sh.; CHIBIZOVA, G.P.

Optical (clear shadow) method for the study of the anodic dissolution of copper. Zhur. fiz. khim. 39 no.6:1494-1496 Je '65. (MIRA 18:11)

1. Khimicheskiy institut imeni Arbuzova, AN SSSR. Submitted Nov. 26, 1964.

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

KUZNETSOVA, N.G.; BYKHOVSKIY, Yu.A.; BOCHKAREV, L.M.; SOKOLOVA, S.Ye.; CHIBIZOVA, L.A.

Behavior of refractories in furnaces of oxygen suspension smelting. TSvet. met. 37 no.11:52-58 N '64. (MIRA 18:4)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHI [illegible]VILI, I. [illegible].

CHIBOSHVILI, I. A.: "Material on the history of counterepidemic measures, hygiene, and sanitation in ancient Georgia (fifth through eighteenth centuries)." Georgian State Publishing House for Medical Literature. Tbilisi State Medical Inst. Tbilisi, 1956.
(Dissertation for the Degree of Candidate in Medical Sciences),

SO: Knizhnaya letopis', No 23, 1956.

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBOV, A.V. (Poltava)

Estimating water quality in reservoirs. Vod.i san.tekh. no.6:1-3 Je '57. (MLRA 10:7)
(Water--Analysis)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBOV, A.V.

Sealing cast iron bell-mouth pipe joints with steel shavings.
Vod. i san.tekh. no.6:19 S'55. (MLRA9:1)
(Water pipes)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBOV, A.V. (Poltava)

The practice of planning and operating reservoir water intakes.
Vod.i san.tekh. no.6:26-29 Je '60. (MIRA 13:6)
(Water-supply engineering)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBOVSZKY, B.

TECHNOLOGY

PERIODICAL: EPULETGEPESZET. Vol. 4, no. 6, 1955.

Chibovszky, B. Information on Polish central heating systems. p. 109.

Monthly list of East European Accessions (EEAI) LC, Vol. 8, No. 2, February 1959, Unclass.

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

WOJTKIEWICZ, Jadwiga; CHIBOWSKA, Aleksandra; WLODARCZYK, Stefan

Congenital poikiloderma (Thomson). Ann. univ. Lublin sec. D 15: 331-346 '60.

1. Z Katedry i Kliniki Dermatologicznej Wydzialu Lekarskiego Akademii Medycznej w Lublinie Kierownik: prof. dr med. Czeslaw Kyll-Nardzewski i z Zakladu Radiologii Wydzialu Lekarskiego Akademii Medycznej w Lublinie Kierownik: z prof. dr med. Kazimierz Skorzynski.
(SKIN dis)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBOWSKA, Aleksandra; WOJTKIEWICZ, Jadwiga

Osteopoikilosis in the course of Poikiloderma Congenitale (Thomson's disease). Ann. univ. Lublin sec.D 15:347-353 '60.

1. Z Zakladu Radiologii Wydzialu Lekarskiego Akademii Medycznej w Lublinie Kierownik: z. prof. dr.med. Kazimierz Skorzynski i z Katedry i Kliniki Dermatologicznej Wydzialu Lekarskiego Akademii Medycznej w Lublinie Kierownik: prof. dr med. Czeslaw Ryll-Nardzewski.
(SKIN dis) (BONES DISEASES compl)

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POLAND

KRUPICZ, Jozef and CHIBOWSKA, Aleksandra, Dermatology Clinic (Klinika Dermatologiczna) (Director: Prof. Dr. Czeslaw RYLL-NARDZEWSKI [deceased]) and the Department of Radiology (Zaklad Radiologiczny) (Director: Prof. Dr. Kazimierz SKORZYNSKI), both at the AM [Akademia Medyczna, Medical Academy] in Lublin

"Triple Enormous Luetic Aneurysm of the Thoracic Aorta. Case Report."

Warsaw, Polski Tygodnik Lekarski, Vol 17, No 48, 26 Nov 62, pp 1876-1878.

