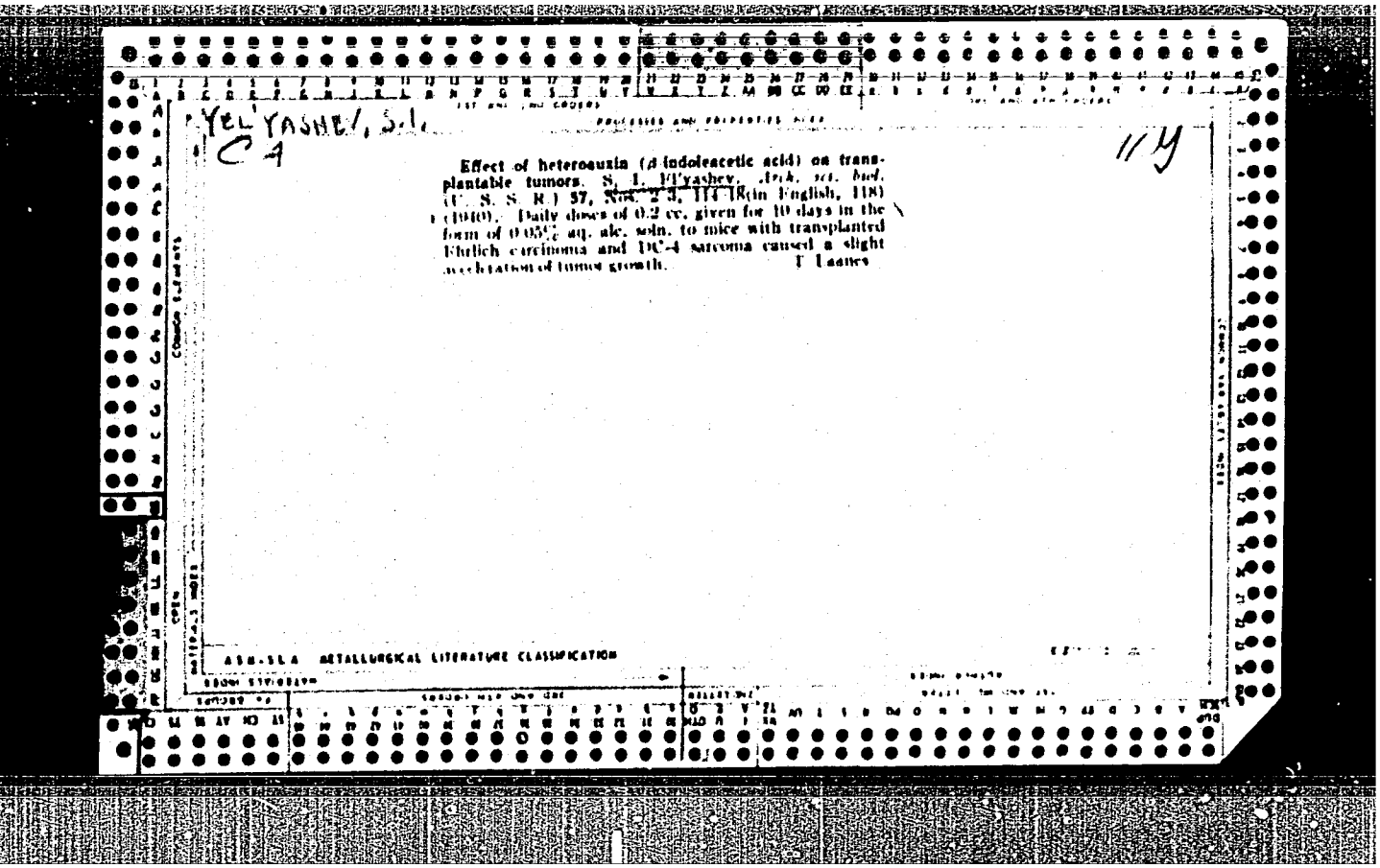

YEL'YASHEV, S.I.
CA

11Y

Effect of heteroauxin (β-indoleacetic acid) on transplantable tumors. S. I. Yel'yashev. *Trudy sci. biol.* (U. S. S. R.) 57, No. 2-3, 114-18 (in English, 118) (1940). Daily doses of 0.2 cc. given for 10 days in the form of 0.05% aq. alc. soln. to mice with transplanted Ehrlich carcinoma and DC-4 sarcoma caused a slight acceleration of tumor growth. T. Laanes

A58-51A METALLURGICAL LITERATURE CLASSIFICATION

PHASE I BOOK EXPLOITATION 469

Yel'yashevich, A.B., Karlik, Ye. M., and Shayovich, L.L.

Ekonomika sotsialisticheskogo mashinostroyeniya (The Economics of Socialist Machine Building) Moscow, Mashgiz, 1957. 475 p. 15,000 copies printed.

Reviewers: Novozhilov, V.V., Prof., Dr. of Economic Sciences, and Stepanov, G.A.; Ed. of Publishing House: Leykina, T.L.; Tech. Ed.: Speranskaya, O.V.; Managing Ed. of Leningrad Branch of Mashgiz: Bol'shakov, S.A.

PURPOSE: This book is a textbook for undergraduate students enrolled in engineering courses, as well as for personnel employed by planning and design organizations and by machine-building plants.

COVERAGE: The co-authors of this book endeavored to give a systematic presentation of the problems and development of socialist machine-building as a science. Though no complete

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course in the economics of socialist machine-building is offered, a discussion is presented of its basic problems and the following aspects are examined: (1) scope and rate of machine-building development; (2) ways of improving machinery systems and the natural law governing the development of the machine-building industry; (3) personnel and organization of labor; (4) the natural law governing the progress of specialization and cooperation; (5) concentration and distribution of machine-building production; (6) problems concerning the effective use of fixed and turnover assets; (7) economic accountability of machine building. Chapters I, II, III, VII, IX, X, and XI were written by Professor A.B. Balashev; chapters IV, V, and XII, by Docent L.L. Shayovich; and chapters VI and VII by Docent Ye. M. Karlik. It is pointed out in the preface that the co-authors of this book constitute the nucleus of the Department of Machine-building Economics of the Leningrad Institute of Engineering Economics.

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[Specialization and cooperation in forging and sheet-metal work] Spetsializatsiia i kooperirovanie kuznechno-shtampovochnogo proizvodstva. Moskva, Mashgiz, 1962. 142 p. (MIRA 15:9)
(Forging) (Sheet-metal work)

VASIL'YEVA, N.N.; YEL'YASHEVICH, A.I.

Second All-Union Coordination Conference on Polyolefins.
Plast.massy no.7:75 '62. (MIRA 15:7)
(Olefins--Congresses)

YEGOROV, N.M.; SEDLIS, L.V.; YEL'YASHEVICH, A.I.

Polyethylene and its copolymers abroad. Plast.massy no.2:72-76 '61. (MIRA 14:2)

(Polyethylene)

CHEGODAYEV, D.D.; SEDLIS, L.V.; YEL'YASHEVICH, A.I.

Production of carbon fluorides in the U.S.A. Plast.massy no.12:59-64 '61. (MIRA 14:12)
(United States—Carbon fluoride)

TSALAGOVE, Z.S.; YEL'YASHEVICH, A.I.; PECHENKIN, A.L.

Latest developments in the production of foam polystyrene abroad. Plast.massy no.10:67-71 '62. (MIRA 15:11)
(Styrene polymers)
(Plastics industry—Equipment and supplies)

SEDLIS, L.V.; PECHENKIN, A.L.; YEL'YASHEVICH, A.I.

Utilizing plastics in the building industry abroad. Plast. massy no.2:73-77 '60. (MIRA 13:6)
(Plastics) (Building materials industry)

SEDLIS, L.V.; YEL'YASHEVICH, A.I.; PECHENKINA, A.L.

Prospects for the production and uses of polypropylene. Plast. massy no.5:68-72 '63. (MIRA 16:6)
(Propene)

NEKRASOVA, T.N.; ANUFRIYEVA, Ye.V.; YEL'YASHEVICH, A.M.; PTITSYN, O.B.

Potentiometric titration of polyacrylic, polymethacrylic, and poly-L-glutamic acids. Vysokom. soed. 7 no.5:913-921 My '65. (MIRA 18:9)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.

YELYASHEVICH A. M., PTITSIN, S. R., BIRSHTEYN, G. M., VOLKENSHTEYN, M. V., GODZHAYEV, N. M., and GOTLIB, YU. YA. (USSR)

"Statistic Thermodynamic and Kinetic Model Theory of Biosynthesis."

Report presented at the 5th International Biochemistry Congress, Moscow, 10-16 Aug 1961

YEL'YASHEVICH, A.M.; PTITSYN, O.B.

Contribution to the theory of the configuration properties of polyelectrolyte molecules. Dokl. AN SSSR 156 no. 5:1154-1155 Je '64. (MIRA 17:6)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR. Predstavleno akademikom V.A.Karginym.

VOL'KENSHTEYN, M.V.; YEL'YASHEVICH, A.M.

Statistical thermodynamic theory of the reduplication of desoxyribonucleic acid (DNA). Biofizika 6 no.5:513-523 '61. (MIRA 15:3)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR, Leningrad.

(NUCLEIC ACIDS)

VOL'KENSHTEYN, M.V.; YEL'YASHEVICH, A.M.

A contribution to the mutation theory. Dokl.AN SSSR 136 no.5: 1216-1218 F '61. (MIRA 14:5)

1. Institut vysokomolekulyarnhkh soyedineniy AN SSSR. Predstavleno akad. I.V.Obreimovym.
(Desoxyribonucleic acid) (Variation (Biology))

VOLKOV, S.A., red.; YEL'YASHEVICH, A.V., red.; SHAYOVICH, L.L., red.

[Problems of specialization and cooperation in machinery manufacturing] Voprosy spetsializatsii i kooperirovaniia mashinostroitel'nogo proizvodstva. Leningrad, Izd-vo Leningr. univ., 1960. 161 p. (MIRA 14:4)
(Machinery industry)

YELYASHEVICH, B.L.

Tuberculosis of the thyroid gland. Kaz. med. zhur. no.2:75 Mr-Ap'63 (MIRA 16:11)

1. Kafedra khirurgii i onkologii (zav. - prof. Yu.A.Ratner) Kazanskogo gosudarstvennogo instituta dlya usovershenstvovaniya vrachey imeni Lenina.

*

YMLYASHEVICH, B.L., vrach

Procurement and transfusion of blood in the rural hospital environment. Kaz.med.zhur. 40 no.6:73-74 N-D '59. (MIRA 13:5)

1. Izgarskaya uchastkovaya bol'nitsa Chistopol'skogo rayona Tatarskoy ASSR.

(BLOOD--TRANSFUSION)

YELYASHEVICH, B.L.

Puncture biopsy of the bifurcate lymph nodes in the diagnosis of pulmonary cancer. Kaz. med. zhur. no.2:13-15 Mr-Ap '62. (MIRA 15:6)

1. Kafedra khirurgii i onkologii (zav. - prof. Yu.A. Ratner) Kazanskogo Gosudarstvennogo instituta dlya usovershenstvovaniya vrachey imeni V.I. Lenina, na baze 5-y gorodskoy bol'nitsy (glavnyy vrach - N.I. Polozova).

(LUNGS—CANCER)
(LYMPHATICS—PUNCTURE)

RATNER, Yu.A.; BASHIROVA, N.G.; [illegible]; YELYACHEVICH, E.L.; KOISANOV, N.A.; KHANITONOV, R.K.; MUSTAFIN, M.A.

Experience with the use of mechanical suturing in gastric surgery. Khirurgiia 40 no.8:17-23 Ag '64. (MIRA 18:3)

1. Kafedra khirurgii i onkologii (zav. - prof. Yu.A. Ratner) Kazanskogo instituta usovershenstvovaniya vrachey na baze 5-y gorodskoy klinicheskoy bol'nitsy (glavnyy vrach N.I. Polozova).

YELYASHEVICH, B.L., (Kazan', ul. Komleva, 18, Kv.5)

Method of puncture biopsy of lymphatic nodes in the area of tracheal bifurcation. Vop. onk. 8 no.9:112-115 '62. (MIRA 17:6)

1. Iz kafedry khirurgii i onkologii (zav. - zasluzhennyy deyatel' nauki prof. Yu.A. Ratner) Kazanskogo gosudarstvennogo instituta usovershenstvovaniya vrachey imeni V.I. Lenina (dir.- prof. I.V. Danilov).

YEL'YASHKEVICH, E.S.; VAKAR, A.A.; SHMUSHKO, R.Ya.

Protein and protein fractions of the blood serum in chronic leukemia. Trudy Kiev. nauch.-issl. inst. perel. krovi i neotlozh. khir. 3:258-261 '61. (MIRA 17:10)

1. Kiyevskiy institut perelivaniya krovi.

SPASOKUKOTSKIY, Yu.A.; CHERNOGOROVA, Z.L.; GRINCHENKO, A.N.; YEL'YASHKEVICH, E.S.; GITIS, Ye.I.; SHMUSHKO, R.Ya.; SARNITSKIY, I.P.

Effect of the BK-8 protein blood substitute on the process of blood coagulation in dogs during a stomach resection. Trudy Kiev. nauch.-issl. inst. perel. krovi i neotlozh. khir. 3:120-128 '61.

(MIRA 17:10)

YEL'YASHKEVICH, E.S.; VAKAR, A.A.; SHMUSHKO, R.Ya.

Changes in the oxygen content of the blood in chronic leukemia. Trudy Kiev. nauch.-issl. inst. perel. krovi i neotlozh. khir. 3:248-251 '61. (MIRA 17:10)

1. Kiyevskiy institut perelivaniya krovi.

YEL'YASHEVICH, G.

Student, Dnepropetrovak Medical Institute

Medicine

"This is the Objectivity of the American Press"
Literaturnaya Gazeta, April 6, 1949, pg. 2.

Current Digest of the Soviet Press, Vol. 1,
No. 14, 19, page 56. (In [redacted] Library)

YEL'YASHEVICH, G.P.

Effect of mercamin on the liver: experimental morphological research. Med.rad. 4 no.7:70-73 Jl '59. (MIRA 12:9)

1. Iz radiologicheskogo otdela (zav. - prof.A.V.Kozlova) gosudarstvennogo nauchno-issledovatel'skogo instituta rentgenologii i radiologii (dir. - dotsent I.G.Lagunova) Ministerstva zdravookhraneniya RSFSR.
(MERCAPTOETHYLAMINES pharmacol.)
(RADIATION PROTECTION)
(LIVER radiation eff.)

