SHPITSBERG, I.F.

Introduction. Biul.sta.opt.nabl.isk.sput.Zem. no.9:4-12 '60. (MIRA 14:7)

(Artificial satellites--Tracking)
(Astronomy--Tables, etc.)

S/0269/64/000/001/0025/0025

ACCESSION NR: AR4014617

SOURCE: RZh. Astronomiya, Abs. 1.51.178

AUTHOR: Shpitsberg, I. P.

TITLE: Refraction tables for the Arctic and Antarctic

CITED SOURCE: Tr. 15-y Astrometr. konferentsii SSSR, 1960. M.-L., AN SSSR, 1963, 242-246

TOPIC TAGS: refraction, mean refraction, refraction table, Arctic, Antarctic, refraction theory, high-latitude refraction, zenith distance

TRANSLATION: A description is given of refraction tables compiled in 1959 at the Institute of Theoretical Astronomy, adapted for observation conditions in the high latitudes. The tables are based on the Gulden refraction theory; in comparison with the Pulkovo refraction tables there is a considerable broadening of the range of change of temperature (to -50°) and pressure (to 300 mm Hg) and the temperature t = -20° is used for mean refraction. The tables are compiled for

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values of refraction itself, not its logarithm. It is noted that refraction tables in common use abroad are compiled using the Garfinkel and Radeau theories. Comparison of refraction determined using the Gulden and Radeau theories reveals a considerable discrepancy for large zenith distances, attaining 2' for $z = 90^{\circ}$, $t = -20^{\circ}$ and $b = 760$ mm Hg. Bibliography of 8 titles. Kh. Potter.

DATE ACQ: 19Feb64 SUB CODE: AS ENCL: 00

Card 2/2

SHPITSBERG, V.S.

SHPITSBERG, V.S., inzh.

Snow fences. Put' i put. khoz. no.1:8-10 Ja '58. (MIRA 11:1)
(Railroads--Snow removal and protection)

SHPITSER, S.M. (g. Leningrad)

Research in the Antarctic. Nauka i zhizn' 24 no.3:56 Mr '57.
(MLRA 10:5)

(Antarctic regions--Ichthyology)

SHPITSINA, G.K.

Chemical composition of the antigens of the tularemia bacterium. Dokl. AN SSSR 105 no.2:315-318 '55. (MLRA 9:3)

1. Institut epidemiologii i mikrobiologii imeni N.F. Gamaleya Akademii meditsinskikh nauk SSSR.
(Antigens and antibodies) (Tularemia)

[redacted], P. A., BRUDOVSKAYA, YE. N.,
KAUSTIN, V. V.

Peat Industry

Turning cut peat at accelerated tractor speed. Torf. prom. 29 no. 5, 1952.

9. MONTHLY LIST OF RUSSIAN ACCESSIONS, Library of Congress, August, 1952. Uncl.

SHPITSMAKHER, O.A., inzhener; FROLOVA, O.S.

Method of determining the volumetric weight of cut peat extracted by machines UPF-2. Torf. prom. 30 no.4:29-30 My '53. (MLRA 6:5)

1. Karinskoye torfopredpriyatiye. (Peat industry)

SHPITSMAKHER, O.A., inzhener; RYABCHIKOV, M.Ya.; POLIKARPOV, A.A., inzhener; GAMYGIN, L.A., inzhener.

Concerning the work of MPT machines in moving drainage pipes during the 1953 season. Torf.prom. vol. 30 no.11:7-14 N-D '53. (MLRA 6:11)

1. Karinskoye torfopredpriyatiye (for Shpitsmakher). 2. Chernoramenskiy torfotrest (for Ryabchikov). 3. Orekhovo-Zuyevskiy torfotrest (for Polikarpov). 4. Shaturskiy torfotrest (for Gamygin). (Peat industry)

SHPITSMAKHER, O.A.

Let's build good roads in Kirovo Province. Avt.dor. 24 no.2:5-7 F '61. (MIRA 14:3)

1. Nachal'nik Kirovskogo oblastnogo dorozhnogo upravleniya.
(Kirovo Province--Road construction)

SHPITSYN, S.A.

Influence of the Eberhard effect on the measurement of the intensity of spectrum lines. Fiz.sbor. no.4:539-543 '58. (MIRA 12:5)

1. Irkutskiy gosudarstvennyy universitet imeni A.A.Zhdanova.
(Spectrophotometry)

SHPIZ, B.G., inzhener.

Systems for including fuel regulating columns in boilers operating on mazut. Elek. sta. 28 no.6:90-91 Je '57. (MLRA 10:8)
(Boilers)

SHPIZEL', R.O.

Unusual skull injury in a hemophilia patient. Pediatriia no.6: 16-17 Je '57. (MIRA 10:10)

1. Iz Ostrozhskoy rayonnoy bol'nitsy Rovenskoy oblasti (glavnyy vrach M.R.Rogovaya)
(SKULL--WOUNDS AND INJURIES) (HEMOPHILIA)

SHPIZEL', R.S.

Retroperitoneal phlegmon in children. Khirurgiia no.5:88 Je '55.
(MLRA 8:10)

1. Iz Stepanskoy rayonnoy bol'nitsy Rovenskoy oblasti.
(GROIN--INFLAMMATION)

SHPIZEL', R.S.

Activities of the Ostrog Cyril and Methodius Society in bringing aid to the sick and wounded. Vrach.delo no.7:763-765 Jl'58 (MIRA 11:9)

1. Ostrozhskaya rayonnaya bol'nitsa Rovenskoy oblasti.
(OSTROG--MEDICINE)

SHPIZEL', R.S.

Case of successful surgery in embryonal hernia. Ped., akush. i gin. (MIRA 13:1)
20 no.2:57-58 '58.

1. Ostrozhskaya rayonnana bol'nitsa Rovenskoy oblasti (glavnyy vrach - M.R. Rogovaya, zav. khirurgicheskim otdelom - R.S. Shpizel').
(HERNIA)

SHPIZEL', R.S. (Ostrog, Rovenskoy obl., ul. Dzerzhinskogo, d.52, kv.8)

Acute inguinal adenitis and retroperitoneal phlegmon in children. Vest.khir. 80 no.4:85-89 Ap'58 (MIRA 11:5)

1. Iz khirurgicheskogo otdeleniya (zav. - R.S. Shpizel') Ostrozhskoy rayonnoy bol'nitsy Rovenskoy oblasti (gl.vrach - M.R. Rogovaya)

(LYMPHADENITIS, in inf. & child
acute subileal (Rus))
(RETROPERITONEAL SPACE, dis.
phlegmon in child,surg. (Rus))
(PHLEGMON, in inf. & child
retroperitoneal, surg. (Rus))

SHPIZEL', R.S. (Ostrog, Rovenskoy oblasti, ul. Dzerzhinskogo, d. 52, kv. 8)

Peculiar case of a tumorlike lesion of the skin. Nov. khir. arkh. no.2:126-127 Mr-Ap '59. (MIRA 12:7)

1. Khirurgicheskoye otdeleniye (zav. - R.S. Shpizel') Ostrozhskoy rayonnoy bol'nitsy, Rovenskoy oblasti.
(ELBOW--TUMORS)

SHPIZEL', R.S.

Case of cancer metastases from the rectum to the myocardium.
Vop.onk. 5 no.10:483-485 '59. (MIRA 13:12)
(RECTUM--CANCER) (HEART--CANCER)

SHPIZEL', R.S.

Recovery from acute cerebrocranial injury with prolonged unconsciousness. Vop.neirokhir. 24 no.4:52-53 Je-Ag '60. (MIRA 13:12)
(LOSS OF CONSCIOUSNESS)
(BRAIN--WOUNDS AND INJURIES)

SHPIZEL', R.S.

Late results of alloplasty using fluoroplast-4 in large postoperative hernias. Khirurgiia no.6:92-94 Je '61.
(MIRA 14:11)

1. Iz khirurgicheskogo otdeleniya (zav. R.S. Shpizel') Ostrozhskoy rayonnoy bol'nitsy Rovenskoy oblasti (glavnyy vrach rayona G.A. Matyuk).

(OPERATIONS, SURGICAL) (HERNIA)
(PLASTICS)

SHPIZEL', R.S.

Early relaparotomies in acute pancreatitis. Sov. med. 25 no.2:60-62 F '62. (MIRA 15:3)

1. Iz khirurgicheskogo otdeleniya (zav. R.S. Shpizel') Ostrozhskoy rayonnoy bol'nitsy Rovenskoy oblasti (glavnyy vrach G.A. Matyuk).

(PANCREAS--DISEASES)
(ABDOMEN--SURGERY)

SHPIZEL', R.S. (Ostrog, Rovenskoy oblasti, ul. Bashtovaya, d.12)

Serious thoracico-abdominal trauma with an avulsion of the left half of the diaphragm. Klin.khir. no.6:71 Je '62.

(MIRA 16:5)

1. Khirurgicheskoye otdeleniye (zav. - R.S. Shpizel') Ostrozhskoy rayonnoy bol'nitsy Rovenskoy oblasti.

(DIAPHRAGM—WOUNDS AND INJURIES) (ABDOMEN—WOUNDS AND INJURIES) (CHEST—WOUNDS AND INJURIES)