Abstract: [Authors' English summary] A case of triple enormous luetic aneurysm of the thoracic aorta is reported. Anterior fragments of the right 3rd and 4th ribs were destroyed. Attention is drawn to the size of the aneurysm, signless course of the disease, and coexistence of three aneurysms of the thoracic artery. The aneurysm appeared because of the insufficient treatment of a luetic infection 50 years ago. Of the eight references, one is English, one German, one Russian, and five Polish.

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MICHALOWSKI, Roman ; CHIBOWSKA, Maria

Lipidophilia of the palate, preceding conditions and level of some lipids in the blood serum. Pol. tyg. lek. 19 no.28:1060-1063 13 - 20 Jl '64

1. Z Kliniki Dermatologicznej Akademii Medycznej w Lublinie; kierownik: doc. dr. med. Roman Michalowski.

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBOWSKI, Daniel; GORSKI, Michal

Neoplastic metastases to the heart. Ann.Univ.Lublin; sec. D 14: 79-86 '59.

1. Z Katedry Anatomii Patologicznej Wydzialu Lekarskiego Akademii Medycznej w Lublinie Kierownik: prof. dr med. [illegible]
(HEART neopl)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBOWSKI, Daniel; KLENIEWSKI, Andrzej

Ichthyosis congenita gravis. Report on two cases. Ann. univ. Lublin sec. D 15:249-261 '60.

1. Z Katedry i Zakladu Anatomii Patologicznej Wydzialu Lekarskiego Akademii Medycznej w.Lubinie Kierownik: prof. dr med. Stanislaw Makhburg.

(ICHTHYOSIS in inf & child)

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

TYNECKI, Jozef; CHIBOWSKI, Daniel; LONGIN, Luty; ZDZISLAW, Kruszynski

A case of congenital toxoplasmosis. Pol. tyg. lek. 17 no.33:1312-1313 13 Ag '62.

1. Z II Kliniki Chorob Kobiecych i Poloznicznych AM w Lublinie; kierownik: prof. dr med. Jozef Tynecki i z Zakladu Anatomii Patologicznej AM w Lublinie; kierownik: prof. dr med. Stanislaw Mahrburg.
(TOXOPLASMOSIS CONGENITAL)

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

MARKIEWICZ, Danuta; CHIBOWSKI, Daniel

A case of meningeal carcinosis with unusual cellular reactions of the cerebrospinal fluid. Neurol. neurochir. psychiat. Pol. 14 no.1:75-77 Ja-F '64.

1. Z Kliniki Chorob Nerwowych Akademii Medycznej w Lublinie (Kierownik: prof. dr. W. Stein) i z Zakladu Anatomii Patologicznej Akademii Medycznej (Kierownik: prof. dr. S. Mahrburg).

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CZOCHRA, Marian; CHIBOWSKI, Daniel

Bilateral neurilemmoma of the acoustic nerve associated with an abortive form of Recklinghausen's disease with the presence of blastomatosis in the medulla oblongata. Neurol. neurochir. psychiat. Pol. 14 no. 2:247-252 Mr-Ap '64.

1. Z Oddzialu Neurochirurgii przy Klinice Chorob Nerwowych AM w Lublinie (Kierownik Kliniki: prof. dr W.Stein; Kierownik Oddzialu: doc. dr. H.Kozniewska) i z Zakladu Anatomii Patologicznej AM w Lublinie IKierownik Zakladu: prof. dr S.Mahrburg).

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

CHIBOWSKI, Daniel

An immunohistochemical investigation of the cells of Ehrlich's ascites carcinoma. Ann. Univ. Lublin. sect. D 19:429-439 '64

Morphological changes of the cells of Ehrlich's experimental ascites carcinoma in the course of immunological lysis. Ibid.: 465-478

1. Katedra i Zaklad Anatomii Patologicznej, Wydzial Lekarski AM w Lublinie. (Kierownik: prof. dr. med. Stanislaw Mahrburg.)