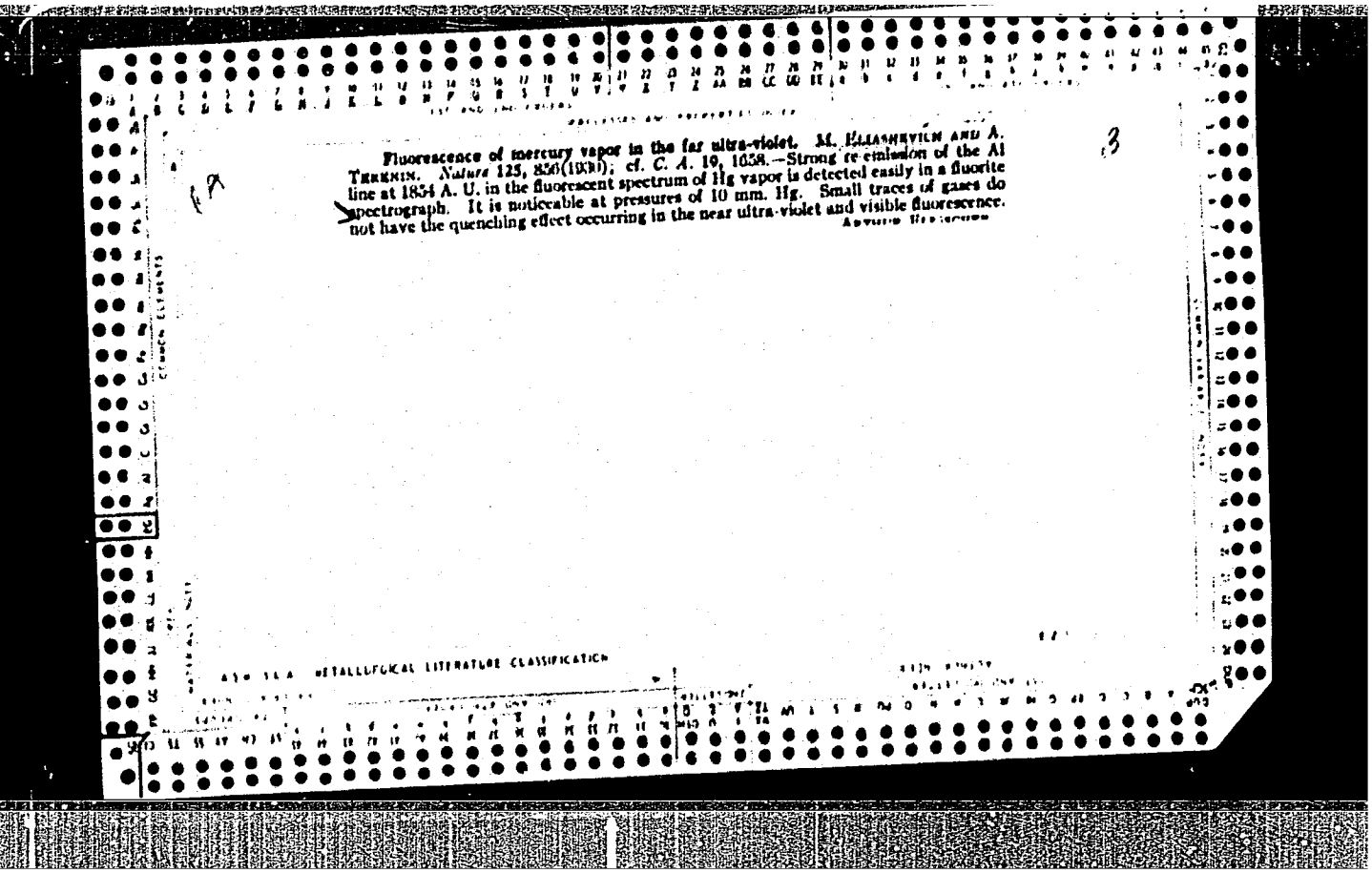
YEL'YASHEVICH, G.P.

Antenatal fetal mortality and the role of obstetric consultation in its prevention. Akush.i gin. no.6:24 '61. (MIRA 14:12)
(PRENATAL CARE) (FETUS, DEATH OF)

YEL'YASHEVICH, G.P.; KLEYMAN, M.G.

Congenital leukemia in a newborn infant with Down's disease. Probl. gemat. i perel. krovi no.6:54-55 '65. (MIRA 18:11)

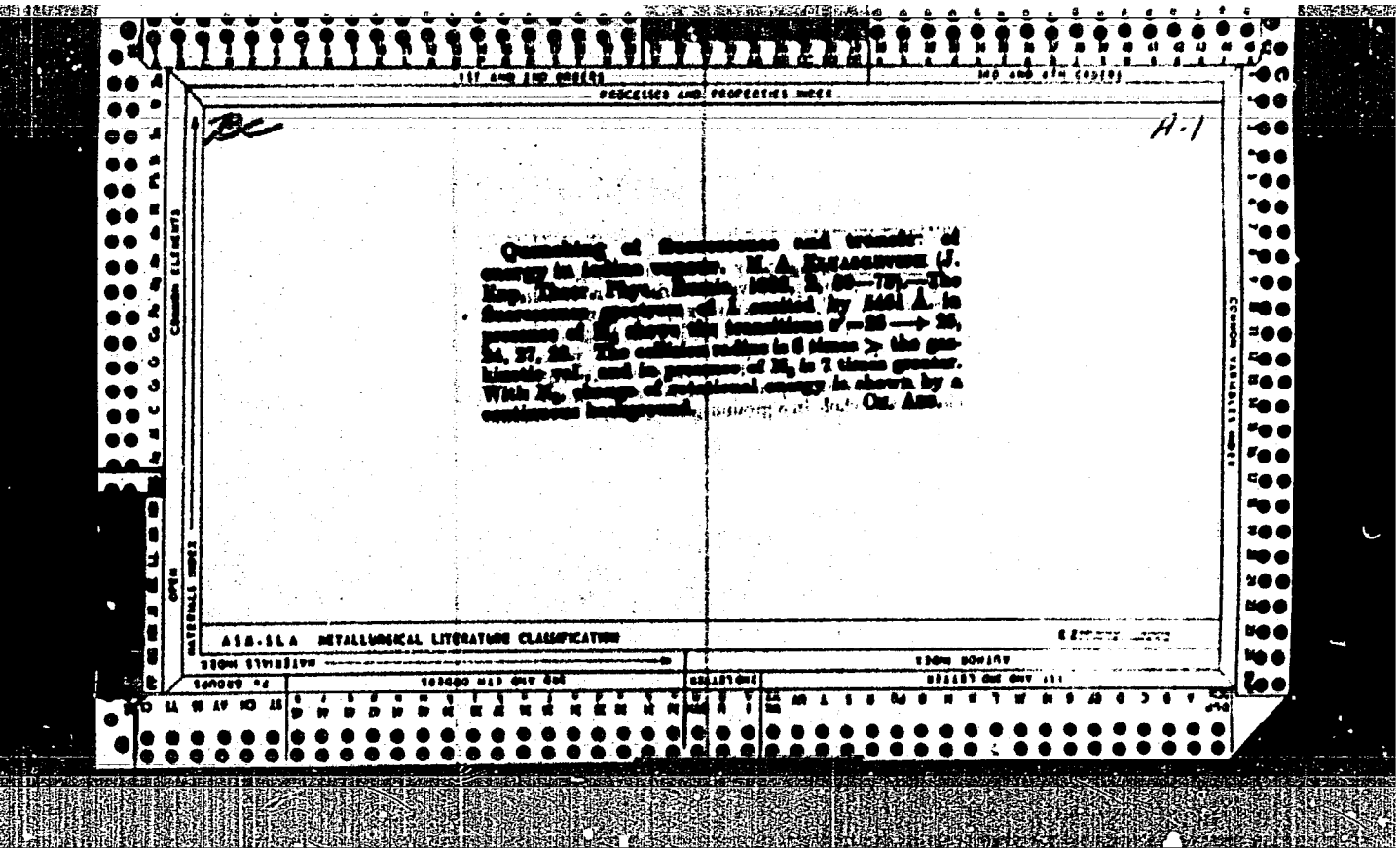
1. Patologoanatomicheskoye otdeleniye gorodskoy bol'nitsy imeni N.A.Semashko, Orel.

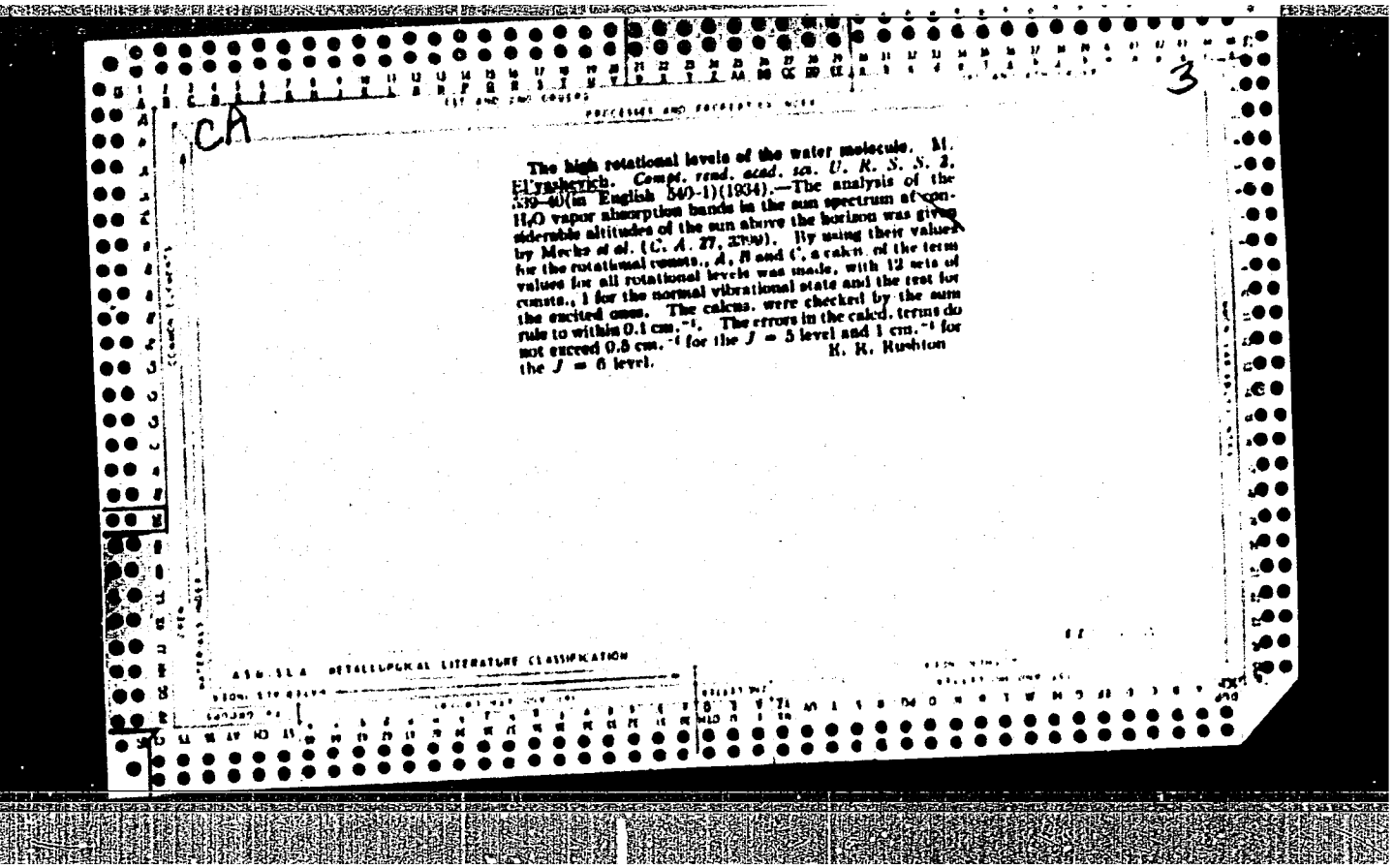


Fluorescence of mercury vapor in the far ultra-violet. M. Ellashevich and A. Terenin. *Nature* 125, 836(1930); cf. *C. A.* 19, 1058.—Strong re-emission of the Al line at 1854 A. U. in the fluorescent spectrum of Hg vapor is detected easily in a fluorite spectrograph. It is noticeable at pressures of 10 mm. Hg. Small traces of gases do not have the quenching effect occurring in the near ultra-violet and visible fluorescence.

3

METALLURGICAL LITERATURE CLASSIFICATION





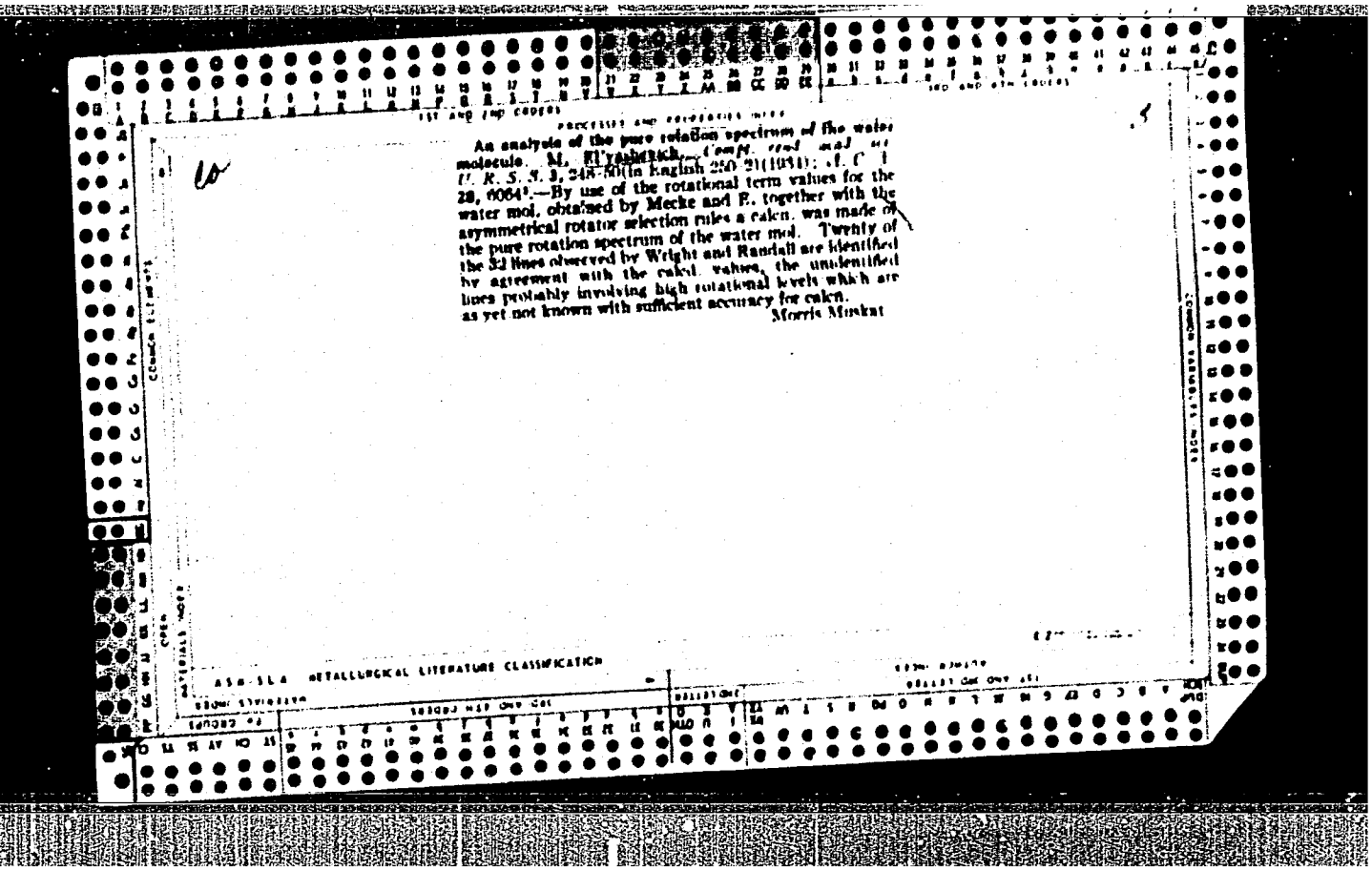
CA

3

The high rotational levels of the water molecule. M. Fl'yasherich. *Compt. rend. acad. sci. U. R. S. S.* 2, 539–40(in English 540-1)(1934).—The analysis of the H_2O vapor absorption bands in the sun spectrum at considerable altitudes of the sun above the horizon was given by Mecke *et al.* (C. A. 27, 3790). By using their values for the rotational consts., A, B and C, a calcn. of the term values for all rotational levels was made, with 12 sets of consts., 1 for the normal vibrational state and the rest for the excited ones. The calcns. were checked by the sum rule to within 0.1 cm.$^{-1}$. The errors in the calcd. terms do not exceed 0.8 cm.$^{-1}$ for the $J = 5$ level and 1 cm.$^{-1}$ for the $J = 6$ level.