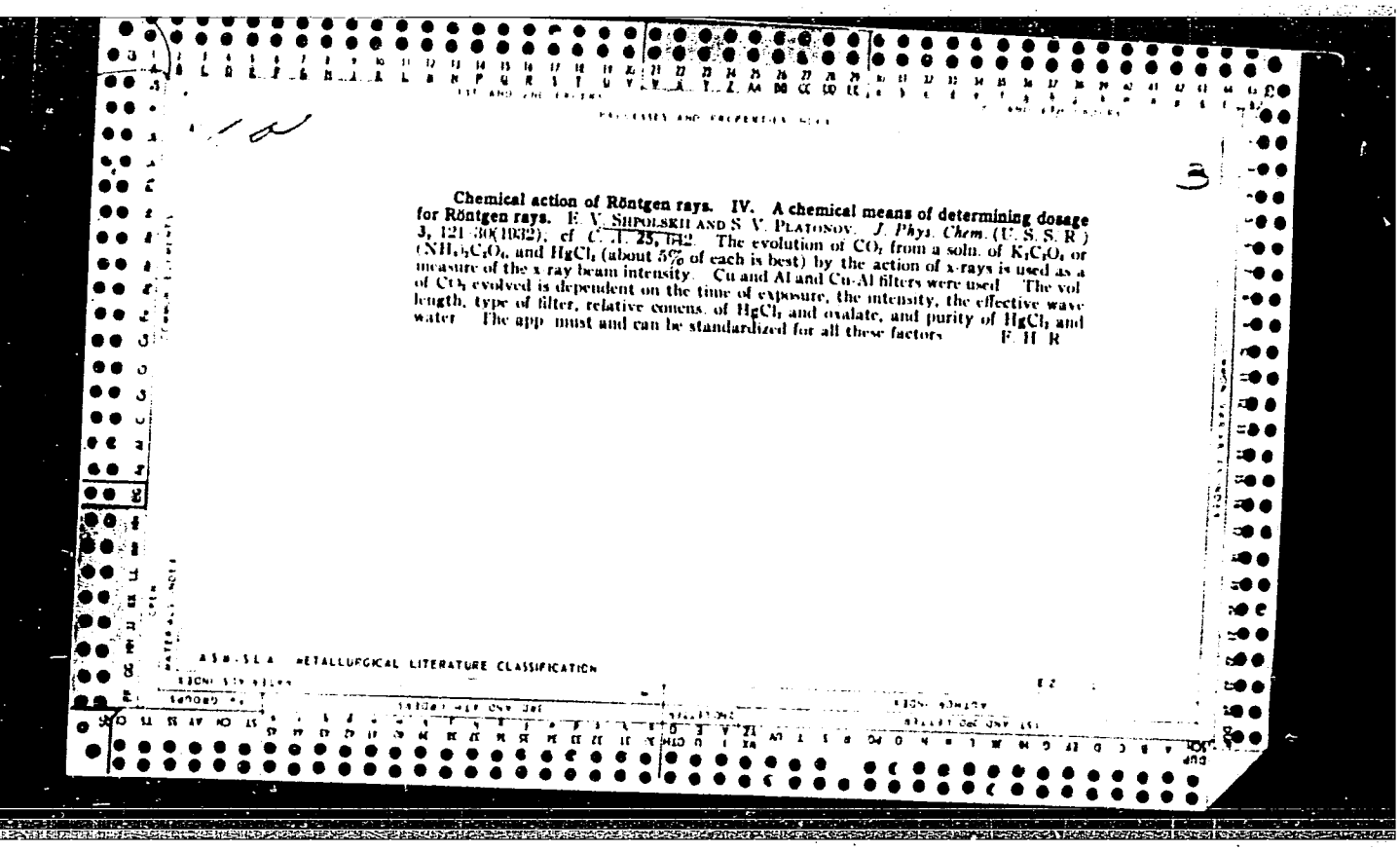
SHPIZEL', R.S.

Acute paracolitis. Khirurgiia 39 no.10:88-95 O '63.
(MIRA 17:9)

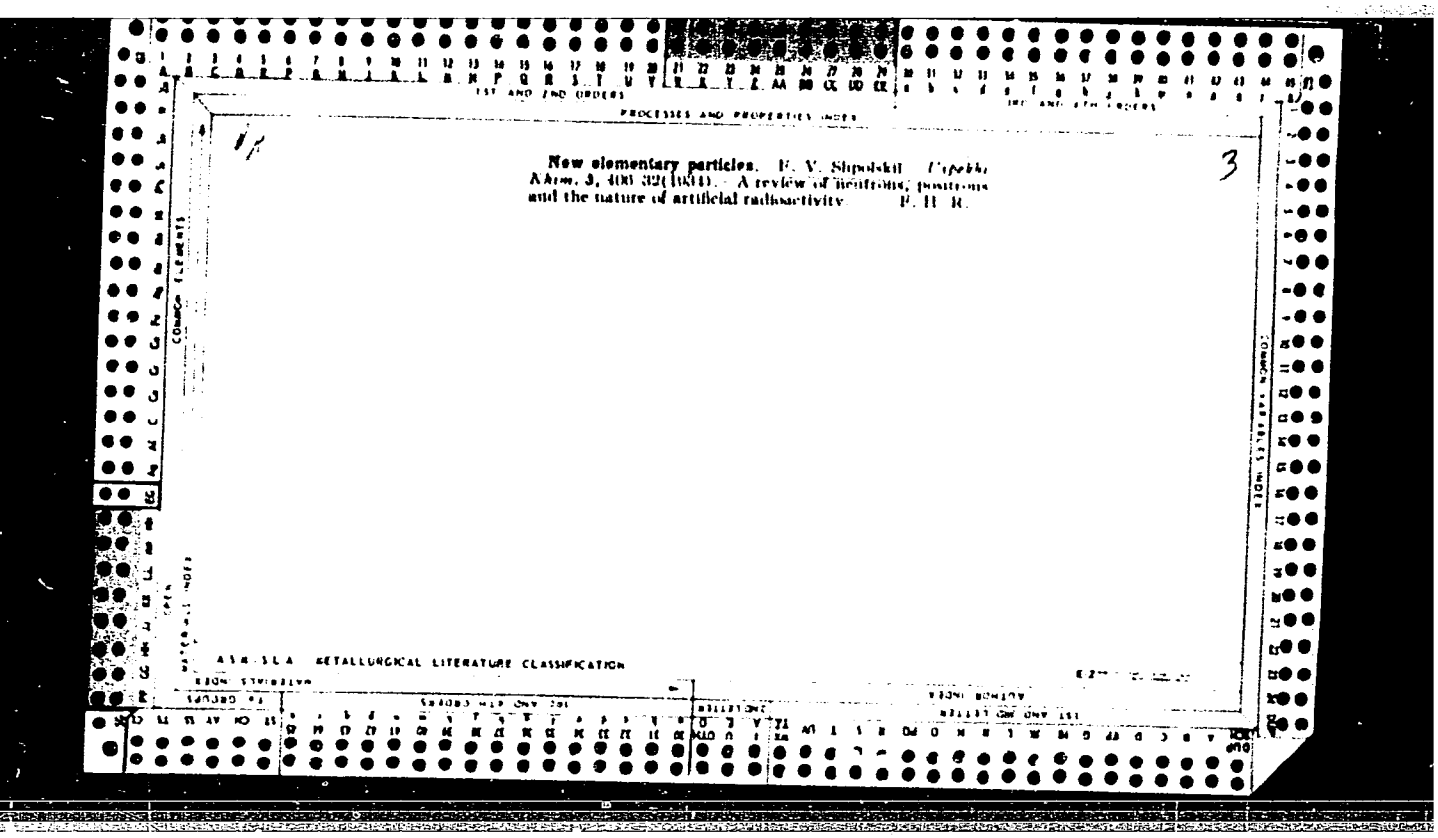
1. Iz khirurgicheskogo otdeleniya (zav. R.S. Shpizel')
Ostrozhskoy rayonnoy bol'nitsy Rovenskoy oblasti (glavnyy
vrach K.L. Viktora, nauchnyy rukovoditel'- dotsent Yu.I.
Zak, 2-ya kafedra klinicheskoy khirurgii TSentral'nogo
instituta usovershenstvovaniya vrachey.

SHPODARENKO, Ivan Panteleymonovich; PANIN, N.S., red.

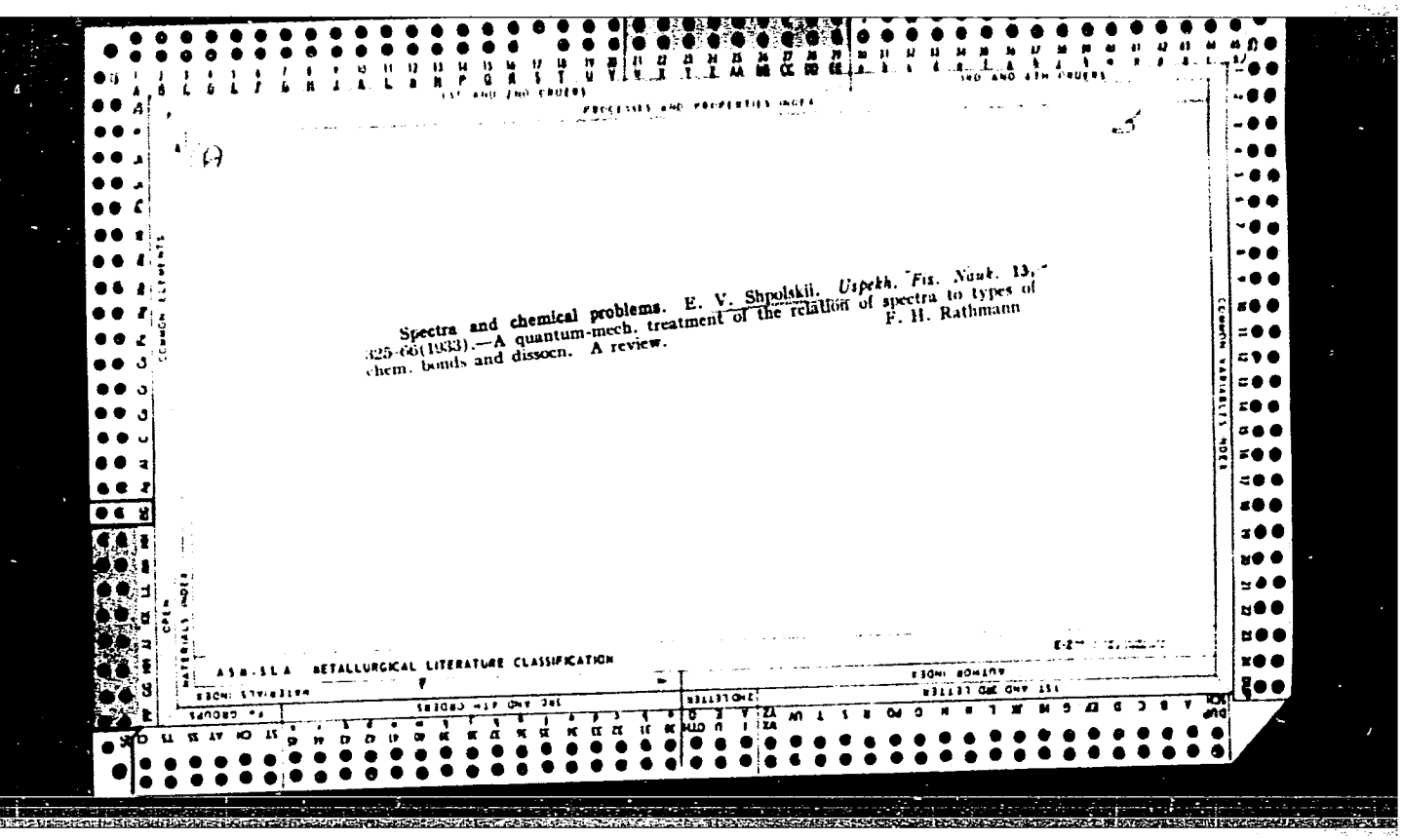
[Economic efficiency of the use of high-speed tractors] Ekonomicheskaia effektivnost' ispol'zovaniia skorostnykh traktorov. Moskva, Kolos, 1965. 102 p. (MIRA 18:7)