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

NIEWIEDZIOL, Bronislaw; CHIBOWSKA, Maria

Buschke's scleredema in a 6-year-old girl. Pediat. Pol. 39 no.8:975-978 Ag '64

1. Z II Kliniki Pediatrycznej Akademii Medycznej w Lublinie (Kierownik: doc. dr. med. A. Gebala) i z Kliniki Dermatologicznej Akademii Medycznej w Lublinie (Kierownik: doc. dr. med. R. Michalowski).

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PUGACHEV, A.N.; CHIBISOV, V.I.

New STU-1,9 fertilizer spreader. Trakt. i sel'khozmash. 30 no.6: 28-29 Je '60. (MIRA 13:11)

1. TSentral'naya mashinoispytatel'naya stantsiya.
(Fertilizer spreaders)

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124-57-2-2532

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 2, p 143 (USSR)

AUTHORS: Patrikeyev, A. V., Chibrikin, M. V.

TITLE: On Fatigue Testing of Wood (K voprosu ob issledovanii drevesiny na ustalost')

PERIODICAL: V sb.: Vopr. drevesinovedeniya. Moscow-Leningrad, Goslesbumizdat, 1953, pp 64-71

ABSTRACT: A testing technique is propounded for fatigue testing of wood (the shape of a specimen and a fastening method therefor, the number of stress cycles per minute, the maximal number of cycles, a schematic design for a testing machine, etc.) The fatigue limits found in the investigation of pine and beech amounted to 22-25% of the ultimate static strength for static tangential flexure.

1. Wood--Fatique 2. Wood--Test methods A. F. Rozhnyatovskiy

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

SOV/51-5-1-17/19

AUTHORS: Voyevodskiy, V.V., Molin, Yu.N. and Chibrikin, V.M.

TITLE: Electron Paramagnetic Resonance Spectra of Cr-Aromatic Compounds with Various Substituents (Spektry elektronnogo paramagnitnogo rezonansa Cr-aromaticheskikh soyedineniy s razlichnymi zamestitelyami)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 1, pp 90-92 (USSR)

ABSTRACT: The present note reports continuation of the work described in Ref 1-2 on electron paramagnetic resonance spectra of solutions of $(C_6H_6)_2$ CrI, $(C_6H_5 \cdot C_6H_{11})_2$ CrI, $(C_6H_5 \cdot C_6H_5)(C_6H_6)$CrI and $(C_6H_5 \cdot C_6H_5)_2$ CrI. These compounds are denoted I, II, III and IV respectively in the present note. The purpose of the work was to find the effect of substitution of the distribution of density of unpaired electrons. Isopropyl alcohol, acetone, pyridine and water were used as solvents. All measurements were made at room temperature using a spectrometer working at 9300 Mc/s. The modulation depth of the magnetic field was 2 Oe. The g-factor, the total line-width in Oe, the separation of the hyperfine structure components (ΔH) and the number of resolved hyperfine structure (h.f.s.) components for the compounds I-IV in isopropyl alcohol are given in the table

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

Electron Paramagnetic Resonance Spectra of Cr-Aromatic Compounds with Various Substituents

on p 91. The consistency of g and ΔH in the series of compounds I-IV indicates that introduction of a substituent into the benzene ring does not materially change the distribution of density of unpaired electrons between Cr and the benzene rings. Improvement of the resolution of the spectrum (see the figure on p 92) on going from the compound I to the compound IV was observed. The authors make the following conclusions. (1) In dilute solutions the h.f.s. component width ceases to depend on concentration below a certain concentration which is different for different solvents. (2) The width of h.f.s. components in dilute solutions depends on the nature of the solvent. (3) On increase of the solution concentration the h.f.s. disappears at different concentrations in different solvents. The main reason for the disappearance of the h.f.s. is the exchange interaction between paramagnetic particles. The authors thank Professor G.A. Razuvayev (Gor'kiy Institute of Organic Chemistry) and Professor F. Hein (Institute of Inorganic Chemistry, Jena, Eastern Germany) for supply of the compounds studied. There are 1 figure, 1 table and 5 references, 3 of which are American and 2 Soviet.