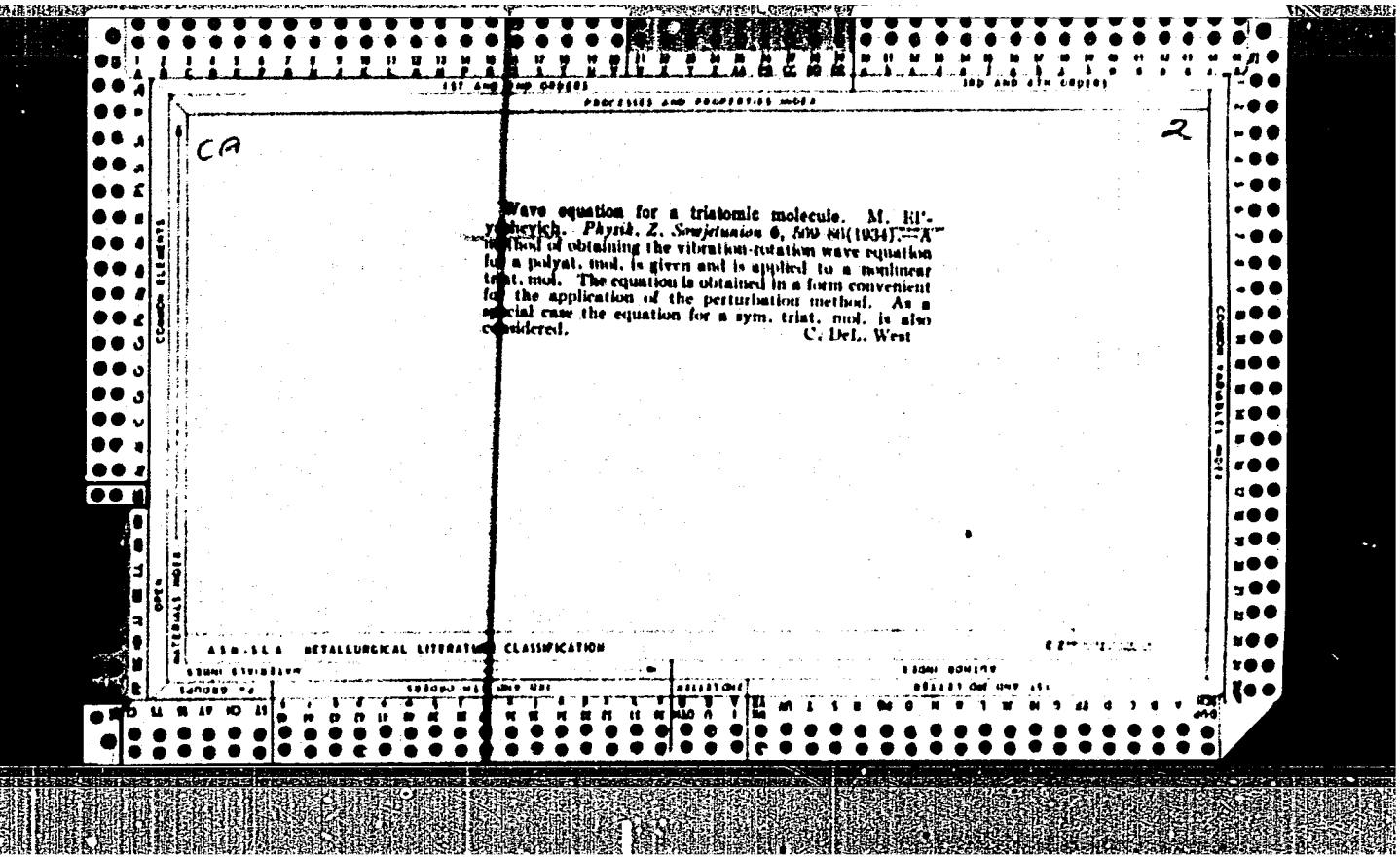
K. K. Rushton

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



An analysis of the pure rotation spectrum of the water molecule. M. Il'yushchk. (Compt. rend. acad. sci. U. R. S. S. 3, 248-50 (in English 250) 21(1938); cf. C. 1 28, 6064).—By use of the rotational term values for the water mol. obtained by Mecke and F. together with the asymmetrical rotator selection rules a calcn. was made of the pure rotation spectrum of the water mol. Twenty of the 32 lines observed by Wright and Randall are identified by agreement with the calcd. values, the unidentified lines probably involving high rotational levels which are as yet not known with sufficient accuracy for calcn.

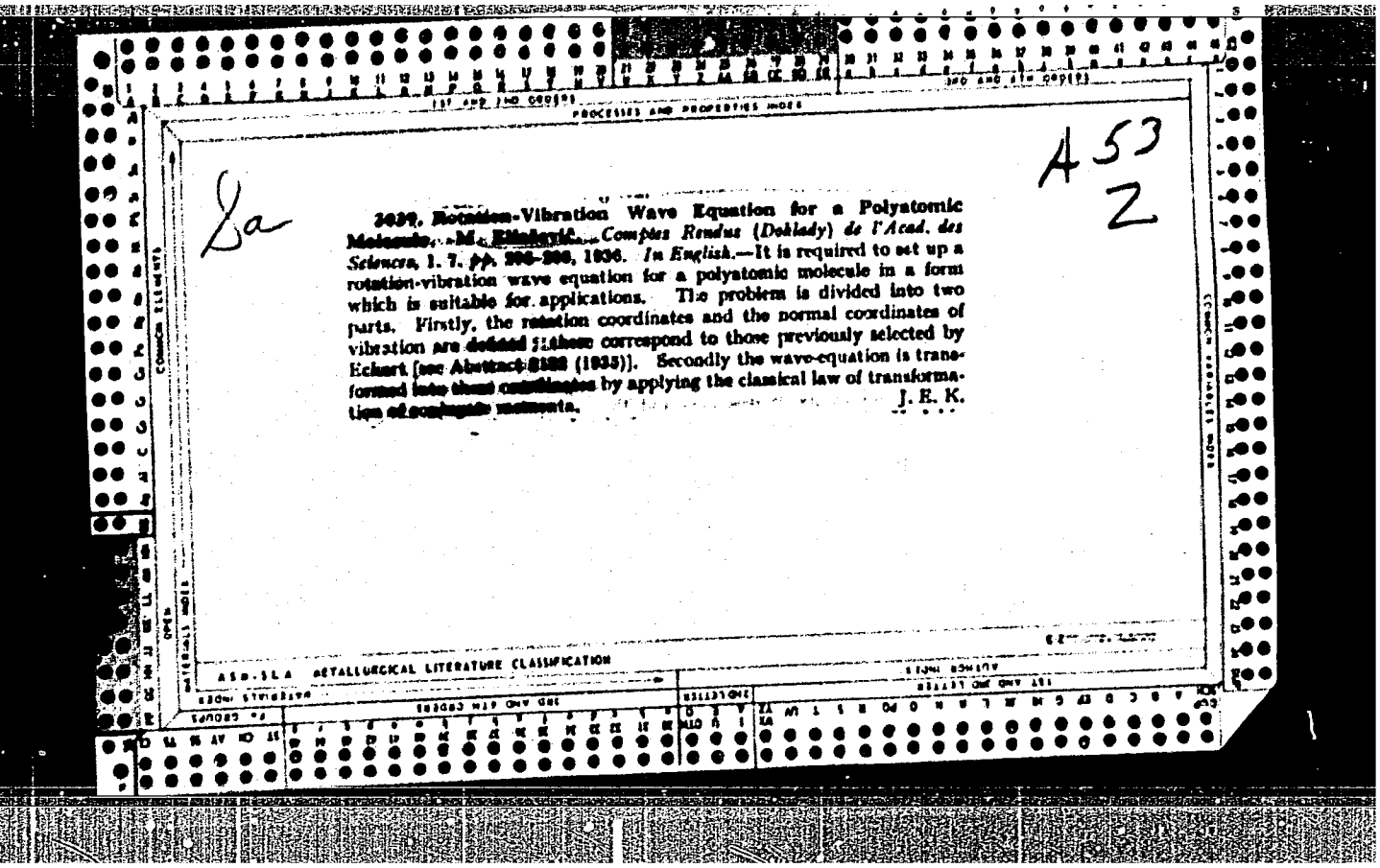
Morris Muskat



CA

2

Wave equation for a triatomic molecule. M. El'-yashevich. *Physik. Z. Sowjetunion* 6, 800-8(1934).—A method of obtaining the vibration-rotation wave equation for a polyat. mol. is given and is applied to a nonlinear triat. mol. The equation is obtained in a form convenient for the application of the perturbation method. As a special case the equation for a sym. triat. mol. is also considered.
C. DeL. West



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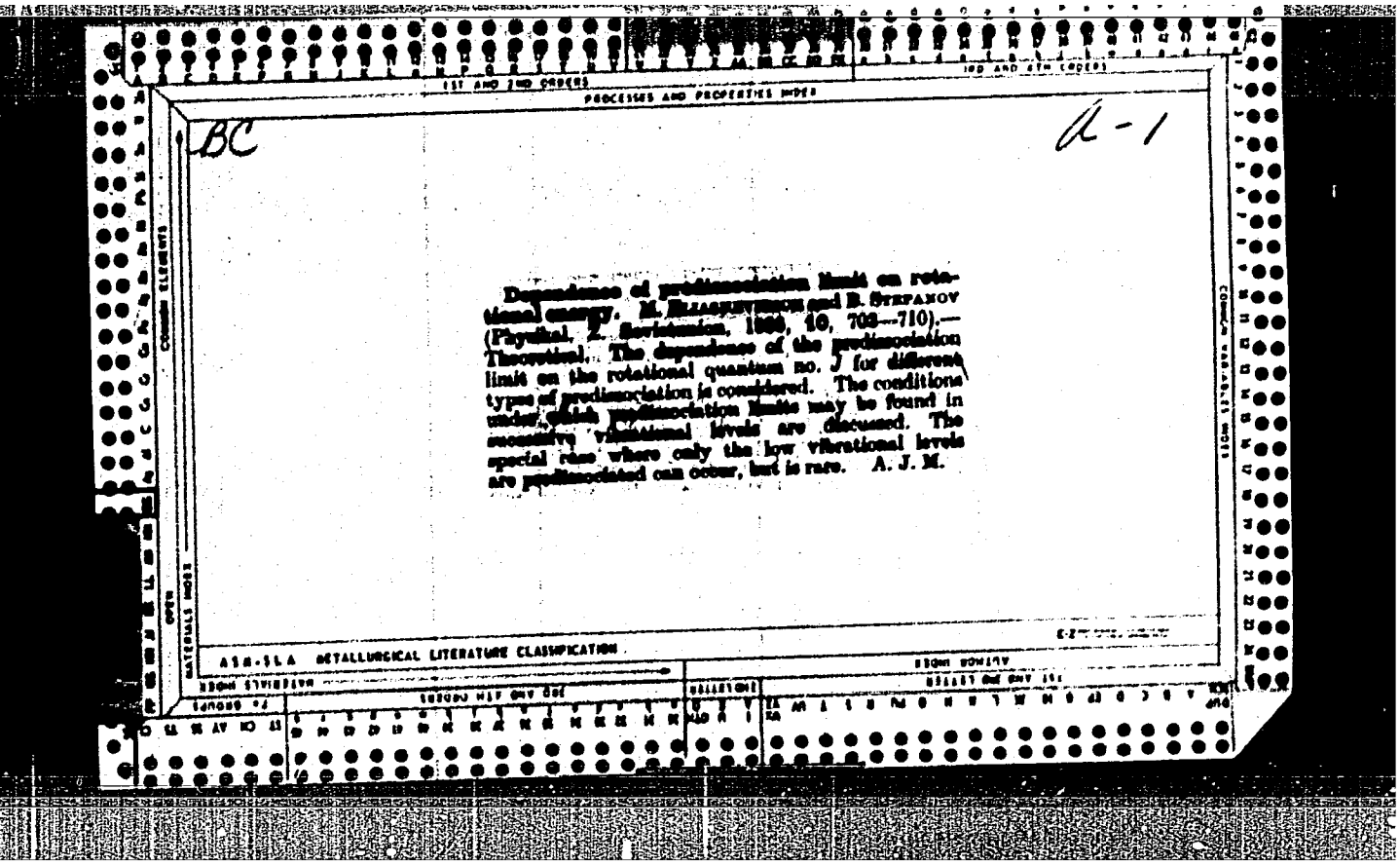
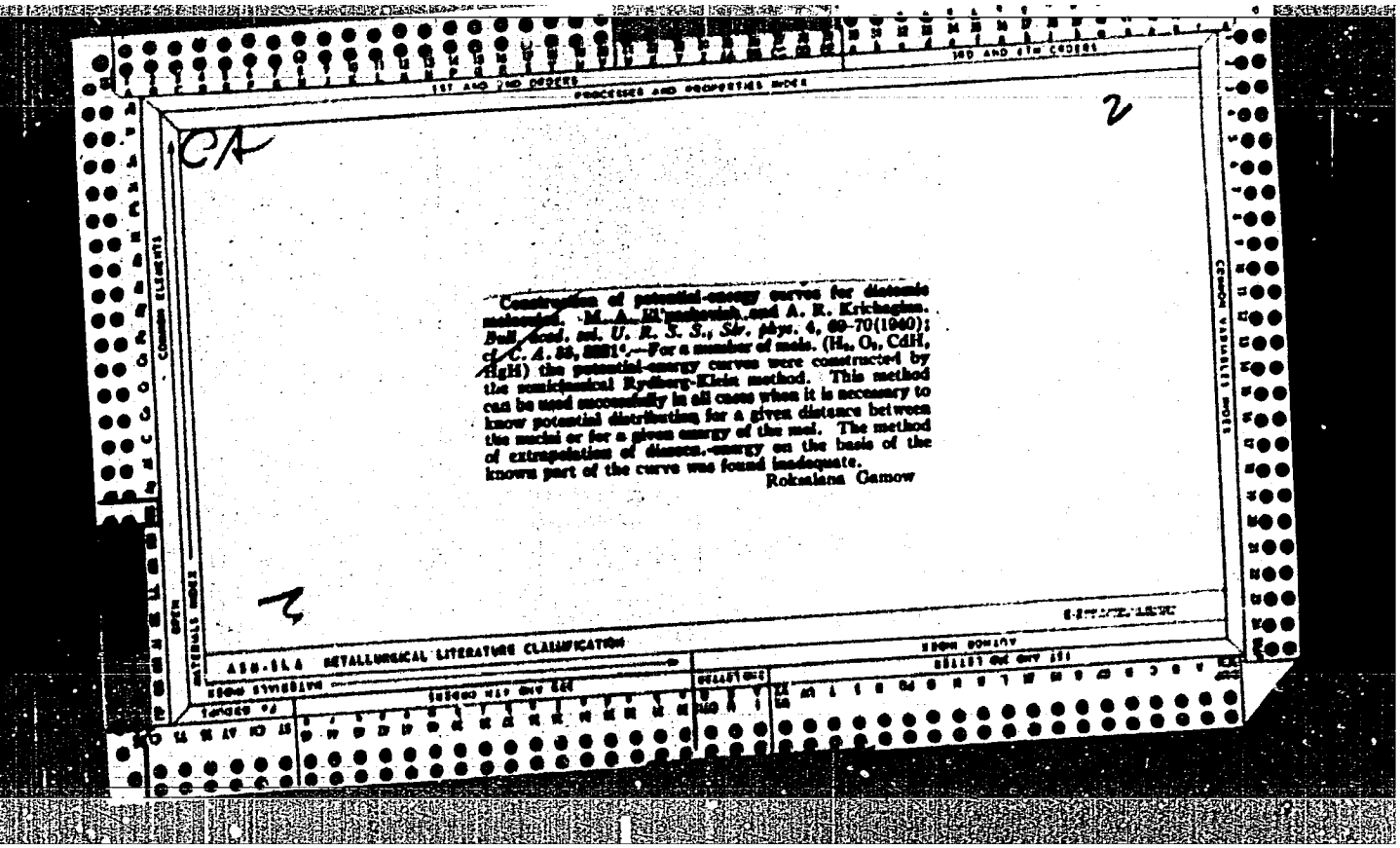
2

2039. Rotation-Vibration Wave Equation for a Polyatomic Molecule.—M. Eliashevich. *Comptes Rendus (Doklady) de l'Acad. des Sciences*, 1. 7. pp. 296-298, 1936. *In English.*—It is required to set up a rotation-vibration wave equation for a polyatomic molecule in a form which is suitable for applications. The problem is divided into two parts. Firstly, the rotation coordinates and the normal coordinates of vibration are defined; these correspond to those previously selected by Eckart [see Abstract 2128 (1935)]. Secondly the wave-equation is transformed into these coordinates by applying the classical law of transformation of conjugate momenta. J. E. K.

ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION





Construction of potential-energy curves for diatomic molecules. M. A. Il'yashevich and A. R. Krichagina. *Bull. Acad. sci. U. R. S. S., Sér. phys.* 4, 69–70(1940); cf. *C. A.* 35, 6811⁶.—For a number of mols. (H_2, O_2, CdH, AgH) the potential-energy curves were constructed by the semiclassical Rydberg-Klein method. This method can be used successfully in all cases when it is necessary to know potential distribution for a given distance between the nuclei or for a given energy of the mol. The method of extrapolation of dissocn.-energy on the basis of the known part of the curve was found inadequate.
Roksalana Gamow

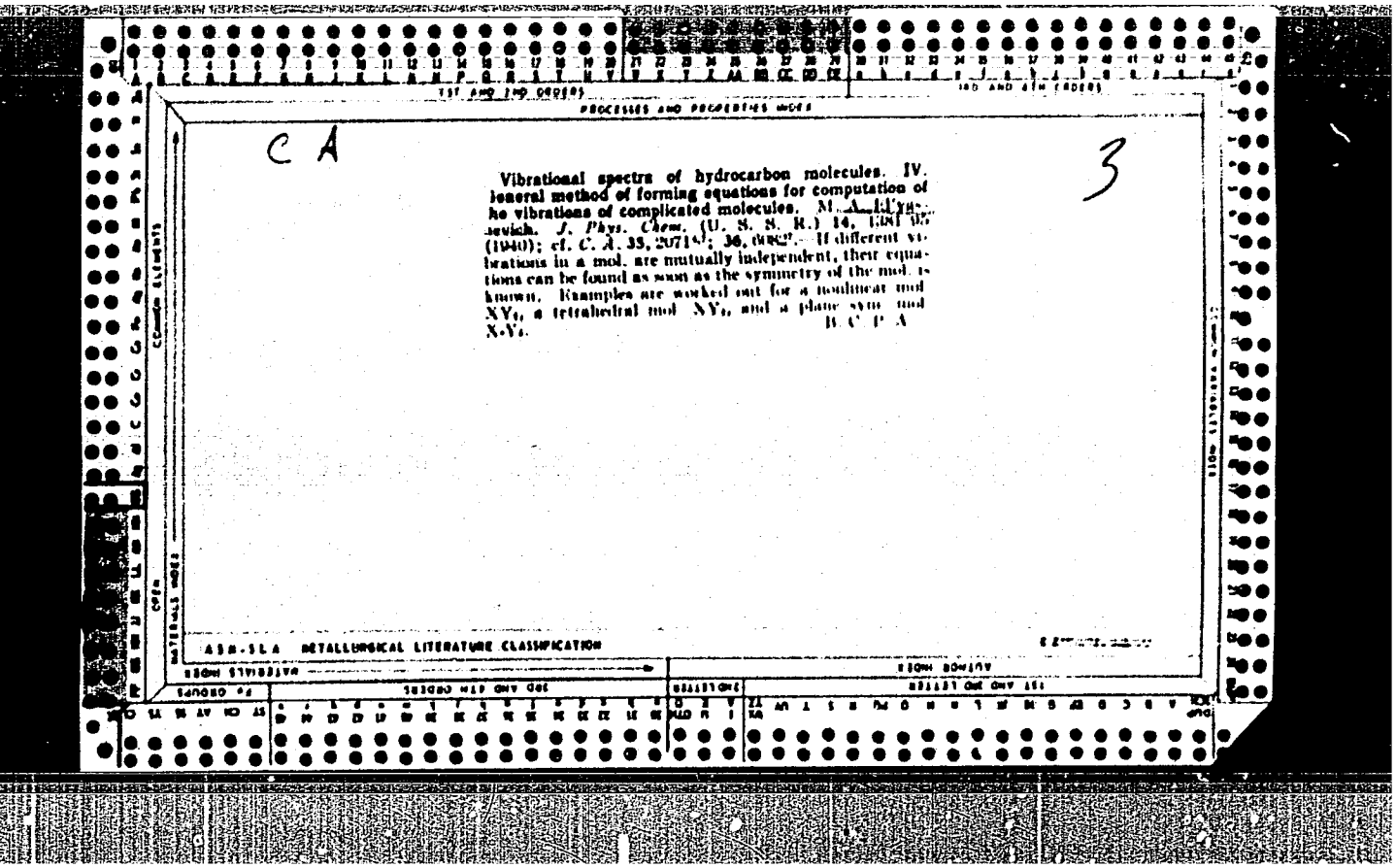
Yel'YASHEVICH, M. A.

Leningrad

Laboratory of Molecular Spectroscopy, State Optical Institute, (-1940-)

"The Oscillatory Spectra of Hydrocarbon Moledules." PartIII. "An Approximate Method of Separating the Oscillations of the CH, CH_2, and CH_3 Groups."

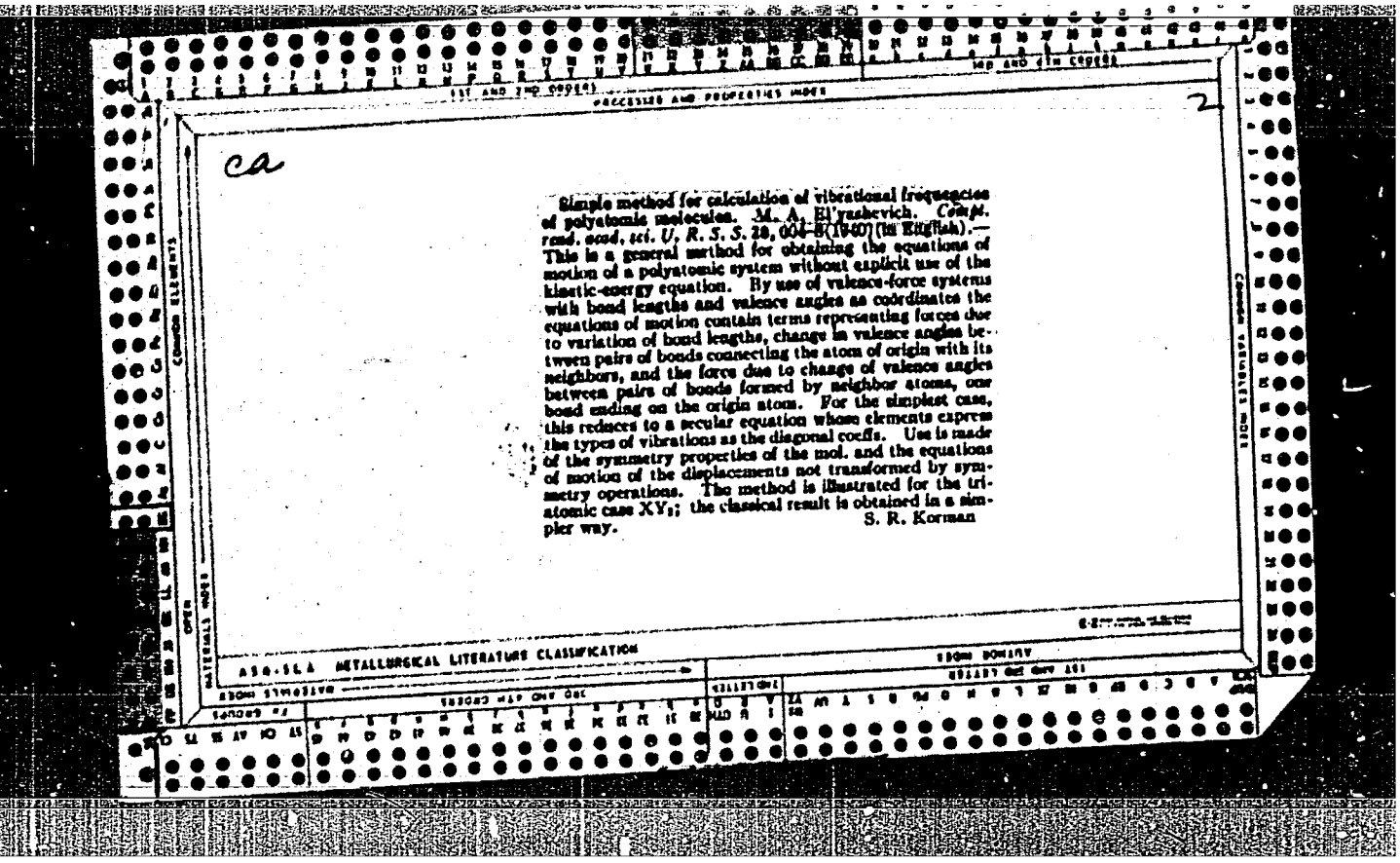
Zhur. Fiz. Khim., Vol; 14, No. 4, 1940.



C A

3

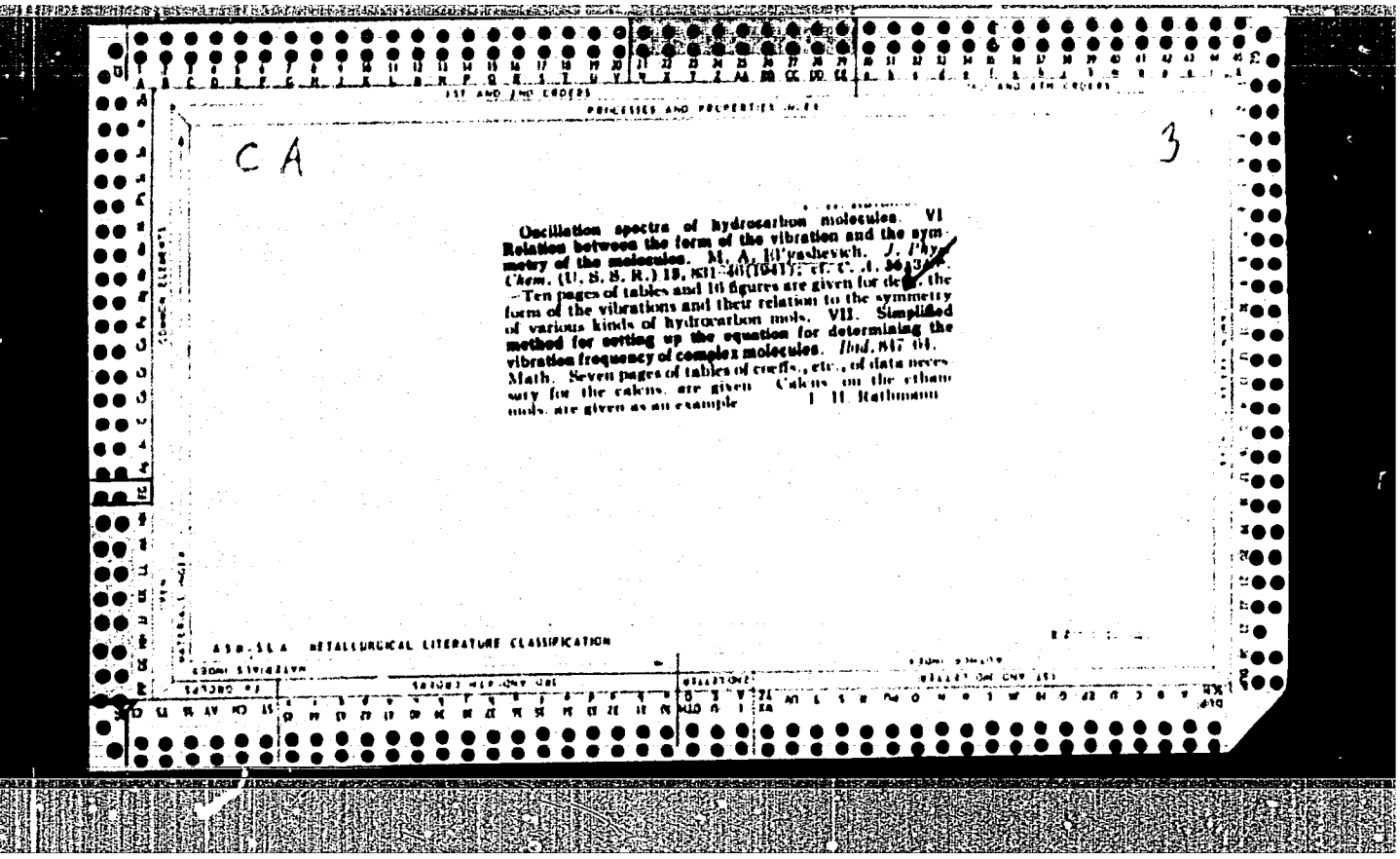
Vibrational spectra of hydrocarbon molecules. IV. General method of forming equations for computation of the vibrations of complicated molecules. M. A. Il'ya-sevich. *J. Phys. Chem.* (U. S. S. R.) 14, [illegible] (1940); cf. *C. A.* 35, 2071[illegible]; 36, 6[illegible]. If different vibrations in a mol. are mutually independent, their equations can be found as soon as the symmetry of the mol. is known. Examples are worked out for a nonlinear mol XY_6, a tetrahedral mol XY_4, and a plane symm. mol X_2Y_4. B. C. P. A



ca

Simple method for calculation of vibrational frequencies of polyatomic molecules. M. A. El'yashevich. *Compt. rend. acad. sci. U. R. S. S.* 28, 004–8 (1960) (In English).—This is a general method for obtaining the equations of motion of a polyatomic system without explicit use of the kinetic-energy equation. By use of valence-force systems with bond lengths and valence angles as coördinates the equations of motion contain terms representing forces due to variation of bond lengths, change in valence angles between pairs of bonds connecting the atom of origin with its neighbors, and the force due to change of valence angles between pairs of bonds formed by neighbor atoms, one bond ending on the origin atom. For the simplest case, this reduces to a secular equation whose elements express the types of vibrations as the diagonal coeffs. Use is made of the symmetry properties of the mol. and the equations of motion of the displacements not transformed by symmetry operations. The method is illustrated for the triatomic case XY_2; the classical result is obtained in a simpler way.