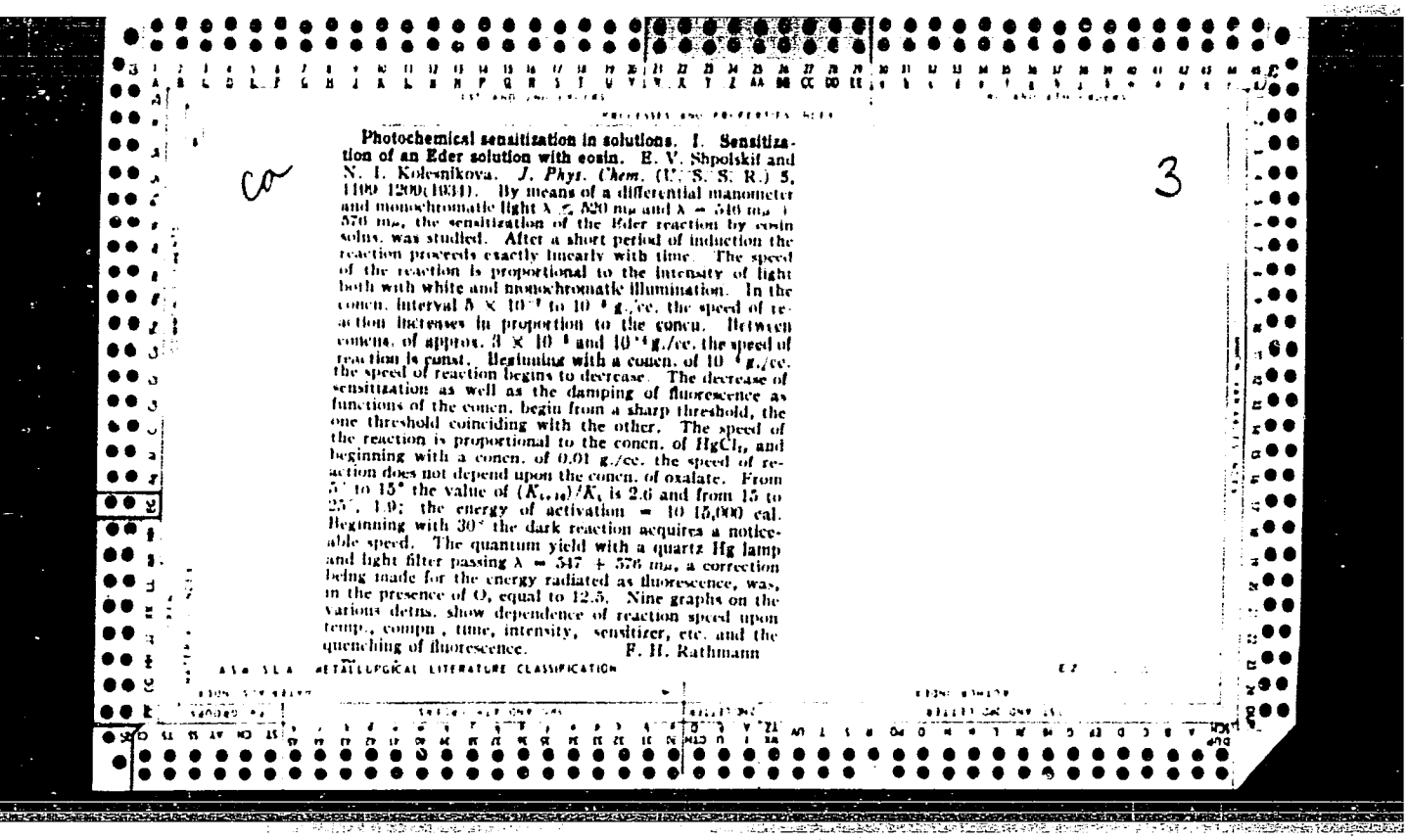
Chemical action of Röntgen rays. IV. A chemical means of determining dosage for Röntgen rays. E. V. SHPOLSKII AND S. V. PLATONOV. *J. Phys. Chem.* (U. S. S. R.) 3, 121-30(1932); cf. *C. A.* **25**, 642. The evolution of CO_2 from a soln. of $K_2C_2O_4$ or $(NH_4)_2C_2O_4$ and $HgCl_2$ (about 5% of each is best) by the action of x-rays is used as a measure of the x ray beam intensity. Cu and Al and Cu-Al filters were used. The vol. of CO_2 evolved is dependent on the time of exposure, the intensity, the effective wave length, type of filter, relative concns. of $HgCl_2$ and oxalate, and purity of $HgCl_2$ and water. The app. must and can be standardized for all these factors. F. H. R.



New elementary particles. P. V. Shpolskii (Uspekhi Fiz. Nauk, 3, 408-32(1934)). A review of neutrons, positrons and the nature of artificial radioactivity. P. H. R.



Spectra and chemical problems. E. V. Shpolskii. *Uspekhi Fiz. Nauk.* 13, 825-66(1933).—A quantum-mech. treatment of the relation of spectra to types of chem. bonds and dissocn. A review.
F. H. Rathmann



Photochemical sensitization in solutions. I. Sensitization of an Eder solution with eosin. E. V. Shpolskii and N. I. Kolesnikova. *J. Phys. Chem.* (U. S. S. R.) **5**, 1199-1209(1934). By means of a differential manometer and monochromatic light $\lambda = 520$ mμ and $\lambda = 546$ mμ + 576 mμ, the sensitization of the Eder reaction by eosin solns. was studied. After a short period of induction the reaction proceeds exactly linearly with time. The speed of the reaction is proportional to the intensity of light both with white and monochromatic illumination. In the concn. interval 5×10^{-7} to 10^{-5} g./cc. the speed of reaction increases in proportion to the concn. Between concns. of approx. 3×10^{-5} and 10^{-4} g./cc. the speed of reaction is const. Beginning with a concn. of 10^{-4} g./cc. the speed of reaction begins to decrease. The decrease of sensitization as well as the damping of fluorescence as functions of the concn. begin from a sharp threshold, the one threshold coinciding with the other. The speed of the reaction is proportional to the concn. of $HgCl_2$, and beginning with a concn. of 0.01 g./cc. the speed of reaction does not depend upon the concn. of oxalate. From 5° to 15° the value of $(K_{t+10})/K_t$ is 2.6 and from 15 to 25°, 1.9; the energy of activation = 10 15,000 cal. Beginning with 30° the dark reaction acquires a noticeable speed. The quantum yield with a quartz Hg lamp and light filter passing $\lambda = 547 + 576$ mμ, a correction being made for the energy radiated as fluorescence, was, in the presence of O, equal to 12.5. Nine graphs on the various detns. show dependence of reaction speed upon temp., compn., time, intensity, sensitizer, etc. and the quenching of fluorescence. F. H. Rathmann