Card 2/2

ASSOCIATION: Institut khimicheskoy fiziki, AN SSSR (Institute of Chemical Physics, Academy of Sciences of the U.S.S.R.)

SUBMITTED: Jamiary 27, 1958

1. Metalorganic compounds-Spectrographic analysis 2. Metalorganic compounds-Magnetic properties 3. Cyclic compounds-Properties 4. Chromium iodine compounds-Properties

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24 (7), 5 (4)
AUTHORS: Bubnov, N. N., Sorokin, Yu. A., Solodovnikov, S. P., Chibrikin, V. M.

SOV/48-23-10-35/39

TITLE: Investigation of the Dibenzene-chrome Derivatives by the Method of Paramagnetic Electron Resonance

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 10, pp 1263 - 1264 (USSR)

ABSTRACT: In earlier papers (Refs 1-3) it has already been shown that in highly diluted dibenzene chrome solutions the interaction between the unpaired electron and the protons of the benzene rings, which are in direct connection with the metal (chrome-) atom, manifest themselves by a distinct hyperfine structure of the spectrum of paramagnetic electron resonance. It has already been shown that the introduction of a substituent into the benzene ring influences neither the g-factor of the compound nor the amount of the hyperfine splitting (3.6 ± 0.5 Gs). It was further found that the dissolving temperature, the nature of the solvent or that of the substituent introduced into the benzene ring influences the width of the hyperfine structure component. Further investigations concerned the spin density distribution of the unpaired electron in the molecule, the

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hyperfine splitting, as well as the width of the hyperfine structure component. In this connection, several details, which were obtained from references 1-8 are briefly discussed. Further investigations concerning hyperfine splitting were carried out with the cation of dibenzene chrome with cyclohexyl substituents in both rings. It was found that at low temperatures of the solution of this compound an additional triplet splitting (1 ± 0.5 Gs) of each hyperfine structure component occurs. It is caused by the interaction of the unpaired electron with two protons of a cyclohexyl substituent. An investigation of the influence exerted by various factors on the width of the hyperfine structure component gave the following result: A considerable dilution of the solution with a reduction of temperature leads to a monotonic improvement of the spectral resolving power, i.e. the width of the hyperfine structure component decreases. In some solvents (e.g. alcohols) an anomalous temperature dependence of the spectral resolving power is found; this might be explained by a complex formation between the dibenzene chrome cations and the molecules of the

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Investigation of the Dibenzene-chrome Derivatives by the Method of Paramagnetic Electron Resonance

SOV/48-23-10-35/39

solvent. There are 8 references, 5 of which are Soviet.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences, USSR). Institut khimii pri Gor'kovskom gos. universitete (Institute of Chemistry at Gor'kiy State University)

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308810001-0

5(4), 24(7) SOV/76-33-8-37/39

AUTHORS: Bubnov, N. N., Chibrikin, V. M.

TITLE: On the Temperature Dependence of the Width of the Component of Superfine Structure in Electron Paramagnetic Resonance Spectra

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 8, pp 1891-1892 (USSR)

ABSTRACT: In order to clarify the mechanism of the extension of the component of superfine structure, the effect of temperature on the spectrum of the electron-paramagnetic resonance of the cations of chromium dibenzene $(C_6H_6)_2Cr^+$ (I) and chromium-bis-diphenyl $\left[(C_6H_5)_2\right]Cr^+$ (II) was investigated. The studies were made with concentrated solutions (more than 0.02 mol/l) (solvents - ethanol, pyridine, acetone) by means of a spectrometer with a high-frequency modulation of the magnetic field (Ref 5). It was observed that at the gradual lowering of temperature, the width of the superfine structural component (ΔH) of (I) and (II) is constantly reduced, and reaches a minimum at -50, -80°C. When the temperature is lowered beyond that, the width increases again. In all solutions of (I) and (II) investigated, two additional lines were observed. They