S. R. Korman



C A

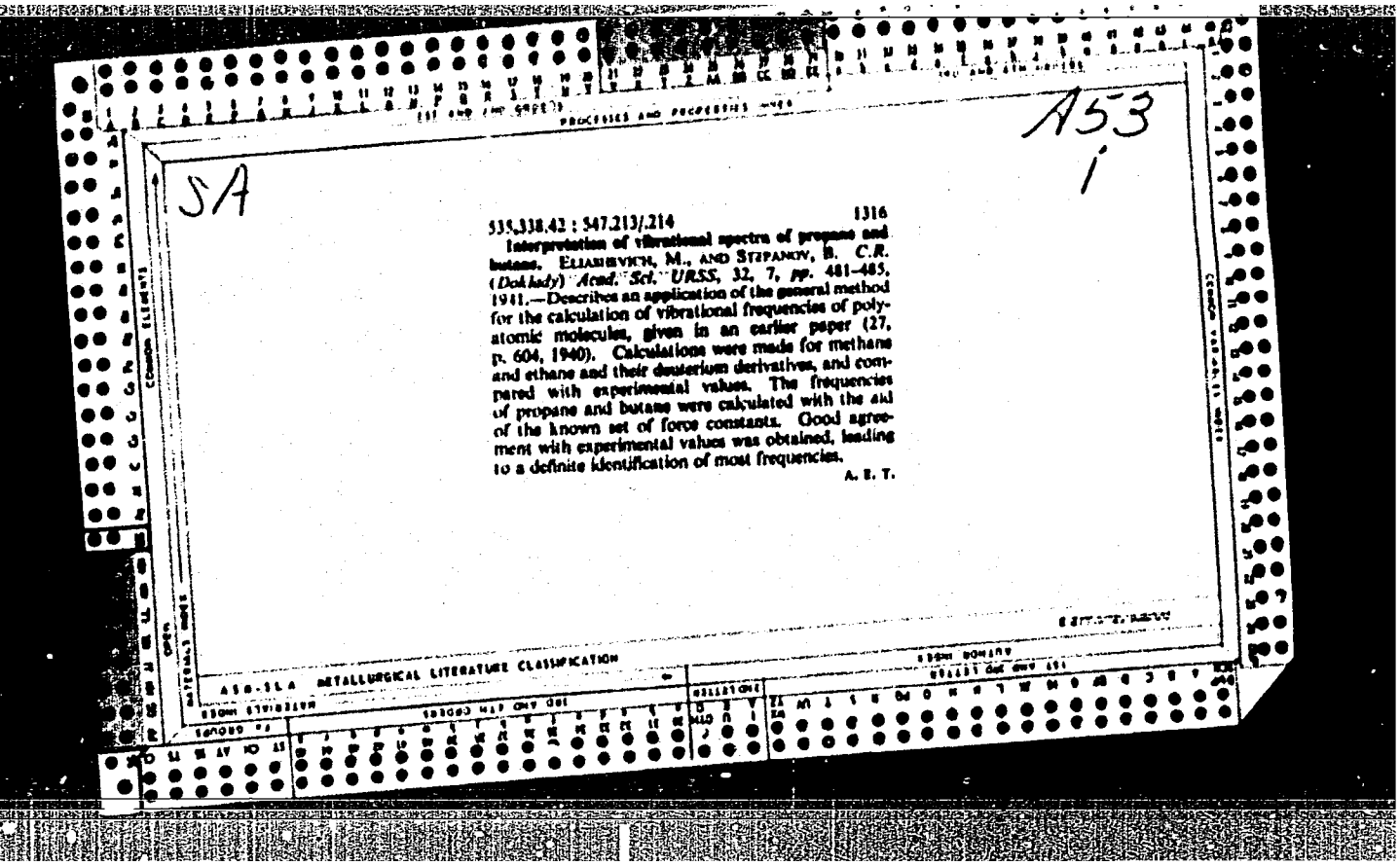
3

Oscillation spectra of hydrocarbon molecules. VI Relation between the form of the vibration and the symmetry of the molecules. M. A. Il'yashevich. *J. Phys. Chem.* (U. S. S. R.) 15, 831-40(1941); cf. C. A. 36, 3347. —Ten pages of tables and 16 figures are given for deg. the form of the vibrations and their relation to the symmetry of various kinds of hydrocarbon mols. VII. **Simplified method for setting up the equation for determining the vibration frequency of complex molecules.** *Ibid.* 847-61. Math. Seven pages of tables of coeffs., etc., of data necessary for the calcns. are given. Calcns. on the ethane mols. are given as an example. I. H. Rathmann

ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION

EL'IASHEVICH, M.A.

RT-1141 (Vibration spectra of hydrocarbon molecules. VII. A simplified method of setting up equations for the determination of vibration frequencies of polyatomic molecules) Kolebratel'nye spektry molekul uglevodorodov. VII. Uproshchennaia metodika sostavleniia uravnenii dlia opredeleniia chastot kolebanii slozhnykh molekul. ZHURNAL FIZICHESKOI KHIMII, 15(7-8): 847-864, 1941.



SA

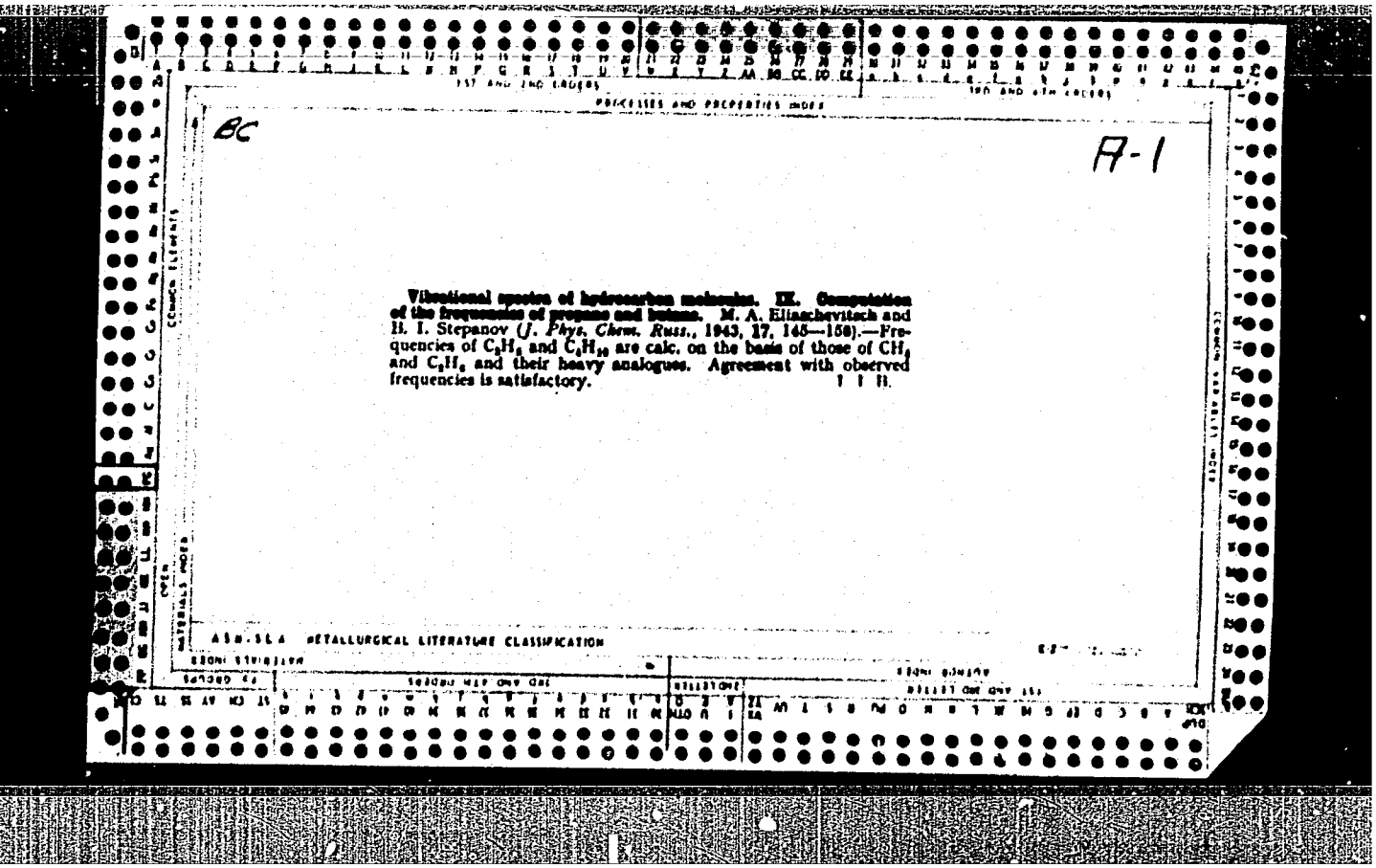
A53
1

535.338.42 : 547.213/.214 1316

Interpretation of vibrational spectra of propane and butane. ELIASHEVICH, M., AND STEPANOV, B. *C.R. (Doklady) Acad. Sci. URSS*, 32, 7, *pp.* 481–485, 1941.—Describes an application of the general method for the calculation of vibrational frequencies of polyatomic molecules, given in an earlier paper (27, p. 604, 1940). Calculations were made for methane and ethane and their deuterium derivatives, and compared with experimental values. The frequencies of propane and butane were calculated with the aid of the known set of force constants. Good agreement with experimental values was obtained, leading to a definite identification of most frequencies.

A. B. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

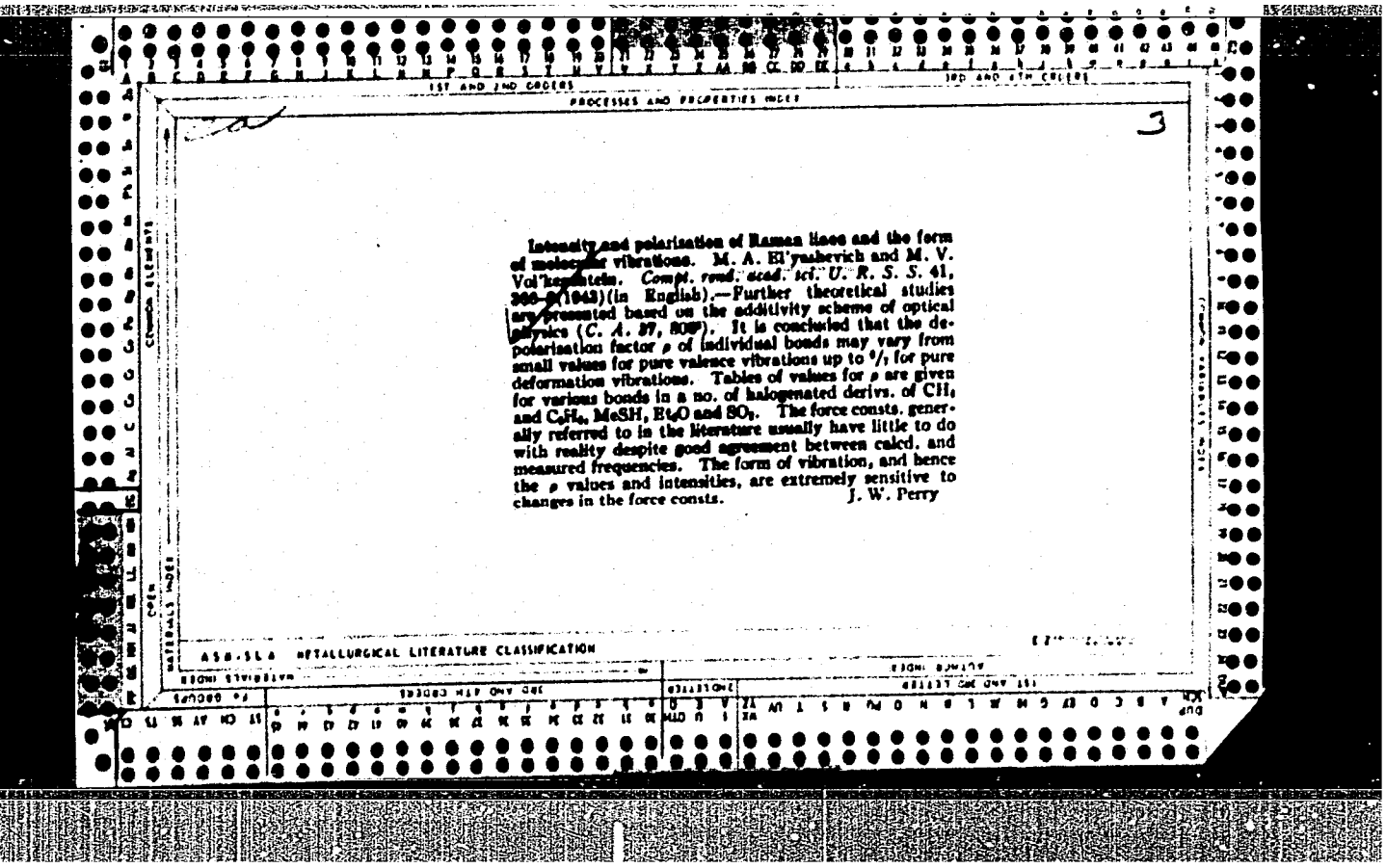


BC

A-1

Vibrational spectra of hydrocarbon molecules. IX. Computation of the frequencies of propane and butane. M. A. Elianchevitsch and H. I. Stepanov (*J. Phys. Chem. Russ.*, 1943, **17**, 145—158).—Frequencies of C_3H_8 and C_4H_{10} are calc. on the basis of those of CH_4 and C_2H_6 and their heavy analogues. Agreement with observed frequencies is satisfactory. I. I. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