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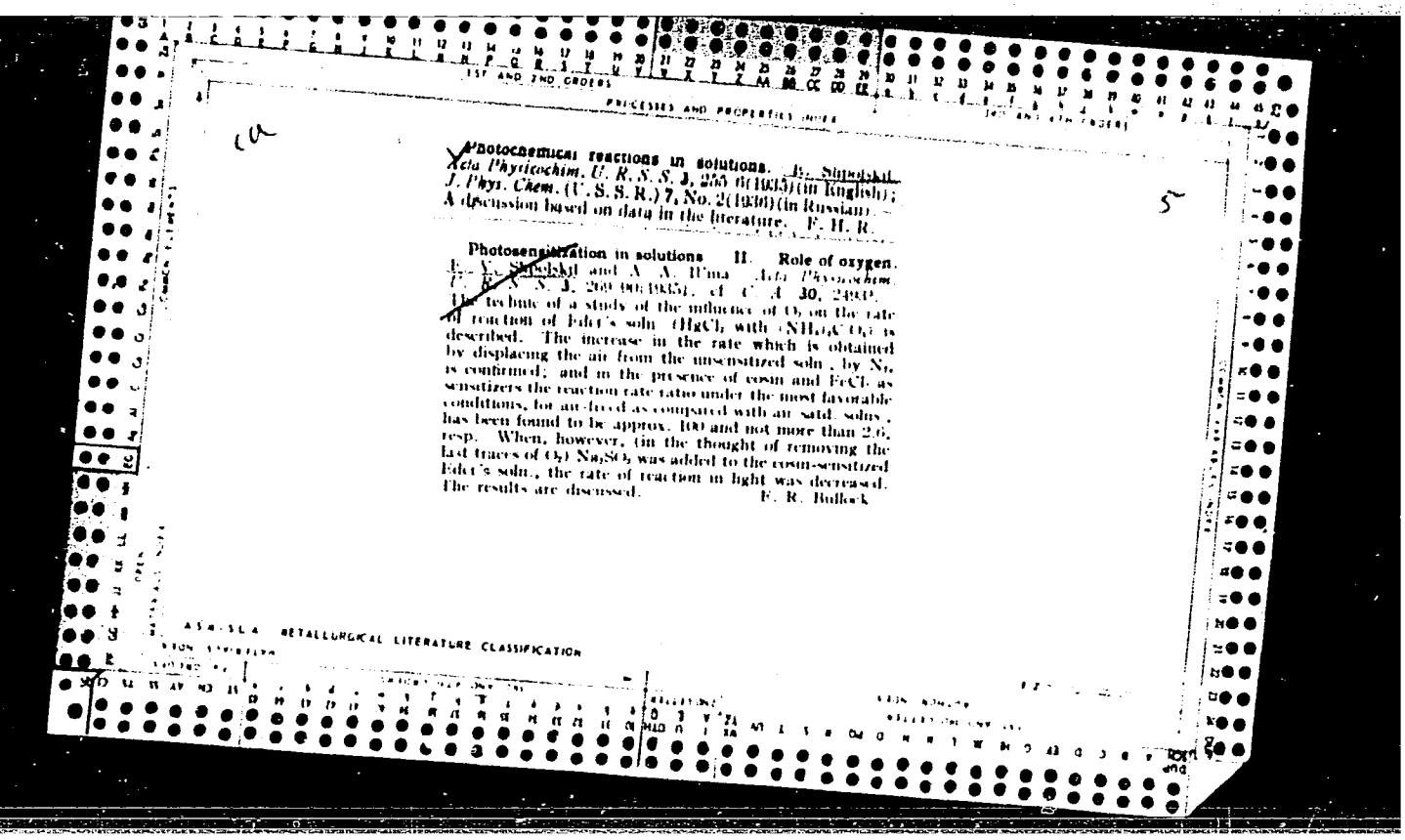
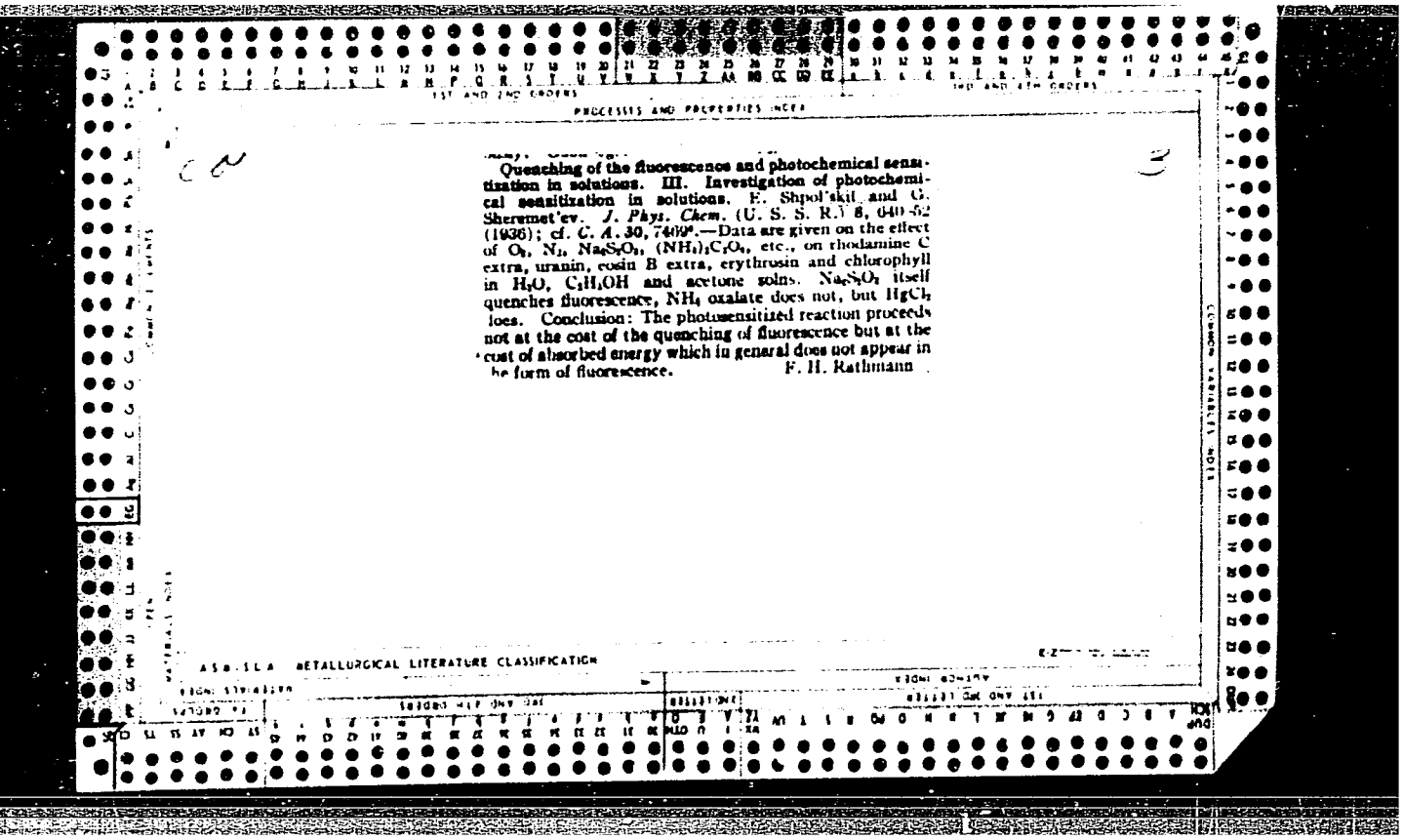
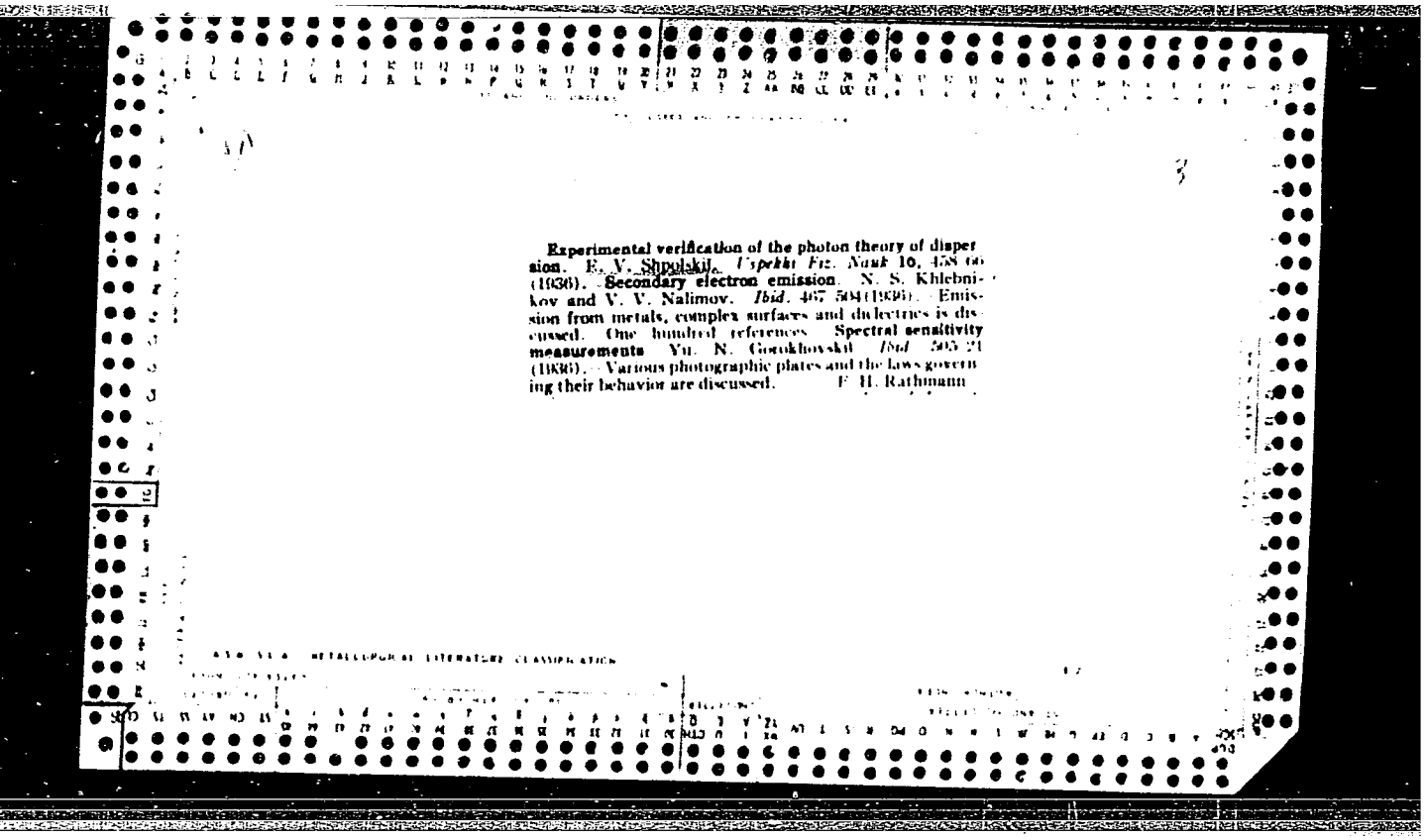


Photochemical reactions in solutions. B. Stanchinskii. *Acta Physicochim. U. R. S. S.* 3, 255-6 (1935) (in English); *J. Phys. Chem.* (U. S. S. R.) 7, No. 2 (1936) (in Russian). A discussion based on data in the literature. F. H. R.

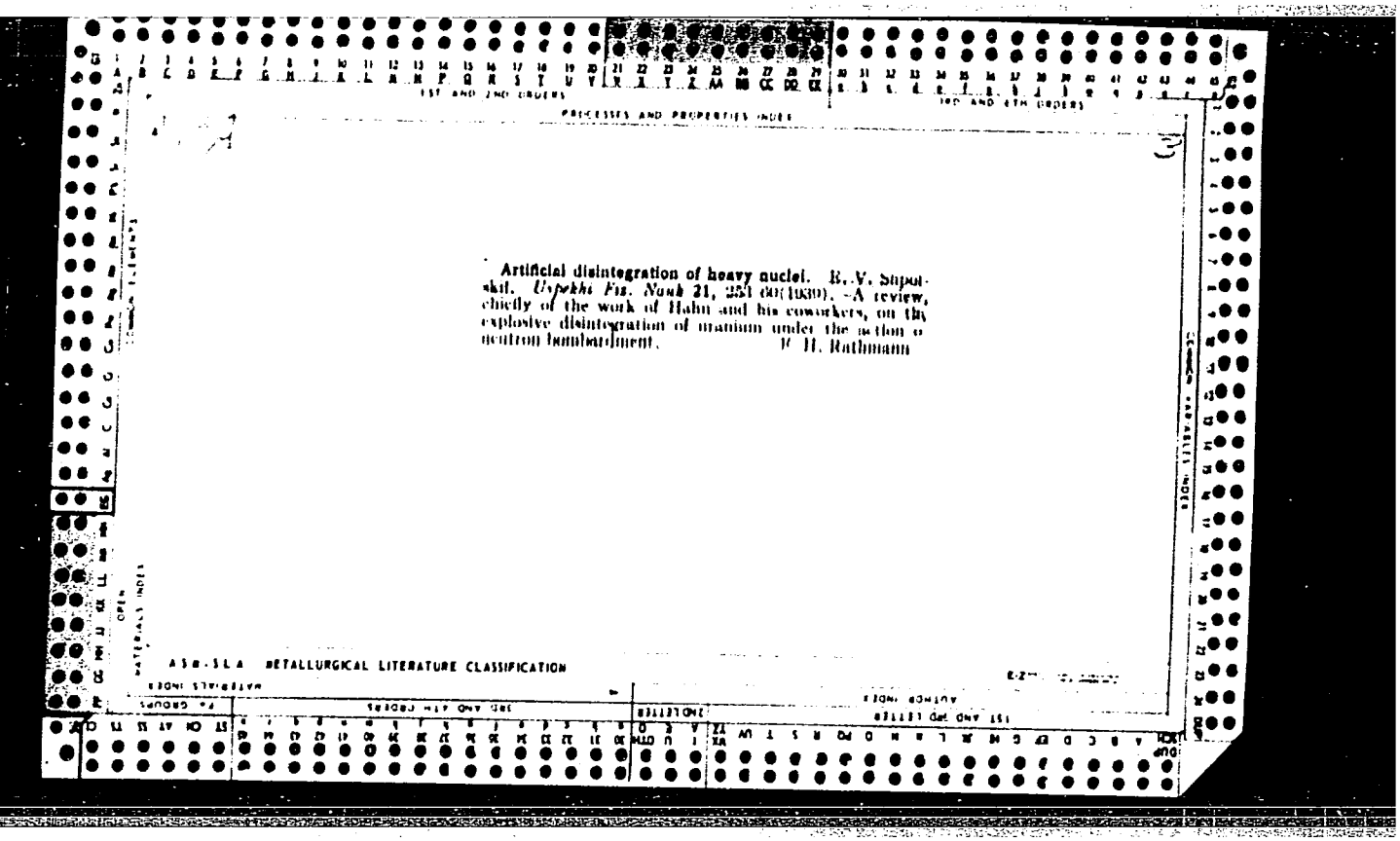
Photosensitization in solutions. II. Role of oxygen. E. V. Shtolko and A. A. Ilina. *Acta Physicochim. U. R. S. S.* 3, 269-90 (1935); cf. *C. A.* 30, 2400. The technic of a study of the influence of O_2 on the rate of reaction of Eder's soln. ($HgCl_2$ with $(NH_4)_2C_2O_4$) is described. The increase in the rate which is obtained by displacing the air from the unsensitized soln. by N_2 is confirmed; and in the presence of eosin and $FeCl_3$ as sensitizers the reaction rate ratio under the most favorable conditions, for air-freed as compared with air satd. solns., has been found to be approx. 100 and not more than 2.6, resp. When, however, (in the thought of removing the last traces of O_2) Na_2SO_3 was added to the eosin-sensitized Eder's soln., the rate of reaction in light was decreased. The results are discussed. F. R. Bullock