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SOV/76-33-8-37/39

On the Temperature Dependence of the Width of the Component of Superfine Structure in Electron Paramagnetic Resonance Spectra

came about by a superfine fission at the Cr^{53} isotope. It is stated that there exists an anisotropy of the g-factor and a superfine structure in the chromium---aromatic compoun' Besides the temperature reduction, there are two more re ons for the extension of the component of superfine structure: One is due to the formation of stable complexes or solvate shells, and the other one is in no connection with the exchange interaction. In order to solve this problem it will be necessary to carry out studies with diluted solutions in which the latter effect is negligible. It is ascertained that a temperature reduction may cause a better dissolution of the superfine structure than a dilution, and if this comes about it can be observed with less sensitive instruments. Finally, the authors thank Yu. N. Molin, A. I. Burshteyn and V. V. Voyevodskiy. There are 2 figures and 8 references, 4 of which are Soviet.

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki, Moskva (Academy of Sciences USSR, Institute of Chemical Physics, Moscow)

SUBMITTED: August 25, 1958

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SOV/20-129-5-33/64

AUTHORS: Voyevodskiy, V. V., Corresponding Member, AS USSR, Solodovnikov, S. P., Chibrikin, V. M.

TITLE: Investigation of the Spectra of the Electron Paramagnetic Resonance (e.p.r) of the Negative Ions of Some Aromatic and Heterocyclic Compounds

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 5, pp 1082-1084 (USSR)

ABSTRACT: The purpose of this paper was to investigate the electron mobility along the systems of conjugate double bonds and saturated bonds by means of the e.p.r.-spectra. The authors investigated the e.p.r.-spectra of some benzene derivatives. The ion radicals were produced by the reaction of the compounds dissolved in 1,2-dimethoxyethane with metallic potassium. Low temperatures were applied for very unstable ions (down to -70°). The e.p.r.-spectra of the following benzene derivatives were discussed: cumene (Fig 1), cyclohexyl benzene, tert. isobutyl benzene, toluene, ethyl benzene. The spectrum consisted of 5 lines with hyperfine structure and binomial intensity distribution. The observed 5 lines were explained by the inter-

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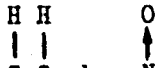
Investigation of the Spectra of the Electron Paramagnetic Resonance (e.p.r.) of the Negative Ions of Some Aromatic and Heterocyclic Compounds

action of the unpaired electron with 4 equivalent H-atoms. In the toluene anion (Fig 2) each of the 5 lines is separated into 8 components due to the interaction between the unpaired electron with 3 α-protons and the proton in p-position. In the investigation of the spectra of o-, m-, and p-xylene more detailed results were obtained than had been given in reference 4. The measurement results and the calculated spin densities of the unpaired electron are summarized in table 1. To investigate the transmission of an electron along the chain of the conjugate or saturated bonds the e.p.r.-spectra of the anions of stilbene, azoxybenzene, and dibenzyl were investigated (Fig 3). In stilbene the possibility of a delocalization of the electron along the benzene ring and along the chain of the conjugate double bonds was proved. The spectrum of azoxybenzene



showed that the replacement of the bridge -C=C- by -N=N- does not reduce the mobility of the electron over the entire molecule. Also in dibenzyl the electron does not remain localized to one

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Investigation of the Spectra of the Electron Paramagnetic Resonance (e.p.r.) of the Negative Ions of Some Aromatic and Heterocyclic Compounds

ring but changes between the two rings with a frequency of the order of magnitude 10^{-7} - 10^{-8} cm^{-1}. To check the influence of the heteroatoms on the spin density the e.p.r.-spectra of the pyridine and quinoline anions were investigated. From the pyridine spectrum it is concluded that a spin density differing from zero exists in the N-atom and in the α-, β- and γ-C-atoms where the α-, β- and γ-proton are not equivalent. There are 3 figures, 1 table, and 4 references.

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

SUBMITTED: August 31, 1959

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24.3600 (1035, 1138, 1482)

AUTHORS: Nesmeyanov, A. N., Academician, Korshak, V. V., Corresponding Member AS USSR, Voyevodskiy, V. V., Corresponding Member AS USSR, Kochetkova, N. S., Sosin, S. L., Materikova, R. B., Bolotnikova, T. N., Chibrikin, V. M., and Bazhin, N. M.