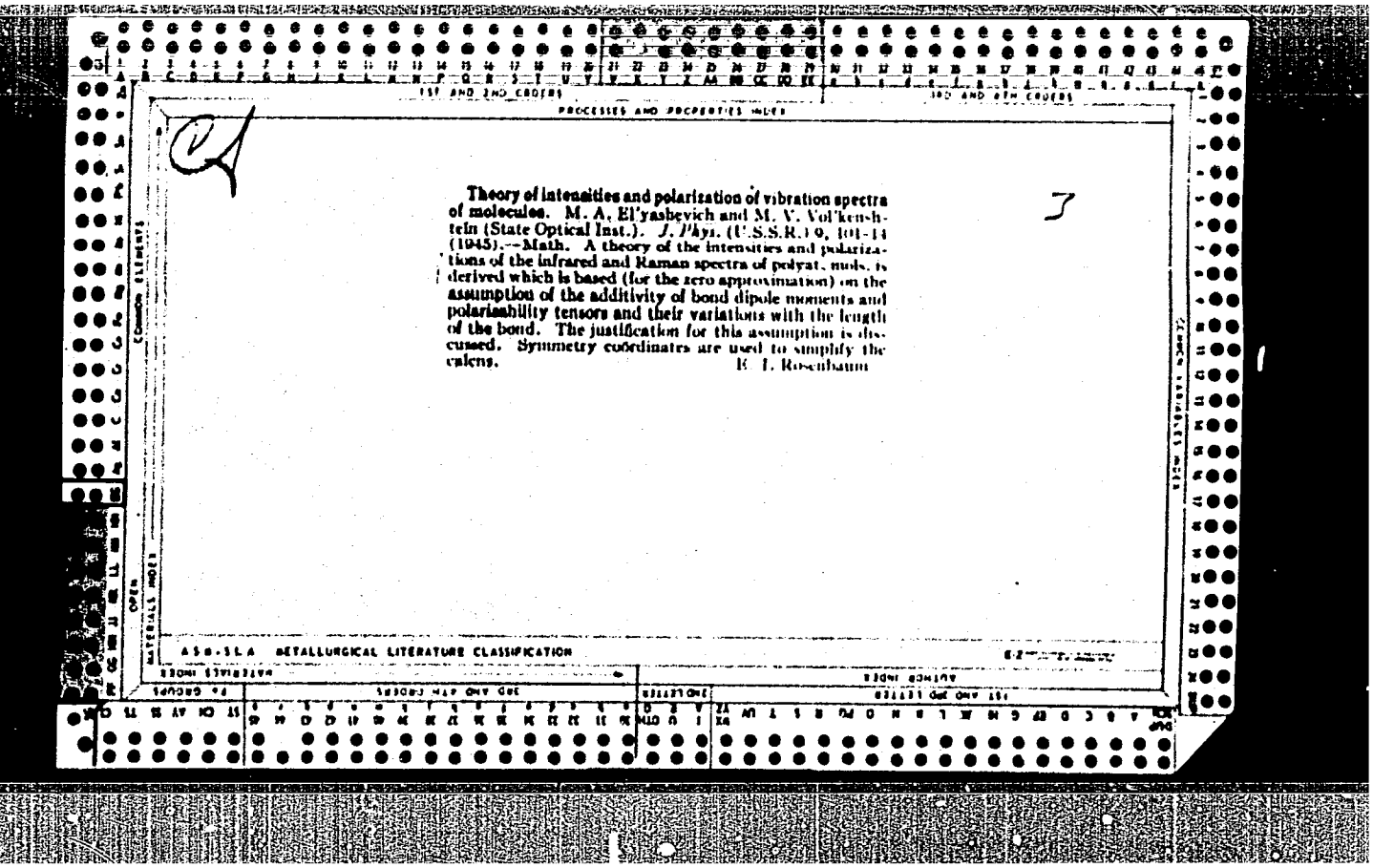


PROCESSES AND PROPERTIES INDEX

3

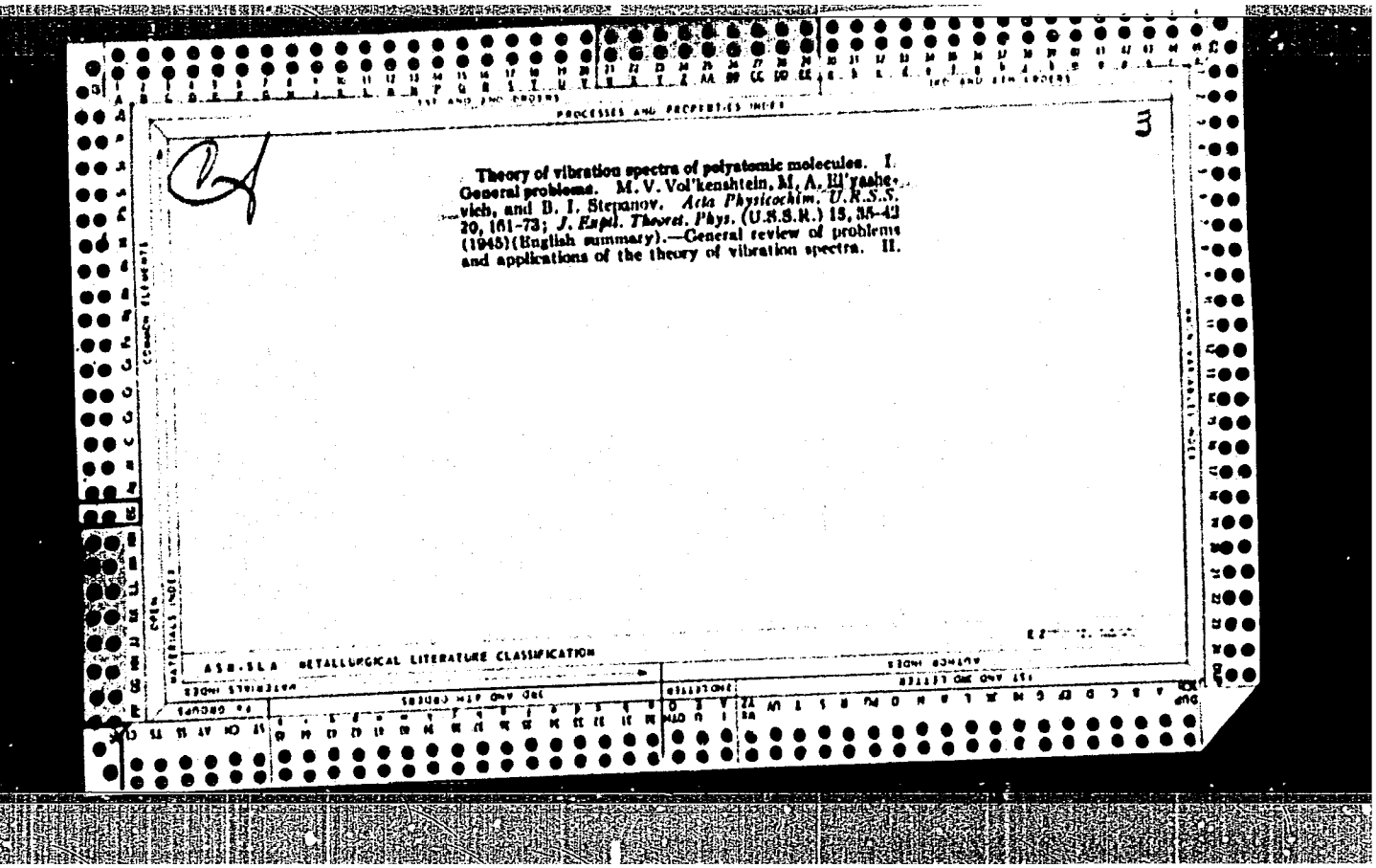
Intensity and polarisation of Raman lines and the form of molecular vibrations. M. A. El'yashevich and M. V. Vol'kenshtein. *Compt. rend. acad. sci. U. R. S. S.* 41, 299–302(1943)(in English).—Further theoretical studies are presented based on the additivity scheme of optical physics (*C. A.* 37, 808⁹). It is concluded that the depolarisation factor ρ of individual bonds may vary from small values for pure valence vibrations up to ¾ for pure deformation vibrations. Tables of values for ρ are given for various bonds in a no. of halogenated derivs. of CH_4 and C_2H_6, MeSH, Et_2O and SO_2. The force consts. generally referred to in the literature usually have little to do with reality despite good agreement between calcd. and measured frequencies. The form of vibration, and hence the ρ values and intensities, are extremely sensitive to changes in the force consts. J. W. Perry

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Theory of intensities and polarization of vibration spectra of molecules. M. A. El'yashevich and M. V. Vol'kenshtein (State Optical Inst.). *J. Phys.* (U.S.S.R.) 9, 101-14 (1945).—Math. A theory of the intensities and polarizations of the infrared and Raman spectra of polyat. mols. is derived which is based (for the zero approximation) on the assumption of the additivity of bond dipole moments and polarizability tensors and their variations with the length of the bond. The justification for this assumption is discussed. Symmetry coördinates are used to simplify the calcns.

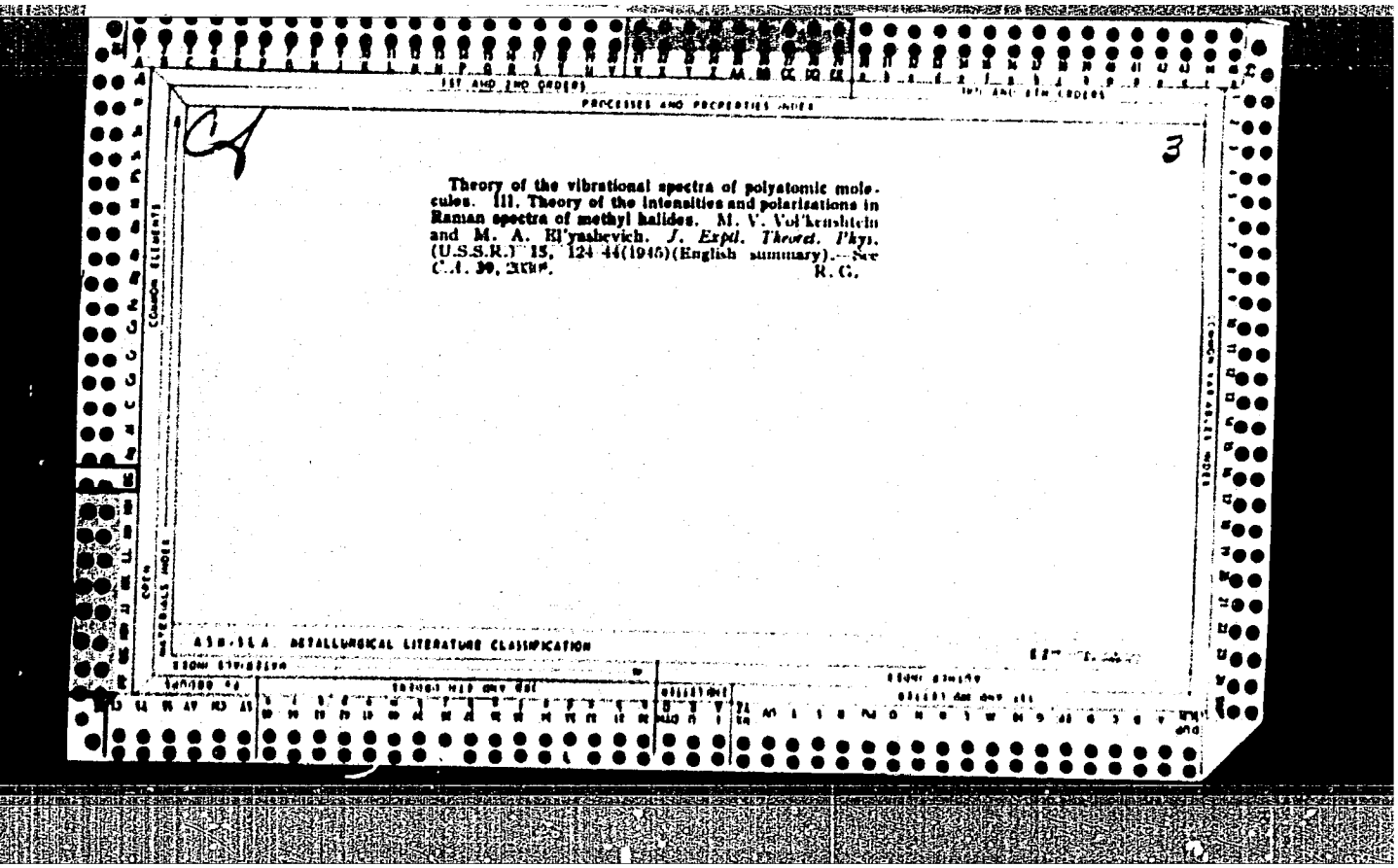
K. F. Rosenbaum



3

Theory of vibration spectra of polyatomic molecules. I. General problems. M. V. Vol'kenshtein, M. A. Il'yashevich, and B. I. Stepanov. *Acta Physicochim. U.R.S.S.* 20, 161-73; *J. Exptl. Theoret. Phys.* (U.S.S.R.) 15, 35-42 (1945)(English summary).—General review of problems and applications of the theory of vibration spectra. II.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Theory of the vibrational spectra of polyatomic molecules. III. Theory of the intensities and polarizations in Raman spectra of methyl halides. M. V. Vol'kenshtein and M. A. El'yashevich. *J. Exptl. Theoret. Phys.* (U.S.S.R.) 15, 124-44(1945)(English summary).—See *C.A.* **39**, 2088⁸. R. G.

ANDRONNIKOV, K.S.; BALAKOV, V.V.; BUZHINSKIY, A.N.; BURAGO, A.N.; VENTMAN, L.A.; VISHNEVSKIY, A.A.; VOLOSOV, D.S.; GASSOVSKIY, L.N., professor; GERSHUN, A.A., professor; YEL'YASHEVICH, M.A.; YEVSTROP'YEV, K.S.; GUREVICH, M.M., professor; KOLYADIN, A.I.; KORYAKIN, B.M.; KURITSKIY, A.L.; PAPIYANTS, K.A.; PROKOF'YEV, V.K., professor; PUTSEYKO, Ye.K.; REZUNOV, M.A.; RITYN', N.M., SAVOST'YANOVA, M.V., professor; SEVCHENKO, A.N.; SENNOV, N.I.; STOZHAROV, A.I.; FAYERMAN, G.P., professor; FEOFILOV, P.P.; TSAREVSKIY, Ye.N., professor; CHEKHMATAYEV, D.P.; YUDIN, Ye.F.; KAVRAYSKIY, V.V., professor; VAVILOV, S.I., akademik, redaktor

[Optics in military science] Optika v voennom dele; sbornik statei. Pod red. S.I.Vavilova i M.V.Savost'ianovoi. Izd. 3-e, zanovo perer. i dop. Moskva. Vol.2. 1948. 387 p. (MLRA 9:9)

1. Akademiya nauk SSSR. 2. Sostaviteli - sotrudniki Gosudarstvennogo Opticheskogo instituta (for all except Vavilov and Kavrayskiy) 3. Voyenno-morskaya akademiya (for Kavrayskiy)
(Optics)

YEL'YASHEVICH, M. A.

42044: VOL'KENSHTEYN, M. V.; YEL'YASHEVICH, M. A. - Teoriya tolyarizuemosti i printsip franka-konoona. (Doklad i prenia). Izvestiya akad. nauk SSSR. Seriya fiz., 1948, No. 5, S. 548-52. - Bibliogr: 5 nazv.

SO: Letopis' Zhurnal'nykh Statey, Vol. 47, 1948.

Polarizability and the Franck-Condon principle. M. V. Vol'kenshtein and M. A. El'yashevich (Leningrad Univ.). *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 12, 548-52(1948).—Theoretical. The polarization formula of Placzek (*Rayleigh Scattering and Raman Effect*, 1935, par. 14) is derived; the intensity of the Raman scattering would be zero if the Franck-Condon principle were a strict and not a probability law. S. Pakswer

EL'IASHEVICK, M. A.

Author: Vol'kenstein, M. V., El'iashevick, M. A., Stepanov, B. I.

Title: The vibration of molecules. (Kolebaniia molekul.) 440 p.

City: Moscow

Publisher: State Printing House of Technical and Theoretical Literature

Date: 1949

Available: Library of Congress

Source: Monthly List of Russian Accessions, Vol. 3, No. 3, Page 164

Call No: QC 173-V815

Subject: Molecular dynamics.

CA

Theories of the spectroscopic manifestations of the hydrogen bond. M. V. Vol'kenshtein, M. A. Il'yashevich, and B. I. Stepanov (Leningrad State Univ., Leningrad). *Zhur. Fiz. Khim.* 24, 1189-64(1950).—A crit. discussion.
Paul W. Howerton

YEL'YASHEVICH, M. A.