Quenching of the fluorescence and photochemical sensitization in solutions. III. Investigation of photochemical sensitization in solutions. E. Shpol'skiĭ and G. Sheremet'ev. *J. Phys. Chem.* (U. S. S. R.) 8, 640-52 (1936); cf. *C. A.* 30, 7409⁹.—Data are given on the effect of O_2, N_2, $Na_2S_2O_3$, $(NH_4)_2C_2O_4$, etc., on rhodamine C extra, uranin, eosin B extra, erythrosin and chlorophyll in H_2O, C_2H_5OH and acetone solns. $Na_2S_2O_3$ itself quenches fluorescence, NH_4 oxalate does not, but $HgCl_2$ does. Conclusion: The photosensitized reaction proceeds not at the cost of the quenching of fluorescence but at the cost of absorbed energy which in general does not appear in the form of fluorescence. F. H. Rathmann



Experimental verification of the photon theory of dispersion. E. V. Shpolskii. *Uspekhi Fiz. Nauk* 10, 458 60 (1936). **Secondary electron emission.** N. S. Khlebnikov and V. V. Nalimov. *Ibid.* 467 504 (1936). Emission from metals, complex surfaces and dielectrics is discussed. One hundred references. **Spectral sensitivity measurements.** Yu. N. Gorokhovskii. *Ibid.* 505 21 (1936). Various photographic plates and the laws governing their behavior are discussed. F. H. Rathmann



Artificial disintegration of heavy nuclei. B. V. Stipol-skil. *Uspekhi Fiz. Nauk* 21, 251 (80)(1939). -A review, chiefly of the work of Hahn and his coworkers, on the explosive disintegration of uranium under the action o neutron bombardment. W. H. Rathmann

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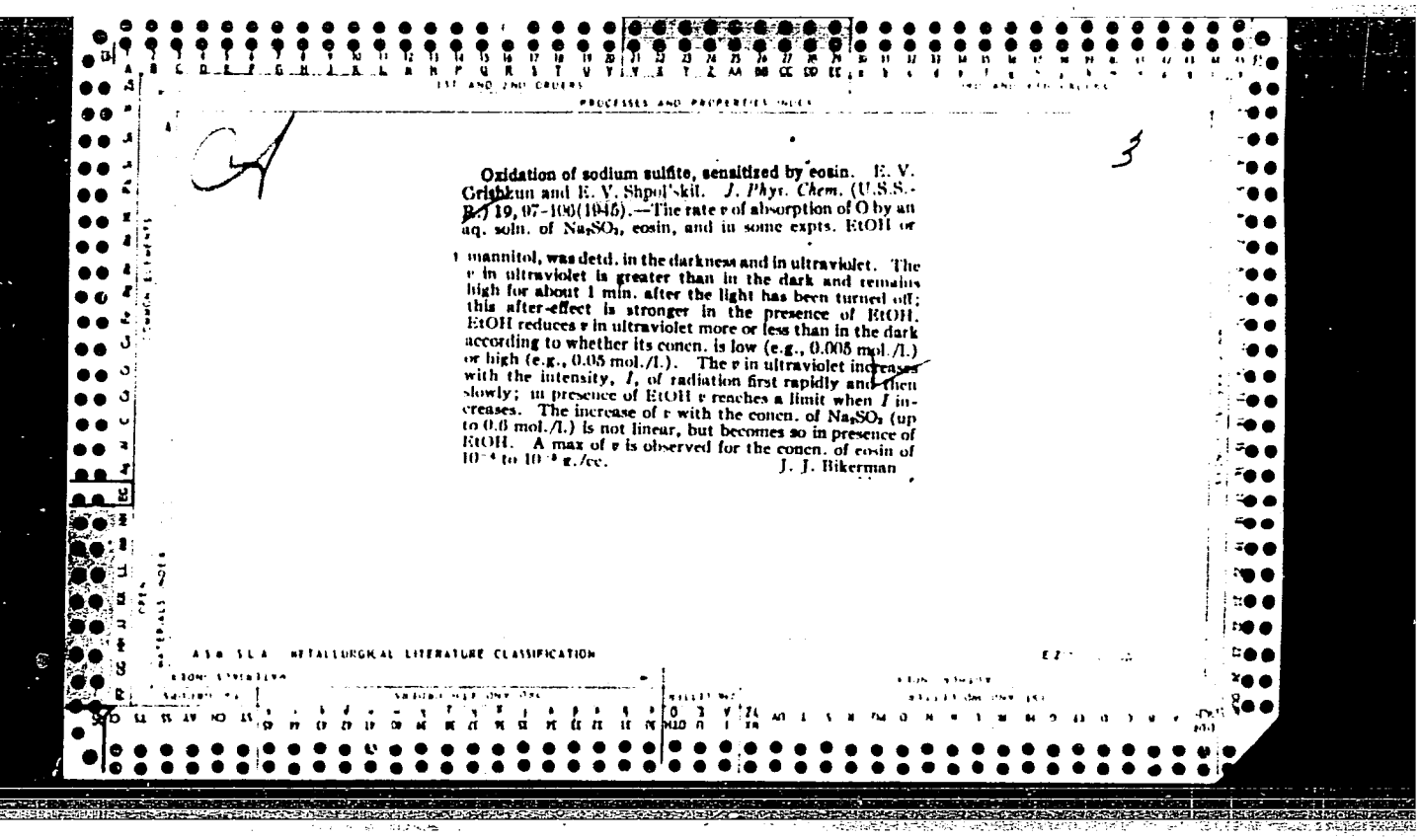
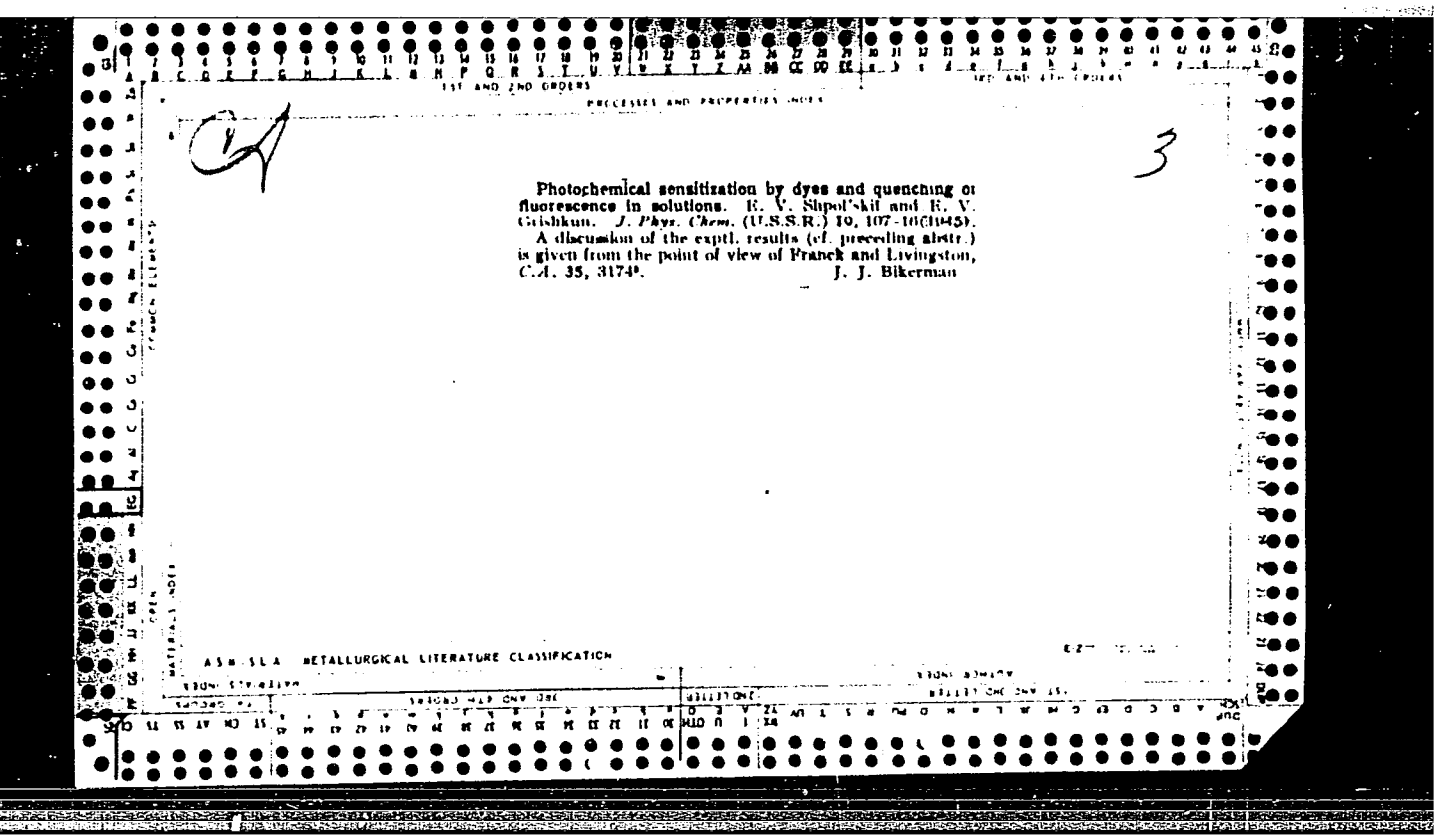


Oxidation of sodium sulfite, sensitized by eosin. E. V. Grishkun and E. V. Shpol'skii. *J. Phys. Chem.* (U.S.S.R.), 19, 97-100(1945).—The rate v of absorption of O by an aq. soln. of Na_2SO_3, eosin, and in some expts. EtOH or mannitol, was detd. in the darkness and in ultraviolet. The v in ultraviolet is greater than in the dark and remains high for about 1 min. after the light has been turned off; this after-effect is stronger in the presence of EtOH. EtOH reduces v in ultraviolet more or less than in the dark according to whether its concn. is low (e.g., 0.005 mol./l.) or high (e.g., 0.05 mol./l.). The v in ultraviolet increases with the intensity, *I*, of radiation first rapidly and then slowly; in presence of EtOH v reaches a limit when *I* increases. The increase of v with the concn. of Na_2SO_3 (up to 0.6 mol./l.) is not linear, but becomes so in presence of EtOH. A max of v is observed for the concn. of eosin of 10^{-4} to 10^{-5} g./cc.