TITLE: Synthesis and some optical-magnetic properties of polyferrocenes

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 6, 1961, 1370-1373

TEXT: The authors studied the magnetic properties of ferrocene derivatives: 1) of the polyferrocenylenes (Table 1, nos. 1-6), 2) the polydiisopropylferrocene (Table 1, nos. 7-8), 3) the polymethano- and 4) the polyethanopolyferrocenes (Table 1, nos. 9-13). They were synthetized by: A) Polyrecombination. To 1) and 2). 1 mole ferrocene (or of its diisopropyl homolog) was treated with 1 mole tertiary butyl peroxide in nitrogen atmosphere at 200°C. 1) and 2) are assumed to be formed as follows: the Butoxyl and methyl radicals formed during peroxide decomposition separate the hydrogen from ferrocene (or the α-hydrogen). The radicals thus formed

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Synthesis and some ...

recombine and form linear 1) or 2), easily soluble in benzene. An insoluble polymer (Table 1, nos. 5-6) with a two- or tridimensional network structure is formed simultaneously. The conversion of ferrocene to high-molecular products amounted to 25%. Nos. 1-3 have a softening temperature of 290-300°C and are a dark-red powder, whereas nos. 5-6 had their softening temperature at about 400°C and were light-yellow. B) Polyalkylenation of ferrocene by methylene chloride and 1,2-dichloroethane in the presence of anhydrous aluminum chloride. Aluminum chloride solution in 50 ml of dihalogen alkane was added gradually to 40 g ferrocene dissolved in 250 ml dry dihalogen alkane. The mixture was stirred for 6 hr at the boiling temperature of the solvent. The next day, 10 g aluminum chloride in 25 ml dihalogen alkane were added and treated for 6 hr as above. The mixture was decomposed by ice and HCl and treated with sodium sulfite. The obtained 3) and 4) were well soluble in benzene, differed, however, by their solubility in ether. Table 1 shows the molecular weights, the always equal g-factor and the magnetic characteristics of all substances produced. The decomposition temperature of 9-13 was 115-120°C. All substances are amorphous powders, nos. 9 and 10 light-yellow, no. 11 grey-brown. Nos. 10 and 11 are of a chemical composition similar to that of no. 9 (pentaethanodifferrocene).

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Synthesis and some ...

They consist possibly of 2 and 4 molecules similar to the latter, connected by ethane bridges. 4-5 methylenes in the molecule of nos. 12 and 13 belong to 2 ferrocene radicals. They do not contain halogen. The infrared spectra of nos. 9-13 have frequencies within the range 1000-1100 cm^{-1}. To 1). Derivatives 1) having a π-conjugation between the ferrocene links give a signal the electron paramagnetic resonance (e-p-r). similarly to the polyaromatic hydrocarbons. This cannot be explained by the presence of a corresponding quantity of the oxidized form of the ferricinium cation. Table 1 shows that also polymers in which the ferrocene links are separated by the $-CH_2-CH_2-$ group give an e. p. r. signal. It is known that the delocalization of the unpaired electrons between the two phenyl rings is not prevented by this group. In the substances described here, which give an e. p. r. signal, this signal is the smaller, the smaller the number of ferrocene links is. This signal vanishes in 2). Polymers with a low molecular weight give no e. p. r. signal in the solution (benzene), but in solid state. This is explained by the fact that the intramolecular interactions cause in solid state a conjugation of the adjacent polymer molecules. This causes for its part an e. p. r. signal. All polymers

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Synthesis and some ...