USSR/Physcis - Oscillatory Spectra 1 Feb 52

"Distribution of Intensity in the Oscillatory Spectra of Linear Chains," L. I. Vidro, B. I. Stepanov

"Dok Ak Nauk SSSR" Vol LXXXII, No 4, pp 557-560 -1952

Calculates the intensities of infrared and combinational lines for 2 simplest models - linear chains, using the valent-optical s cheme of M. V. Vol'kenshteyn and M. A. Yel'yashevich. Considers a simpel linear chain consisting of 2n 1 identical bonds: o-o-...-o-o. Acknowledges the helpful assistance of Prof M. V. Vol'kenshteyn. Submitted by Acad A. N. Terenin 4 Dec 51.

PA 213T112

YEL'YASHEVICH, M, A.

Spektry redkikh zemel' (Spectra of rare earths) Moskva, Gos. Izd-vo Tekhniko-teoreticheskoy Lit., 1953.
456 p. Diagrs., Tables.
"Literatura": P. 443-452.

SO: N/5
613.824
.Y4

YEL'YASHEVICH, M.A

262T82

USSR/Physics - Spectra, Oscillatory 21 Jul 53

"Computation and Interpretation of Oscillatory Spectra of Formic Acid (Monomer) and Its Deuterium Substitutes," L. M. Sverdlov, Saratov State U im N. G. Chernyshevskiy

DAN SSSR, Vol 91, No 3, pp 503-505

Analyzing all available exptl data, attempts to interpret spectra and to compute frequencies of formic acid by method of M. Yel'yashevich and B. Stepanov (see "Kolebaniya Molekul" (Oscillations of Molecules), 1949). Finds that his computations confirm interpretation of oscillatory spectra

262T82

and that the dynamic coeffs represent the potential mol field of formic acid. Presented by Acad G. S. Landsberg 22 May 53.

ELYASHEVICH, M.A.

USSR/ Physics - Radiospectroscopy

Card 1/1 Pub. 43 - 2/62

Authors : Elyashevich, M. A.

Title : Present state of radiospectroscopy

Periodical : Izv. AN SSSR. Ser. fiz. 18/6, 629-631, Nov-Dec 1954

Abstract : Speaking on the subject of radiospectroscopy the delegate from the A. I. Gertsen State Pedagogical Institute in Leningrad explains the principles and scientific applications of radiospectroscopy, its present status and its prospects for the future. It is pointed out that radiospectroscopy reveals new possibilities for the study of the structure of matter, so far inaccessible to optical spectroscopy, since it makes possible to determine very small differences in energy levels of atomic systems. Data about intramolecular fields, determined on the basis of quadrupole interaction can easily be obtained by radiospectroscopy.

Institution: The A. I. Gertsen State Pedagogical Institute, Leningrad

Submitted : .....

USSR/Nuclear Physics - Radio spectroscopy

Card 1/1 Pub. 118 - 2/6

Authors : Elyashevich, M. A.

Title : The contemporary state of radio spectroscopy

Periodical : Usp. fiz. nauk 54/4, 513-549, Dec 1954

Abstract : The numerous applications of radio spectroscopy in modern physics are discussed. Judging by its experimental methods radio spectroscopy is entirely different from ordinary optical spectroscopy which includes ultraviolet, visible and the infrared spectral zone of electromagnetic waves. In a theoretical sense radiospectroscopy represents a typical branch of spectroscopy including the features of the latter. The basic characteristics of radio spectroscopic methods is their high resolving power and very-high accuracy in measuring conversion frequencies. The problems and types of spectral conversions investigated by radio spectroscopic methods and some of the most important results obtained by means of these methods are reviewed. Fifty-two references: 12 USSR; 39 USA and 1 German (1937-1954). Table; graphs; drawings.

Institution: .....

Submitted: .....

VOL'KENSHTEYN, M.V.; YEL'YASHEVICH, M.A., doktor fiziko-matematicheskikh nauk, professor, redaktor; SAZONOV, L.S., redaktor; SMIRNOVA, A.V. tekhnicheskiy redaktor.

[Structure and physical properties of molecules] Stroenie i fizicheskie svoistva molekul. Moskva, Izd-vo Akademii nauk SSSR, 1955. 638 p. (MLRA 8:12)
(Molecules)

YEL'YASHEVICH, M.A. / EL'JASHEVICH, M.A.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1794
AUTHOR EL'JAŠEVIČ,M.A., NIKITINA,O.N.
TITLE The Triplet-Quintet Transitions in the Spectrum of the Silicon Atom.
PERIODICAL Dokl.Akad.Nauk, 111, fasc.2, 325-327 (1956)
Issued: 1 / 1957

At first already known data are discussed in short. O.N.NIKITINA was able, when investigating the silicon spectrum excited in a parallel current carbon arc (on the occasion of the burning out of SiO_2 from the anode channel) to discover two heavy spectral lines (λ_1 = 3006,72 Å at ν_{1vac}=33249,16 cm^{-1} and λ_2 = = 3020,00 Å (ν_{2vac} = 33102,95 cm^{-1}). The fact that these lines belong to the silicon atom was carefully verified. These lines always occur on the occasion of the excitation of the spectrum of a sample that contains a considerable quantity of silicon. Furthermore, these two lines always occur together, and the ratio of their intensity remains constant within the limits of measuring errors. The difference of their wave numbers amounts to 146.21 cm^{-1} and is (within the limits of measuring errors) identical with the difference of the wave number of the levels $^3P_2$ and $^3P_1$ of the principal triplet term of Si (^3P). Thus, these lines can naturally be interpreted as being transitions from a higher odd level to the even levels $^3P_1$ and $^3P_2$. Because of the lack of a transition to the level $^3P_0$ the upper level has the quantum number J = 2, and because of the low intensity of the lines

Dokl.Akad.Nauk, 111, fasc.2, 325-327 (1956) CARD 2 / 2 PA - 1794

are probably intercombination transitions. The level is lower than all other known odd levels of the silicon atom, and by 33326,28 cm^{-1} higher than the normal level $3s^2 3p^2 p_1^o$ (excitation energy 4,13 eV). The level 33326,28 cm^{-1} can univocally be interpreted as the quintet level $^5S_2^o$. It is then possible to interpret the lines 3006,72 and 3020,00 Å as triplet-quintet transitions: 3006,72 Å : : $3s3p^3\ ^5S_2^o - 3s^2 3p^2\ ^3P_1^o$ and 3020,00 Å : $3s3p^3\ ^5S_2^o - 3s^2 3p^2\ ^3P_2$. This interpretation agrees fully with all experimental data and theoretical deliberations. A table contains the intensities of these lines at different conditions of excitation. The relative intensities I_{3020}/I_{2970} and I_{3006}/I_{2970} are more stable than I_{3020}/I_{2577} and I_{3006}/I_{2577}. Though the two lines found here (triplet-quintet transitions) are less intense than the lines 2970,35 Å and 2577,13 Å (singlet-triplet transitions), they are of the same order, as it ought to be. The greater intensity of the line 3020,00 Å (greater than the intensity of the line 3006,72 Å) corresponds qualitatively to the greater statistical weight of the level $^3P_2$ as against the level $^3P_1$. The theoretical ratio of intensities is 5:3=1,67. A quantitative agreement can in such cases not be expected.

INSTITUTION: Institute for Physics and Mathematics of the Academy of Science in the White-Russian SSR.
Institute for the Chemistry of Silicates of the Academy of Science in the USSR

STEPANOV, Boris Ivanovich, akademik; YEL'YASHEVICH, M.A., akademik, nauchnyy red.; SHEVLAK, V.A., red.

[Spectral analysis] Spektral'nyi analiz. Minsk, 1958. 34 p. (Obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii Belorusskoi SSR. Ser.29) (MIRA 12:9)

1. AN BSSR (for Stepanov, Yel'yashevich).
(Spectrum analysis)

YEL'YASHEVICH, M.A.

Symmetry properties of molecules and crystals and the general classification of point groups. Dokl.AN BSSR 3 no.2:44-46 F '59. (MIRA 12:5)
(Crystals)

YEL'YASEVICH, M. A.

"Molecular vibrations."

report to be submitted at Gordon Research Conferences - New London, New Hampton, and Meriden, N.H., 13 June-2 Sep 60.

Institute of Physics and Mathematics, Minsk.

S/053/60/071/01/04/011
B006/B011

AUTHORS: Borisevich, N. A., Yel'yashevich, M. A., Stepanov, B. I.

TITLE: Eighth All-Union Conference on Luminescence

PERIODICAL: Uspekhi fizicheskikh nauk, 1960, Vol. 71, No. 1, pp. 131-136

TEXT: This Conference was held at Minsk from October 19 to 24, 1959. It had been convened by the Nauchnyy sovet po lyuminestsentsii AN SSSR (Scientific Council for Luminescence of the AS USSR) jointly with the Institut fiziki AN BSSR (Institute of Physics of the AS BSSR) and the Belorusskiy gosudarstvennyy universitet (Belorussian State University). The Conference was attended by 300 delegates, among them 200 from Moscow, Leningrad, Kiyev, Sverdlovsk, Yerevan, Tartu, Poltava, Saratov, Chita, and other centers of the Soviet Union. More than 100 lectures were delivered. Lecturers were A. N. Terenin and V. L. Yermolayev, Leningrad, (intramolecular energy transfer); V. L. Yermolayev, I. P. Kotlyar, and K. K. Svyatashev (internal conversion from the fluorescence singlet level on the phosphorescence triplet level in naphthalene derivatives); A. N. Terenin and A. V. Shabl' (discovery of phototransport of proton); L. G.

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Pikulik, Minsk (temperature dependence of electron spectra of complex molecules in solution); L. G. Pikulik and A. N. Sevchenko (temperature dependence of quantum yield of fluorescence of phthalimides in high-boiling solvents; V. V. Zelinskiy, V. A. Borgman, I. A. Zhmyreva, V. P. Kolobkov, and I. I. Reznikova, Leningrad (luminescence characteristics of complex molecules); V. V. Zelinskiy, I. A. Zhmyreva, V. P. Kolobkov, A. S. Kotemirovskiy, and I. I. Reznikova (influence of solvents on the spectra of complex organic molecules); N. G. Bakhshiyev (Leningrad) spoke on the same subject. Further lectures were delivered by Ye. I. Bozhevol'nov, Moscow (investigation of fluorescence properties of organic molecules); B. Ya. Sveshnikov and P. I. Kudryashov, Leningrad (concentration depolarization of the fluorescence of solvents); G. P. Gurinovich, A. M. Sarzhevskiy, and A. N. Sevchenko, Minsk (investigation of the extreme polarization degree of the luminescence of complicated molecules in methyl methacrylate); B. A. Zadorozhnyy and Yu. V. Naboykin, Moscow (investigation of the luminescence of over 20 systems with intra-molecular hydrogen bonds); again these authors with B. G. Distanov, L. A. Ogurtsova, L. M. Podgornaya, and V. I. Tishchenko (investigation of the luminescence of pyrazoline derivatives); L. D. Derkacheva, Moscow (change

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in the fluorescence of naphthalene in dependence on the concentration of hydrogen ions); L. V. Levshin and V. A. Bocharova, Moscow (investigation of concentration effects in solutions of different organic compounds); G. M. Kislyak, Poltava (phosphorescence of certain solvents and their influence on the absorption spectra of organic phosphors); L. V. Volod'ko, A. N. Sevchenko, and D. S. Umreyko, Minsk (luminescence of uranyl compounds); T. I. Kobyshev, Leningrad (properties of luminescent uranyl ions in the adsorbed state); P. A. Apanasevich, Minsk (quantum electrodynamic method of computing the light absorption and -emission by matter); P. A. Apanasevich and G. S. Kruglik, Minsk (angular distribution of resonance luminosity of vapors); V. P. Gribkovskiy and B. I. Stepanov, Minsk (classical and quantum-theoretical methods of calculating optical properties of a harmonic oscillator); B. I. Stepanov and A. M. Samson, Minsk (influence of secondary processes of light absorption and -emission on the characteristic of resonance luminosity); A. M. Samson, Minsk (method of calculating secondary effects in the luminescence of matter); V. M. Agranovich and Yu. V. Konobeyev, Moscow (reabsorption of light in crystals); S. I. Kubarev, Moscow (mathematical treatment of spectroscopic problems); K. K. Rebane and O. I. Sil'd, Tartu (computation of the probabilities of

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vibrational electron transitions of an oscillator in different approximations); Yu. A. Kurskiy and A. S. Selivanenko, Moscow (phenomenological theory of extinction); M. A. Yel'yashevich, Minsk (interaction of electron motion with vibrations in complex molecules); L. P. Kazachenko, Minsk (calculation of absorption- and luminescence band forms of complex molecules without mirror symmetry); M. N. Alentsev and L. A. Pakhomycheva, Moscow (experimental verification of the universal relation between the spectra of luminescence and the absorption of complex molecules by B. I. Stepanov); B. S. Neporent and S. O. Mirumyanets, Leningrad (luminescence of vapors of complex molecules); N. A. Borisevich and V. A. Tolkachev, Minsk (temperature dependence of fluorescence yield of vapors of complex molecules); V. P. Klochkov, Leningrad (interaction between aromatic molecules in vapors); N. A. Borisevich and V. V. Gruzinskiy, Minsk (systematic investigation of electron spectra of fluorescent vapors and anthraquinone solutions); E. V. Shpol'skiy, Moscow, jointly with L. A. Klimova (spectroscopic investigation of aromatic hydrocarbons - Shpol'skiy effect); R. I. Personov (absorption- and fluorescence spectra of perylene); A. Ya. Khesina (spectra of perylene derivatives); D. N. Shigorin, R. N. Nurmukhametov, N. S. Dokunikhin,

and N. A. Shcheglova, Moscow (investigation of luminescence spectra of halogen derivatives of anthraquinone in dependence on the molecular structure); S. G. Bogomolov, R. F. Pemova, and L. P. Kolosova, Sverdlovsk (semiquantitative determination of 3,4-benzpyrene with the Shpol'skiy effect); M. T. Shpak and Ye. F. Sheka (investigation of luminescence of crystalline naphthalene); A. V. Solov'yev (influence of additional impurities on the absorption- and luminescence spectra in molecular crystals); V. L. Broude and V. S. Medvedev (luminescence of anthracene in different solvents); A. N. Faydysh (luminescence and photoconductivity of anthracene crystals in dependence on the excitation conditions); V. I. Gribkov and D. N. Zhevandrov, Moscow (investigation of the sudden polarization change, caused by the introduction of free exitons, at the shortwave edge of the luminescence spectrum in molecular crystals); V. M. Agranovich, Moscow (theory of exiton luminescence); Ch. B. Lushik, N. Ye. Lushik, and K. K. Shvarts, Tartu (investigation of electron vibration processes in solid solutions of mercury-like ions); Ya. Ya. Kirs and A. I. Laysaar, Tartu (influence of high pressures on the spectral characteristics of luminescence spectra of some solid solutions); M. U. Belyy and B. F. Rud'ko, Kiyev (temperature dependence of luminescence- and absorption