J. J. Bikerman



Photochemical sensitization by dyes and quenching of fluorescence in solutions. E. V. Shpol'skii and R. V. Gribkun. *J. Phys. Chem.* (U.S.S.R.) 19, 107-16(1945).
A discussion of the exptl. results (cf. preceding abstr.) is given from the point of view of Franck and Livingston, *C.A.* 35, 3174⁹. J. J. Bikerman

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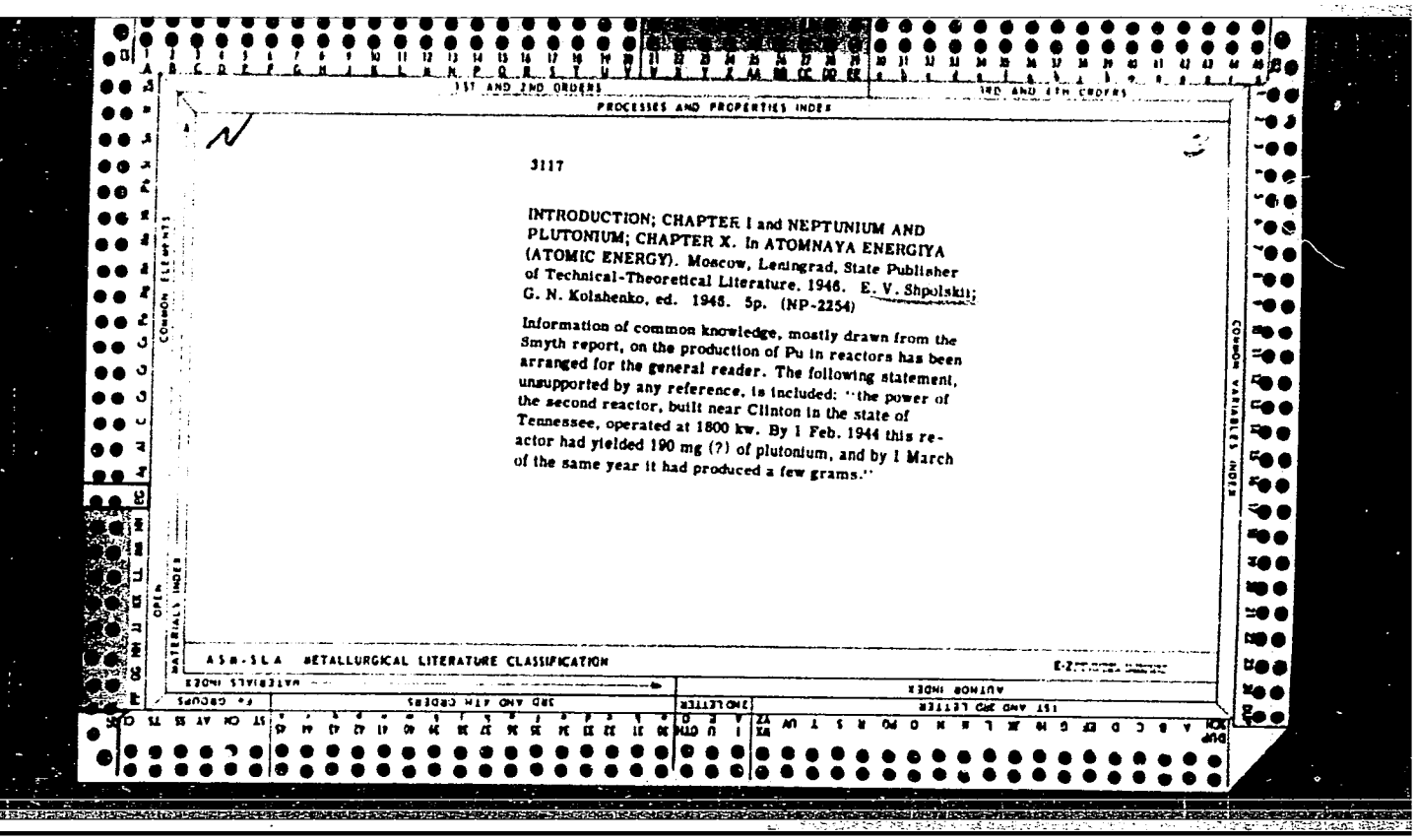

PROCESSES AND PROPERTIES INDEX

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INTRODUCTION; CHAPTER I and NEPTUNIUM AND PLUTONIUM; CHAPTER X. In ATOMNAYA ENERGIYA (ATOMIC ENERGY). Moscow, Leningrad, State Publisher of Technical-Theoretical Literature, 1946. E. V. Shpolskii; G. N. Kolshenko, ed. 1948. 5p. (NP-2254)

Information of common knowledge, mostly drawn from the Smyth report, on the production of Pu in reactors has been arranged for the general reader. The following statement, unsupported by any reference, is included: "the power of the second reactor, built near Clinton in the state of Tennessee, operated at 1800 kw. By 1 Feb. 1944 this reactor had yielded 190 mg (?) of plutonium, and by 1 March of the same year it had produced a few grams."

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

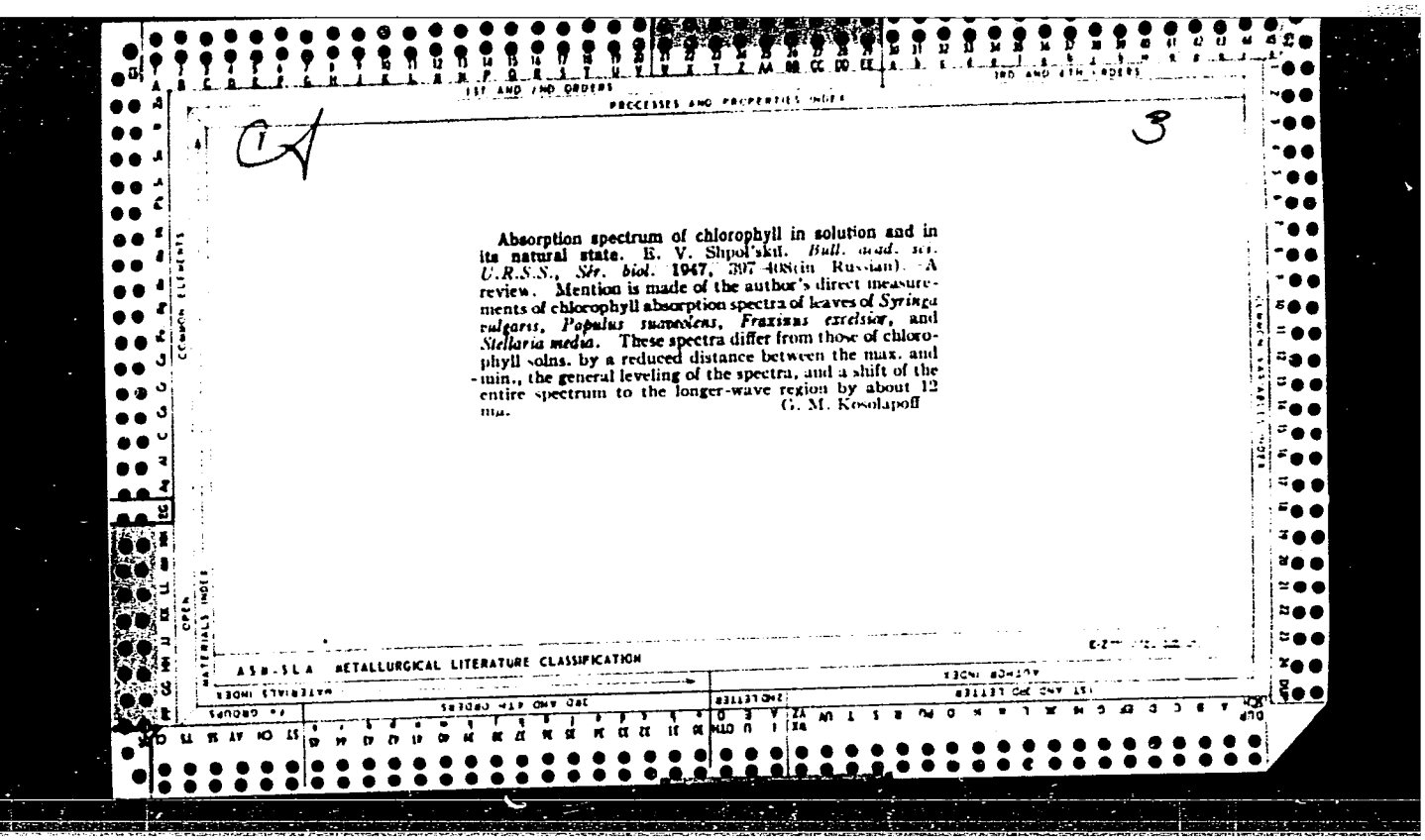
P.A.

Sensitizing & Sensitometry

736 771.534.21

Inhibiting Action of Optical Sensitizers. E. SHPOLSKY. *Acta Physicochimica, U.R.S.S.*, 21, 958-960, 1946.—Unpublished results obtained by P. JAMPOLSKY are quoted in an investigation of sensitization in a suspension of silver bromide powder, but without details. The quantum efficiency, ϕ, was measured for wavelengths 597mμ, 546mμ and 436mμ for silver bromide sensitized by thirteen dyes of the fluorescein and cyanine series. In the zone of normal sensitivity of silver bromide (436mμ) ϕ decreases in ten out of the thirteen cases, with a minimum value of about 0.71. The dyes which do not reduce the quantum efficiency are either poor sensitizers (fluorescein, acridine-orange), or they act in the sensitive zone of silver bromide. The degree of lowering of ϕ increases parallel to the growth of sensitizing power. The author compares these results with previous findings for the Eder reaction, and suggests a reverse action between the dye and some intermediate product of the principal reaction which reproduces the initial product.

Mon. Abs. Bull. Kodak Res. Labs.



Absorption spectrum of chlorophyll in solution and in its natural state. E. V. Shpol'skiĭ. *Bull. acad. sci. U.R.S.S., Sér. biol.* 1947, 397-408(in Russian). A review. Mention is made of the author's direct measurements of chlorophyll absorption spectra of leaves of *Syringa vulgaris*, *Populus tremuloides*, *Fraxinus excelsior*, and *Stellaria media*. These spectra differ from those of chlorophyll solns. by a reduced distance between the max. and min., the general leveling of the spectra, and a shift of the entire spectrum to the longer-wave region by about 12 mμ.

G. M. Kosolapoff

SHPOL'SKIY, E. V. PA 28T74

USSR/Physics Jul/Aug 1947
Spectra, Absorption
Pigments - Spectra

"Absorption Spectra of Pigments in Turbid Mixtures," E. V. Shpol'skiy, 8 pp

"Iz Ak Nauk, Ser Fiz" Vol XI, No 4

The usual method of observing the absorption spectra of pigments is too simple and leads to errors in the results. The author describes a more complex, but more reliable method whereby the errors are minimized. Shows diagrams of equipment used in connection with light from a mercury lamp of ultra-high voltage. Submitted at the State Pedagogical Institute imeni V. I. Lenin.

28T74

Nuclear Transmutations

1310. Multiple Nuclear Fission of 'Stars' Due to 100 Mev X-rays, by L. Slyusarev, *Uspekhi Fizicheskikh Nauk* 31, No. 2, April 1947. 3 p. (In Russian)

The author discusses the effect of x-rays on the fission of nuclei. He draws his data from two articles: 1) an article in issue No. 70, September 1946 of "Physical Review" by G. C. Baldwin, and G. S. Klaiber, and 2) an article by Glen T. Seaborg which appeared in "Reviews of Modern Physics" and was translated into Russian and published in the present journal, Vol 28, No. 2, and 3, 1946.