giving this signal show a single symmetrical line of the e. p. r. of the Lorenz type. The 1) obtained from the reaction A yields a wide e. p. r. line of 120-160 oersteds, its width being dependent on the polymer structure. This line becomes broader on reducing the measuring temperature. Its width is changed most considerably in low-molecular polymers. The authors believe the nature of the measured signals to be unclarified, they cannot maintain that the number N of the unpaired electrons per 1 member, determined by a comparison with the standard, corresponds to their actual number. N may, however, be a certain characteristic of the magnetic properties of the system (nos. 2-4). N reaches an anomalous size in the insoluble polymer no. 5. This is assumed to be connected with a collective effect of the ferromagnetic type. The ultraviolet (UV-) spectra of 1) dissolved in n-octane, which give an e. p. r. signal in solid state, differ from the ultraviolet spectra of such that give no signal in solid state. In the first case the UV-spectrum agrees completely with that of ferrocene dissolved in CCl_4. It was proved for these spectra (Ref. 7) that the charge transfer takes place here under formation of an ion pair $Fer^{+}CCl_4^{-}$. On the contrary, the UV-spectrum of such 1) that give no e. p. r. signal is similar

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Synthesis and some ...

to that of ferrocene in a neutral solvent (n-octane), i. e. under conditions under which the charge is not transferred. Finally, the authors point out that their results concerning the UV-spectra apparently confirm the "pseudoferromagnetism" of the polynucleotides and of the polyaromatic hydrocarbons (Refs. 5 and 8). There are 1 figure, 1 table, and 8 references: 7 Soviet-bloc and 1 non-Soviet-bloc. The only reference to English-language publication reads as follows: J. C. D. Brand, Ref. 7: Trans. Farad. Soc., 53, 894, 1957.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental-organic Compounds of the Academy of Sciences, USSR)

SUBMITTED: December 20, 1960

Legend to Table 1. I) Current number, 1-4) linear polyferrocenylene, 5-6) insoluble polyferrocenylene, 7) polydiisopropylferrocene, linear, 8) like 7, insoluble, 9-11) condensation products of ferrocene with Di-1,2-chloroethane, 12-13) with methylene chloride, 14) ferricinium cation. II) Substance, III) molecular weight, IV) g-factor, V-VI) line width, oersted

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24.3400 SOV/51-8-1-36/40

AUTHORS: Vetchinkin, S.I., Solodovnikov, S.P. and Chibrikin, V.M.

TITLE: Distribution of Spin Density in the Chromium Dibenzene Cation

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 1, pp 137-140 (USSR)

ABSTRACT: Chromium dibenzene is a representative of a new type of compounds known as sandwich type compounds. In these compounds the metal atom is not bound to a single carbon atom but to the whole π system of an aromatic hydrocarbon (Refs 1, 2). The present paper deals with distribution of the spin density in the chromium dibenzene cation. The spin density was found from the hyperfine structure (h.f.s.) from electron paramagnetic resonance (e.p.r.) spectra of strongly diluted solutions of the chromium dibenzene cation and solutions of chromium dibenzene cations with isopropyl and cyclohexyl substituents in both benzene rings. Fig 1 shows the e.p.r. spectrum of the chromium dibenzene cation obtained in an acetone solution at -70°C. From the ratio of the h.f.s. intensities and the constancy of the hyperfine splitting (3.6 ± 0.5 Oe) it follows that the unpaired electron interacts with protons of both benzene rings; all twelve protons in these rings act in the same way. Voyevodskiy, Molin and Chibrikin (Ref 7) found that introduction of a hydrocarbon substituent did not alter the magnitude

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of the hyperfine splitting and that the number of the h.f.s. components represented the number of the remaining protons in both benzene rings. A more detailed investigation carried out by the present authors showed that in the spectrum of the chromium dicumene cation (Fig 2, at -90°C) each component of the ring proton h.f.s is split into a triplet with a separation close to 1.0 Oe. This additional triplet splitting is due to splitting on both α-protons of the isopropyl substituents. Similar effects were observed in the case of the chromium dibenzene cation with a cyclohexyl substituent in both benzene rings. Bubnov and Chibrikin (Ref 8) reported additional hyperfine splitting in the spectrum of the chromium dibenzene cation in solution, which was ascribed to interaction of the unpaired electron with a magnetic moment of the Cr^{53} isotope which is present in the natural chromium. This was also found by the present authors and is shown in Fig 3; the hyperfine splitting between the h.f.s. components of chromium amounted to 19.0 Oe. All the e.p.r. spectra reported by the authors were recorded with a spectrometer described earlier (Ref 9). McConnell and Chestnut (Ref 11) suggested an indirect interaction to explain hyperfine splitting of the proton of the C--H group and showed that this splitting is proportional to the spin density at the p_z-orbit of the carbon atom in the C--H group. In the first approximation the coefficient of proportionality Q, between the hyperfine splitting and the spin density is constant for all aromatic