spectra of different frozen solutions); Ye. V. Anufriyeva and A. D. Zaytseva, Leningrad (relationship between the vitrification of polymers and their phosphorescence properties); L. T. Kantardzhyan, E. V. Grigoryan, and S. S. Chikinyan, Yerevan (investigation of different ion forms of uranin and fluorescein at different pH of solution); L. T. Kantardzhyan and V. S. Adamov (an attempt of explaining the nonexponential extinction law of phosphorescence in the presence of secondary effects); Sh. D. Khan-Magometova, N. D. Zhevandrov, and V. I. Gribkov, Moscow (investigation of the intensity drop of photoluminescence after irradiation of mixed anthracene and naphthacene crystals); Z. A. Chizhikova, Moscow (experimental determination of the energy yield of radioluminescence of organic substances under the action of γ-radiation); I. M. Rozman, Moscow (investigation of thermoextinction); Yu. V. Naboykin, V. K. Dobrokhotova and V. V. Uglanova, Moscow (scintillation properties and fluorescence spectra of naphthalene-, stilbene, diphenyl- and other single crystals with impurities); T. N. Godnev, R. V. Yefremova, N. P. Ivanov, and L. A. Kravtsov, Minsk (investigation of chlorophyll formation in leaves); A. A. Krasnovskiy and F. F. Litvin, Moscow (investigation of chemoluminescence spectra of chlorophyll and fluorescence spectra and

afterglow of leaves); G. P. Gurinovich, A. N. Sevchenko, and K. N. Solov'yev, Minsk (investigation of the polarization of fluorescence of porphyrins and phthalcyanides); V. A. Fedorov and S. I. Freyvert, Leningrad (on a two-beam photoelectric fluorimeter for the quantitative determination of uranium; type: LYuF-57); K. P. Stolyarov and N. N. Grigor'yev, Leningrad (method for the qualitative microchemical analysis with identification of the ions after their formation of chemical compounds); D. P. Shcherbov, R. N. Korzheva, and A. I. Ponomarenko, Alma-Ata (investigation of the fluorescence reaction of boron with benzoyl, method of boron determination); D. P. Shcherbov and R. N. Korzheva, Alma-Ata (fluorescence excitation and problems of fluorometry); T. V. Gurkina and A. V. Drobachenko, Alma-Ata (boron determination with a sensitive fluorometer - limit: 0.06 μg/ml); Ye. A. Bozhevol'nov and G. V. Serebryakova, Moscow (investigations with the "Lyumomagnezon IRYeA"); Ye. A. Bozhevol'nov and V. M. Yanishevskaya (luminescence method of aluminum determination); V. K. Matveyev, Moscow (industrial synthesis of a red-glowing luminophosphor); V. V. Patrikeyev and V. K. Matveyev, Moscow (a new method of marking sand with luminophores); N. S. Borodin, Ye. A. Galashin, N. Ya. Semyakina, and V. N. Silayeva, Moscow (phosphorescence of

distribution zones of colorless substances on chromatographic paper at low temperatures); I. N. Yermolenko, M. Z. Gavrilov, and L. F. Gladchenko, Minsk (relationship between the luminescence intensity of cellulose and the quantity of adsorbed water); V. N. Alekseyev (luminescence-bitumen investigations); M. M. Yudilevich, Rostov-Don (semiautomatic instrument in determinations by luminescence); A. N. Faydysh, L. Ye. Chechik, A. D. Chugay, and M. I. Przhebyl'skiy, Kiyev (control of rubber quality by means of the luminescence method); M. L. Berman, Tashkent (investigation of liquid diffusion in rubber with the luminescence method); V. N. Provorov and V. D. Zaytseva, Moscow (investigation of luminescence properties of rubber and its ingredients in the production on caoutchouc basis); Ye. M. Brumberg, M. N. Meysel', and A. V. Gutkina, Leningrad, Moscow (investigation by luminescence of cells of living organs); V. Kh. Anestiadi, Kishinev (luminescence-microscopic analysis of carcinoma); M. N. Meysel' and L. V. Mirolyubova, Leningrad (luminescence-microscopic investigation of the structure of bacterial cells); A. P. Kononenko and K. N. Ishchenko-Linnik, Khar'kov (luminescence-microscopic investigation of bacteria); Yu. I. Rubinshteyn, Moscow (luminescence-microscopic investigation of the morphology and structure of some microscopic fungi);

S. M. Klimenko and N. B. Azadova, Moscow (investigation of the distribution of the antigen of flue virus in a tissue culture by means of fluorescent antibodies at different stages of infection); F. M. Kirillova, Moscow (discovery of the polio virus in tissue cultures by the method of fluorescent antibodies); Ye. A. Kabanova and Ye. N. Levina (luminescence-serological methods of detecting pathogenous microorganisms); T. A. Kalitina, Moscow (production of a fluorescent antibotulinic serum and identification of the serum of microbes Cl. botulinum by its aid); V. A. Blagoveshchenskiy and A. I. Glubokina (production of antiserums marked with luminescent dyes); S. N. Braynes, S. V. Konev, and G. P. Golubeva (investigation of the spectra of excitation of ultraviolet fluorescence of blood plasm in man and animals); Sh. D. Khan-Magometova, A. V. Gutkina, and M. N. Meysel, Moscow (UV-fluorescence spectra of animal tissue, and action exerted by X-radiation on it); S. I. Vasilov and V. I. Nikolayev, Chita (determination of the concentration of cordial glucosides in aqueous solutions by means of the luminescence method); Yu. A. Vladimirov, Moscow (systematic study of luminescence spectra, of afterglow spectra, and afterglow excitation spectra of aromatic amino acids and proteins); S. V. Konev and I. I. Kozulin, Moscow (quantitative

protein determination in milk by comparing the protein fluorescence intensity in the milk with the fluorescence of standards); V. V. Gruzinskiy, G. I. Margaylik, and A. V. Yermolovich, Minsk (determination of the vitality of the seeds of tree species by the luminescence method.

S/053/60/071/01/08/011
B006/B011

AUTHOR: Yel'yashevich, M. A.

TITLE: The Interaction Between Electron Motion and Vibrations in Complex Molecules

PERIODICAL: Uspekhi fizicheskikh nauk, 1960, Vol. 71, No. 1, pp. 156-160

TEXT: In the theory of luminescence and absorption of complex molecules the exchange of vibrational energy of the molecules with the surrounding medium plays a major role. The author of the present paper wanted to find out to what extent it is possible to study the molecular vibrational motion and the electron motion independently of each other, i.e., under which conditions one may neglect an interaction and how much importance must be attached to the latter. B. S. Neporent has already pointed out that especially in the case of molecules, for which the absorption- and emission spectrum are no more mirror-symmetrical, an interaction can no longer be neglected. This problem can be solved in the quantum-mechanical way; still, it raises considerable difficulties. In the paper under review, the author shows the way leading to a solution and offers estimations of

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the order of magnitude of interactions and their role in different processes. Results have only a qualitative nature. In this connection, the necessity of conducting more accurate investigations is pointed out, under special consideration of the nonadiabatic terms. There are 6 references, 4 of which are Soviet.

VB

YEL'YASHEVICH, M.A.; GURINOVICH, G.P.; SOLOV'YEV, K.N.

Awarding of the S.I.Vavilov Gold Medal. Usp.fiz.nauk 75 no.2:389-390 O '61. (MIRA 14:10)
(Medals)

STEPANOV, Borin Ivanovich; YEL'YASHEVICH, M.A., otv. red.; NAYDOVICH, A.N., red.; BELEN'KAYA, I.Ye., tekhn. red.

[Fundamentals of the spectroscopy of negative luminous fluxes] Osnovy spektroskopii otritsatel'nykh svetovykh potokov. Minsk, Izd-vo Belgosuniv. im. V.I.Lenina, 1961. 122 p. (MIRA 15:1) (Spectrum analysis)

APANASEVICH, P.A.; AYZENSHTADT, V.S.; YEL'YASHEVICH, M.A., akademik, red.; MARIKS, L., red. izd-va; SVIRIDOV, V., tekhn. red.

[Tables of the distribution of energy and photons in an equilibrium radiation spectrum] Tablitsy raspredeleniia energii i fotonov v spektre ravnovesnogo izlucheniia. Minsk, Izd-vo Akad. nauk BSSR, 1961. 250 p. (MIRA 15:2)

1. Akademiya nauk Belorusskoy SSR (for Yel'yashevich).
(Heat—Radiation and absorption)

YEL'YASHEVICH, M.A.; ANISIMOV, S.I.

Relaxation phenomena in the flow of gas at high speed. Dokl. AN BSSR 5 no.8:324-326 Ag '61. (MIRA 14:8)

1. Institut fiziki AN BSSR.
(Gas dynamics)

YEL'YASHEVICH, M.A.; TOMIL'CHIK, L.M.; FEDOROV, F.I.

"Critique of the foundations of the relativity theory" by A.K. Maneev. Reviewed by M.A. El'iashevich, L.M. Tomil'chik, F.I. Fedorov. Usp. fiz. nauk 74 no.4:757-759 Ag '61. (MIRA 14:8)

(Relativity (Physics))
(Maneev, A.K.)

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D237/D302

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AUTHORS: Yel'yashevich, M.A., and Anisimov, S.I.

TITLE: Relaxation phenomena in high-velocity gas flows

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 3, 1962, 103, abstract 3B669 (Dokl. AN BSSR, 1961, no. 8, 5, 324-326)

TEXT: A simple, approximate method is considered, of calculating non-uniformities of flow in problems of gaseous dynamics. The method is based on the fact that in many cases, interesting from the practical point of view, the flow appears to be locally either almost in equilibrium or almost stationary. The reason for this is that the time of relaxation τ, necessary for the thermodynamic equilibrium to establish itself in various weakly excited degrees of freedom, is very seldom temperature dependent. Also, characteristic time of the gas-dynamical process τ_o which can be defined as $\tau_o = W(d\,W/dt)^{-1}$ (W - specific enthalpy), depends on the local temperatures to an even smaller extent. Hence, the temperature inter-

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val in which τ and τ_0 are comparable, is very narrow. In the zero approximation in solutions of gas-dynamical problems it can be assumed that in the regions where $\tau \ll \tau_0$ the flow is in equilibrium, while for $\tau \gg \tau_0$ it is stationary. The surface where $\tau = \tau_0$ resembles the surface of discontinuity for the derivative da/dx where a - a magnitude characteristic for an unstable process, e.g. degree of dissociation or energy of molecular vibrations. At $\tau \ll \tau_0$, da/dx = $\overline{da/dx}$ ($\bar{a}$ - equilibrium magnitude), while for $\tau \gg \tau_0$, da/dx = 0. All the entropy changes concentrate on the surface of discontinuity, as equilibrium and stationary flows are isentropic. As an example, the dependence of the magnitude ln τ/τ_0 on the x-coordinate is calculated for recombination of oxygen in the flow through a conical nozzle. Initial temperature and pressure were 5000°C and 0.1 atm. The graph shows that a hundredfold change of τ/τ_0 occurs at a distance equal to the diameter of a critical cross-section, i.e. a stationary flow occurs very seldom. More exact calculations can be performed by the method of successive approximations, using the solution obtained by the above method, as a zero approximation. [Abstractor's note: Complete translation].

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YELYASEVICH, M. A.

"On the Classificati n of Point Gro ps for Molecules "

Paper presented at the First International Symposium on Molecular Structure and Spectroscopy, Tokyo, 10-15 Sep 62

Academy of Sciences of the SSR, Minsk.

FRISH, S.E., otv. red.; BOBOVICH, Ya.S., kand. fiz.-matem. nauk, red.; VOL'KENSHTEYN, M.V., doktor fiz.-matem. nauk, red.: GALANIN, M.D., doktor fiz.-matem. nauk, red.; DRUKAREV, G.F., doktor fiz.-matem. nauk, red.; YEL'YASHEVICH, M.A., akademik, red.; KALITEYEVSKIY, N.I., doktor fiz.-matem. nauk, red.; KUSAKOV, M.M., doktor khim. nauk, red.; LIPIS, L.V., doktor tekhn.nauk, red.; PEKAR, S.I., doktor fiz.-matem. nauk, red.; PROKOF'YEV, V.K., doktor fiz.-matem. nauk, red.; SOKOLOV, N.D., doktor fiz.-matem. nauk, red.; FEOFILOV, P.P., doktor fiz.-matem. nauk, red.; CHULANOVSKIY, V.M., doktor fiz.-matem. nauk, red.; SHPOL'SKIY, E.V., doktor fiz.-matem. nauk, red.; YAROSLAVSKIY, N.G., kand. fiz.-matem. nauk, red.; LEKSINA, I.Ye., red. izd-va; PENKINA, N.V., red. izd-va; NOVICHKOVA, N.D., tekhn. red.; KASHINA, P.S., tekhn. red.

[Physical problems in spectroscopy]Fizicheskie problemy spektroskopii; materialy. Moskva, Izd-vo Akad. nauk SSSR. Vol.1. 1962. 474 p. (MIRA 16:2)

1. Soveshchaniye po spektroskopii. 13th, Leningrad, 1960. 2. Chlen-korrespondent Akademii nauk SSSR (for Frish). 3. Akademiya nauk Belorusskoy SSR (for Yel'yashevich).
(Spectrum analysis)

GRECHIKHIN, L.I. [Hrachykhin, L.I.]; MOLYAREVICH, M.A. [Bol'iashevich, M.A.]

Broadening of sodium and lithium lines in nonuniform fields. Vestsi AN BSSR. Ser. fiz.-tekhn. nav. no.4:37-41 '62. (MIRA 18:4)

PHASE I BOOK EXPLOITATION SOV/6048

Yel'yashevich, Mikhail Aleksandrovich

Atomnaya i molekulyarnaya spektroskopiya (Atomic and Molecular Spectroscopy) Moscow, Fizmatgiz, 1962. 892 p. 9000 copies printed.

Eds.: L. F. Veres and Ye. Ye. Zhabotinskiy; Tech. Ed: N. Ya. Murashova.

PURPOSE: This book is intended for spectroscopists, specialists in related fields, scientific workers, engineers, and advanced students.

COVERAGE: The book contains an introduction to spectroscopy and surveys of atomic and molecular spectroscopy. The results of research in the optical region of spectrum as well as of radiospectroscopic investigations of atoms and molecules are discussed. Attention is given to problems of chemical bonds in diatomic and polyatomic molecules. The author thanks E. V. Shpol'skiy, V. K. Prokf'yev,

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Atomic and Molecular (Cont.)

B. S. Neporent, who read the manuscript, and O. V. Sokolova, who transcribed the lectures on which the book is based. There are 387 references, mostly Soviet.

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PART II. ATOMIC SPECTROSCOPY

Atomic and Molecular (Cont.)

PART III. MOLECULAR SPECTROSCOPY

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AD/dk/ldc
10/15/62

GRACHYKHIN, L.I

S/201/62/000/004/002/005
D234/D308

AUTHORS: Hrachykhin, L.I. and Yel'yashevich, M.A.

TITLE: Broadening of sodium and lithium lines in inhomogeneous fields

PERIODICAL: Akademiya navuk Byelaruskay SSR. Vestsi. Seriya fizika-tekhnichnykh navuk, no. 4, 1962, 37-41

TEXT: Using V.S. Miliyanchuk's results (Dis. L'vov, 1956) the authors compute the Stark splitting of 4982.8 and 5688.1 Å lines of Na and 4132.3, 4603, 6103.5 Å lines of Li, for $n_+ + n_- = 10^{17}$ and $10^{18} cm^{-3}$. If n_- is larger than n_+ there is an asymmetry in broadening, with a displacement of the maximum towards smaller wavelengths. The difference of the long-wave and short-wave part of the line and the displacement of the maximum increase linearly with the difference of concentration $n_+ - n_-$. If n_+ is larger than n_- the asymmetry and the displacement change their signs with respect to the center of the line. There are 3 figures and 1 table.

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YELYASHEVICH, M.A., (Prof.)

"Some questions of the theory of spectral lines broadening in the electric arc plasma."

Report presented at the Spectroscopicum, 11th Intl. Colloq, Belgrade, Yug, 30 Sep - 4 Oct 63.