SHPOL'SKIY, E.V. PA 50T89

USSR/Physics Jan 1947
Low Temperature Research
Nuclear Physics - Research

"Organization of Soviet Physics," E. V. Shpol'skiy, 21 pp

"Uspekhi Fiz Nauk" Vol XXXIII, No 1

Gives short history of pre-Revolutionary Russian physics and Soviet physics during first days of the Revolution. Followed by long account of post-Revolutionary Soviet physics mentioning the more important Soviet physicists as well as their fields. Lists various scientists by their fields, e.g., physics of solid bodies, low temperatures, the atom and cosmic radiation, physical chemistry, etc.
IC 50T89

CA

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Fluorescence spectra of some polycyclic aromatic hydrocarbons. E. V. Shpol'skii, A. A. Il'ina, and V. V. Basilevich (Lenin State Pedagogic Inst., Moscow). *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 12, 519-26(1948). —The materials were illuminated with the 365-mμ Hg line and measured photoelectrically with a quartz monochromator. The following materials have been investigated in benzene solns.: anthracene; 9-chloroanthracene; 9,10-dichloroanthracene; 9-chloro-10-methylanthracene; 9-bromoanthracene; 9,10-dibromoanthracene; 9-bromo-10-methylanthracene; 9-bromo-10-chloroanthracene; 9-β-hydroxyethylanthracene; 9,10-dimethylanthracene; 9,10-diethylanthracene 9,10-dipropylanthracene; 9,10-diisobutylanthracene, 9,10-diisoamylanthracene; 9-bromo-10-β-hydroxyethylanthracene; anthracene-10-carboxylic acid; 9-bromoanthracene-10-carboxylic acid; 1,2-benzanthracene; 1,2,5,6-dibenzanthracene; 10-methyl-1,2-benzanthracene; dimethyl-1,2-benzanthracene, cholanthrene. There is no special difference in the fluorescence spectra of cancerogenic and noncancerogenic compds.

S. Pakswer

SHPOLSKIY, E.

"Review of the book "The structure of atoms and molecules" by V. N. KONDRATYEV,"
Successes of the Physical Sciences, Vol. 32, No. 3, 1948

PA 36/49T73

USSR/Physics
Fluorescence
Chemistry - Anthracene, Fluorescence

Sep 48

"Fluorescence Spectra of Anthracene, 1,2-Benzanthracene, and Some of Their Derivatives," E. V. Shpol'skiy, A. A. Il'ina, V. V. Bazilevich, Optics Lab, Moscow State Pedagogical Inst imeni V. I. Lenin, 4 pp

"Dok Ak Nauk SSSR" Vol LXII, No 2

Studied fluorescence spectra of anthracene, 9,10-dimethylanthracene, 10-diethylanthracene, 1,2-benzoanthracene, 1,2,5,6-dibenzoanthracene, 9,10-dimethyl-1,2-benzoanthracene, cholanthrene, [redacted]

36/49T73

USSR/Physics (Contd)

Sep 48

3-methyl-cholanthrene and benzopyrene. Compared results for the fluorescence of anthracene in benzene with those of Shpol'skiy, R. A. Burdett and L. C. James, and P. Pringsheim. Submitted by Acad S. I. Vavilov, 13 Jul 48.

36/49T73

SHPOL'SKIY, E. V.

[redacted]

SHPOL'SKIY, E. V.

Atomic Physics, Vol I (Atomnaya fizika, t. I), 2d edition, revised, Gostekhizdat, 1949.

W - 15368, 6 Dec 50

SHPOL'SKIY, E. PA 51/49T64

USSR/Physics Apr 49
Luminescence

"Review of M. A. Konstantinova-Shlezinger's Book, 'Luminescence Analysis,'" E. Shpol'skiy, 2 pp

"Uspekhi Fiz Nauk" Vol XXXVII, No 4

Favorable review of subject book on theory and methods of luminescence analysis.

51/49T64

PA 67/49T103

SHPOL'SKIY, E.

USSR/Nuclear Physics - Translations Aug 49
Textbooks

"Review of V. Ritsler's 'Introduction to Nuclear Physics' (Translated From the Third German Edition by N. K. Konin)," E. Shpol'skiy, 1 p

"Uspekh Fiz Nauk" Vol XXXVIII, No 4

A great number of tables on nuclear physics, compiled by S. Petrovich, has been added to the Russian translation. Tables were compiled on the basis of recent material and are very valuable.

[redacted] 67/49T103

SHPOL'SKIY, E.

PA 67/49T104

USSR/Nuclear Physics - Translations Aug 49
Atomic Energy

"Review of Andre Berteio's 'From the Atom to Atomic Energy' (Translated From the French, Edited by E. Burshteyn)," E. Shpol'skiy, 1 p

"Uspekh Kiz Nauk" Vol XXXVIII, No 4

The book is intended for a considerably wider circle of readers than is Ritsler's "Introduction to Nuclear Physics." The last chapter discusses fission of uranium, transuranic elements, nuclear "boilers," and the atomic bomb. The editor has added numerous notes to the Russian translation in which he notes the priority

67/49T104

USSR/Nuclear Physics - Translations (Contd) Aug 49

of Soviet scientists and corrects several inaccuracies and outdated assertions of the original.

SHPOL'SKIY, E.V.

PHASE I Treasure Island Bibliographic Report

BOOK Call No.: AF547518 00000073

Author: SHPOL'SKIY, E.V.
Full Title: ATOMIC PHYSICS. Vol. I.: Introduction to Atomic Physics. 3rd edition.
Transliterated Title: Atomnaya fisika, Tom I: Vvedenie v atomnuyu fisiku.

Publishing Data
Originating Agency: None.
Publishing House: State Publishing House for Technical-Theoretical Literature.
Date: 1950 No. pp.: 524 No. copies: 15,000
Editorial Staff
Editor: None. Technical Editor: None.
Editor-in-Chief: None. Appraiser: None.

Text Data
Coverage: This book is the third edition of an introduction to nuclear physics, but represents a reprint without change of the second edition. This second edition was revised and completely rearranged with the inclusion of new material secured during the four years after publication of the first edition. Substantial changes were made in the second part of the book, especially in the treatment of the atomic nucleus because of the greatly expanded significance of nuclear physics and the discovery of many new important factors. The second edition is divided into two volumes. The first primarily describes the experimental data leading to the nuclear theory and to quantum physics. One chapter is devoted to the study of the wave theory of matter and equations of quantum

SHPOL'SKIY, E.V.

Card 2/2

Call No.: AF547518 [illegible]0000073

Full Title: ATOMIC PHYSICS. Vol. I.: Introduction to Atomic Physics. 3rd edition.

Text Data

Coverage: (continued)
physics. The last chapter describes the Schredinger equation for the behavior of particles in the magnetic field. The second volume is given over to a more systematic description of quantum mechanics and its application to the electronic structure of the atomic system, the atomic nucleus, and cosmic rays.

Purpose: Approved by the Ministry of Higher Learning as a textbook for advanced educational institutions.

Facilities: None.

No. Russian and Slavic References: Given in footnotes.

Available: A.I.D., Library of Congress.

SHPOL'SKII, E. V.

Shpol'Skii, E. V., Il'ina, A. A. and Bazilevich, V. V. Fluorescence spectra of some polycyclic hydrocarbons at temperature of liquid air. Page 511.

SO: Bulletin of the Academy of Sciences, Izvestia, (USSR) Vol. 14, No. 4. (1950) Series on Physics.

SHPOL'SKIY, E.

PA 171T78

USSR/Nuclear Physics - Neutrons Oct 50

"Radioactivity of Free Neutrons", E. Shpol'skiy

"Uspekhi Fiz Nauk" Vol XLII, No 2, pp 311, 312

Briefly considers significance of fact that neutron's mass is greater than sum of proton's mass and electron's. Refers to works of J. Robson ("Phys Rev," 78, 311, 1950) and A. Snell et al ("Phys Rev" 78, 310, 1950), besides author's own studies ("Atomnaya Fix" Vol II, 510, published 1950 by State Tech Press).

171T78

SHPOL'SKIY, E. V.

PA 171T80

USSR/Nuclear Physics - Compton Effect Oct 50

"Simultaneity in the Compton Effect," E. V. Shpol'skiy

"Uspekhi Fiz Nauk" Vol XLII, No 2, pp 315, 316

Problem of experimentally proving simultaneity of phenomenon of scattering of gamma-photon and electron (Compton effect), which is of great importance in establishing applicability of conservation laws to elementary acts of scattering.

[redacted] 171T80

SHPOL'SKIY, E.V.

PHASE I THEASURE ISLAND BIBLIOGRAPHICAL REPORT AID 96 - I

BOOK Call No.: AF 539375

Author: SHPOL'SKIY, E. V.

Full Title: ATOM PHYSICS, VOLUME II, THE ELECTRON SHELLS OF THE ATOM AND THE ATOM NUCLEUS. Third ed.

Transliterated Title: Atomnaya fizika, tom II, Electronnaya obolochka atoma i atomnoye yadro.

Publishing Data

Originating Agency: None

Publishing House: State Publishing House on Technical-Theoretical Literature.

Date: 1951 No. pp.: 718 No. of copies: 35,000

Editorial Staff:

Editor: None Tech. Ed.: None

Editor-in-Chief: None Appraiser: None

Others: Assistance in writing and editing the book was given by A. O. Vaysenberg (in the chapter on cosmic rays), V. A. Leshkovtsev (in checking the computations), and Prof. D. D. Ivanenko (in the general criticism).

Text Data

Coverage: This is the third edition, revised and supplemented, of the second volume of Atom Physics. Theoretical questions are closely related with experimental methods and deductions in discussing the fundamentals of quantum mechanics. Emphasis is given to studies of the atom nucleus,

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SHPOL'SKIY, E.V.

Atomnaya fizika, tom II, electronnaya obolochka atoma i atomnoye yadro

Call No.: AF 539375
AID 96 - I

Momentum of motion, radiation, properties of the electron, atomic nucleus, radioactivity, transformation of atomic nuclei, neutrons, and cosmic rays form the subject of this book which is well written in clear language, and presents comprehensive present day knowledge in this quickly developing subject.

Purpose: Textbook for colleges and universities.
Facilities: None
No. of Russian and Slavic References: Many references in footnotes
Available: A.I.D., Library of Congress.

2/2

1. IL'INA, A. A.; SHPOL'SKIY, YE. V.

2. USSR 600

4. Pyrenes

7. Spectra of fluorescence and phosphorescence of hydrocarbons of the pyrene series in congealed solutions, Izv. AN SSSR Ser. fiz, 15, No. 5, 1951.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

SHPOLSKIY, E. V.

USSR/Physics - Fluorescence Feb 51

"Fluorescence of 3.4-Benzpyrene in Frozen Solutions," E. V. Shpolskiy, A. A. Il'ina, Moscow State Pedagogical Inst imeni Lenin

"Zhur Eksper i Teoret Fiz" Vol XXI, No 2, pp 142-149

Studied spectra of benzpyrene in frozen soln at temp of liquid air and found to contain regular series of bands. Fluorescence excited by monochromatic mercury line of 4046 Å, lying within absorption band of benzpyrene, found to shift regularly toward red. Shift in frequency spectrum was const and approximated 76 cm-1.