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radicals and ion-radicals. If it is assumed that the coefficient Q is the same in metal-aromatic compounds, then the observed proton hyperfine splitting (3.6 Oe) shows that the spin density in the p_z-orbit of a single carbon atom is 0.16. Since all protons are equivalent, the spin density at all the carbon atoms is the same. It follows that the spin density in the π system of both benzene rings is equal to 1.92. In order to reduce the total spin density of the whole molecule of the chromium dibenzene cation to unity we have to assume that the spin density at the atomic orbits of chromium is 0.92 and its sign is opposite to the sign of the density at the benzene rings. The requirement of normalization of the spin density to unity follows from the fact that the chromium dibenzene cation has only one unpaired electron (Ref 5). The authors show that other evidence (Refs 12, 13) also supports the suggested spin density. Acknowledgments are made to Yu.A. Sorokin and G.A. Domrachev for preparation of the compounds studied. There are 3 figures and 15 references, 9 of which are Soviet, 4 English and 2 German.

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S/058/61/000/011/006/025
A058/A101

5.5800 (1273, 1274, 1282)

AUTHORS: Semenov, A.G., Chibrikin, V.M.

TITLE: Concerning the limit frequency of a superheterodyne electron paramagnetic resonance spectrometer

PERIODICAL: Referativnyy zhurnal. Fizika, no. 11, 1961, 129, abstract 11V255 (V sb. "Paramagnitn. rezonans", Kazan', Kazansk. un-t, 1960, 150 - 152)

TEXT: Analysis of the causes limiting the sensitivity of superheterodyne electron paramagnetic resonance spectrometers (low-frequency fluctuation of the conversion resistance of the crystal mixer, the reciprocal frequency fluctuation of the principal and the heterodyne klystron and the frequency fluctuation of the principal klystron) shows that for the sensitivity of the spectrometer to approximate the theoretically possible sensitivity, it is necessary to decrease the effective relative frequency fluctuation $\delta\nu/\nu$ of the principal klystron, i.e. to replace the reflex klystron by a more stable source of microwave oscillations. For eliminating the effect of reciprocal frequency fluctuation it is suggested that instead of using a separate heterodyne klystron, a part of the energy of the

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Concerning the limit frequency ...

principal klystron be utilized by using a balanced modulator and separating outside-frequency oscillations at its input.

Yu. Yablokov

[Abstracter's note: Complete translation]

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L 8566-65 EWT(m)/EPF(c)/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4 RPL/ASD(a)-5/
SSD/AS(mp)-2/AFWL/REAM(i)/REAM(c)/ESD(gs)/ESD(t) WW/JFW/RM
ACCESSION NR: AP4043786 S/0190/64/006/008/1478/1482

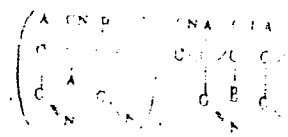
AUTHOR: Bazhin, N. M.; Chibrikin, V. M.; Voyevodskiy, V. V.

TITLE: Study of certain types of polymers with conjugated bonds by electron paramagnetic resonance

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 8, 1964, 1478-1482

TOPIC TAGS: conjugated polymers, electron paramagnetic resonance, polymer electron paramagnetic resonance, polymer free radicals, conjugated double bond system

ABSTRACT: Polymers with conjugated bonds of the fo[illegible]

(I) 

where A = $C(=O)-OCH_3$ and B = $C(=O)-OC(CH_3)_3$;

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