180T97

LC

SHPOL'SKIY, Ye. V.

Problems f Physical Optics. Collection of Articles Dedicated to S. I. Vavilov. Under the editorship of Ye. V. Shpol'skiy. Glavpoligrafizdat, Main Polygraphic Publishing House, 375 pp, 1952.

Science

Nuclear physics. Moskva, Gostekhizdat. Vol. 2. 1952.

9. MONTHLY LIST OF RUSSIAN ACCESSIONS, Library of Congress, November 1952. Uncl.

1. SHPOL'SKIY, YE. V.

2. USSR (600)

4. Matter

7. Connection between mass and energy Usp fiz nauk No 2 1952.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

SHPOLSKIY, E. V. PA 240T98

USSR/Physics - Fluorescence 21 Dec 52

"Fluorescence Spectrum of Coronene in Frozen Compounds," E. V. Shpolskiy, A. A. Il'ina and L. A. Klimova, Moscow State Pedagogical Inst imeni Lenin

"DAN SSSR" Vol 87, No 6, pp 935-938

Present data of exptl investigation of spectrum of aromatic hydrocarbon coronene, consisting of 7 condensed benzene rings, excited by Hg line at low temp. With lowering of temp green line of fluorescence becomes sharper and shifts towards short-waves. Presented by Acad G. S. Lansberg. Received 20 Oct 52.

240T98

USSR/ Scientists - Physics

Card 1/1 Pub. 118 - 1/6

Authors : Shpol'skiy, E. V.

Title : Petr Leonidovich Kapitsa

Periodical : Usp. fiz. nauk 54/4, 505-512, Dec 1954

Abstract : Eulogy is presented honoring the 60th birthday of the Soviet physicist, Petr Leonidovich Kapitsa, honorary member of the Academy of Sciences USA, recipient of the Faraday medal. Illustration.

Institution: .....

Submitted: .....

1 - SHPOL'SKIY, E. V.

B-4

USSR/ Physical Chemistry - Molecule. Chemical bond

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 10868

Author : Shpol'skiy E.V., Klimova L.A.
Inst : Academy of Sciences USSR
Title : Effect of Solvent on Luminescence Spectrum of Aromatic Hydrocarbons at Low Temperatures

Orig Pub : Izv. AN SSSR. Ser. fiz., 1956, 20, No 4, 471-475

Abstract : Investigation of the spectra of fluorescence and phosphorescence of aromatic polycyclic hydrocarbons of the pyrene series at temperature of liquid air in frozen solutions in n-paraffins: 3,4,6,7-dibenzopyrene in n-heptane, 3,4-benzopyrene in n-heptane and n-octane, coronene in n-hexane, n-heptane, n-nonane, n-pentadecane and n-hexadecane. Fluorescence spectra consist of sharp lines as in atomic spectra. Spectra of coronene contain in addition to brilliant and sharp bands, bands that are sharp but weak which appertain to 1,12-benzoperylene (RZhKhim, 1955, 15746). Lines of fluorescence spectra of coronene solutions form doublets, relative intensities of components and $\Delta\nu$ clearly depend on the solvent, the following characteristics being apparent: 1) on transition from hexane to heptane ratio of component intensities

Card 1/2

SHPOL'SKII, Ye. V.

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7767. EMISSION SPECTRUM CORONA IN SOLUTIONS AT LOW TEMPERATURES. E.V.Shpol'skii and L.A.Klimova.
Dokl. Akad. Nauk SSSR, Vol. 111, No. 6, 1227-30 (1956). In Russian.

Certain polycyclic condensed aromatic hydrocarbons in solutions of normal paraffins (pentane, hexane and octane) when solid at 77°K give fluorescent and phosphorescent spectrum consisting of narrow bands which are called lines. New photographs of these lines have been taken with instruments of greater resolving power and are reproduced. The lines are identified for different solvents and the effect of different solvents is considered. W.Bardsley

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Moscow State Pedagog. Inst. im. V.I. Lenin

SHPOL'SKIY, E.V.; GIRDZHIYAUSKAYTE, E.A.; KLIMOVA, L.A.

Emission spectra of aromatic hydrocarbons at low temperatures.
Fiz. sbor. no.3:24-36 '57. (MIRA 11:8)

1. Moskovskiy gosudarstvennyy pedagogicheskiy institut im. V.I. Lenina.
(Electron emission) (Hydrocarbons—Spectra)
(Low temperature research)

53-3-1/6

AUTHOR: Shpol'skiy, E.V.

TITLE: Forty Years of Soviet Physics (Sorok let sovetskoy fiziki)

PERIODICAL: Uspekhi Fiz. Nauk, 1957, Vol. 63, Nr 3, pp. 461 - 501 (USSR)

ABSTRACT: Conditions with respect to physics were not very favorable in Tsarist Russia. Tough some very prominent physicists, like Stoletov, Lents, Umov, Golitsyn, Lebedev, and Eykhenval'd lived in Russia during the end of the 19th and the beginning of the 20th century, they all were, with the exception of Lebedev, scientific solitaries. Petersburg university professors were said to have an extensive learning but they displayed only little interest for creative activities. Already during the first days of Soviet rule the Soviet government organized scientific research work on a large scale with extraordinary zeal. A network of new universities was created, and attention was focused upon creating a network of large scientific research institutes for the various fields of science. Science was recognized as a necessary element of state reconstruction. The planned creation of physical scientific institutes began already in 1918. P.P. Lazarev, A.F. Ioffe and D.S. Rozhdest-

Card 1/ 4

Forty Years of Soviet Physics

electrodynamics, or, to be more exact, of the quantum theory of the field in general. Soviet contributions were made in this direction above all by N.N. Bogolyubov, L.D. Landau, I.Ye. Tamm, M.A. Markov, I.Ya. Pomeranchuk and others. Mention is made above all of Tamm's approximation method for the solution of the equations of quantized mesodynamics and of the works by L.D. Landau on the thermodynamical theory of phase transformations of second kind. L.D. Landau developed also the very interesting principle on the connection between right-left-asymmetry and the electric charge. Atomic nucleus and cosmic radiation: First the well-known Soviet achievements in this field are mentioned. However, successful experiments and theoretical work concerning the physics of the atomic nucleus was carried out during the entire period of the last 40 years, most of the work being carried out by experimental physicists. Thus, A.I. Alikhanov and A.I. Alikhaniyan with their laboratory situated on the peak of the mountain Alagez in Armenia were pioneers within the field of the study of mesons with different masses. B.V. Kurchatov and his collaborators in 1935 discovered the nuclear isomerism of radioactive elements. Next, Soviet successes in connection with the construction of accelerators

PHASE I BOOK EXPLOITATION 1005

Shpol'skiy, Eduard Vladimirovich

Sorok let sovetskoy fiziki (Forty Years of Soviet Physics) Moscow, Fizmatgiz, 1958. 85 p. 10,000 copies printed.

Ed.: Kuznetsova, Ye.B.; Tech. Ed.: Yermakova, Ye.A.

PURPOSE: This booklet is intended for the educated public interested in the progress of Soviet science.

COVERAGE: The author presents a short introduction to the history of Soviet physics, its pattern of development, and its most outstanding achievements. This booklet is a revised and enlarged version of an article published in the November 1957 issue of Uspekhi fizicheskikh nauk. The booklet presents extensive listings of personalities working in each area of physics. The two largest groups of theoretical physicists, for instance, are listed as the group of students of I.E. Tamm which include S.A. Al'tshuler, S.Z. Belen'kiy, D.I. Blokhintsev, A.D. Galanin, V.L. Ginzburg, A.S. Davydov, S.I. Pekar, A.D. Sakharov, E.L. Feynberg, S.P. Shubin, and V.S.

Card 1/3

AVAILABLE: Library of Congress

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Card 3/3

SHPOLSKII, E.

40 years of Soviet physics (Conclusion). Tr. from the Russian. p. 672.

POKROKY MATEMATIKY, FYSIKY A ASTRONOMIE. (Jednota ceskoslovenskych matematiku a fysiku) Praha, Czechoslovakia. Vol. 3, no. 6, 1958.

Monthly list of East European Accessions (EEAI) LC, Vol. 9, no. 1, January 1960. Uncl.

AUTHORS: Shpol'skiy, E.V. and Girdzhiyauskayte, E.A. 51-4-5-10/29

TITLE: Luminescence and Absorption of Pyrene and 3,4-Benzpyrene in Frozen Solutions of Normal Paraffins (Lyuminestsentsiya i pogloshcheniye pirena i 3,4-benzpirena v zamorozhennykh rastvorakh normal'nykh parafinov)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol IV, Nr 5, pp. 620-630 (USSR)

ABSTRACT: In a series of papers from the authors' laboratory (Ref 1-6) it was shown that certain aromatic hydrocarbons (coronene, pyrene, 3,4-benzpyrene) in frozen and cooled to 77°K solutions in normal paraffins exhibit fluorescence and phosphorescence spectra consisting of narrow lines similar to the lines of atomic spectra in gases. The list of substances exhibiting this effect was considerably extended by Bowen and Brocklehurst (Ref 7). Until recently only the spectra of coronene were investigated in detail. The present paper deals with the spectra of pyrene and 3,4-benzpyrene. Fluorescence was excited by a group of mercury lines near 3650 Å. Phosphorescence was excited by unfiltered light from a mercury lamp. A triple-prism glass spectrograph ISP-51 and a Bausch and Lomb quartz spectrograph were used. The absorption

Card 1/3

Luminescence and Absorption of Pyrene and 3,4-Benzpyrene in Frozen Solutions of Normal Paraffins

spectra were studied using a hydrogen lamp or an incandescent lamp as a source. The concentration of pyrene or 3,4-benzpyrene was of the order of 10^{-7} - 10^{-5} mole/litre; to study absorption this concentration was increased to 10^{-3} mole/litre. The results for pyrene in paraffin oil, n-hexane, n-pentane, and n-heptane and n-octane are given in Figs 1-4 and Table 1. Similar results for 3,4-benzpyrene are given in Figs 5-7 and Tables 2, 3. It is found that the line spectra observed depend strongly on the solvent used. A vibrational analysis of these spectra shows that their general nature is preserved in all solvents. It is concluded, therefore, that these line spectra belong to the molecules of pyrene and 3,4-benzpyrene. The long-wavelength portion of the absorption spectrum exhibits a structure similar to the fluorescence spectrum in the same solvent but there is no mirror symmetry between the frequencies of the fluorescence and the long-wavelength absorption spectra. The short-wavelength parts of the absorption spectra of both pyrene and 3,4-benzpyrene show a certain qualitative similarity with the fluorescence spectra. The observed properties of the long-wavelength portions of the absorption spectra suggest that they

Luminescence and Absorption of Pyrene and 3,4-Benzpyrene in Frozen Solutions of Normal Paraffins

are essentially different from the strong fundamental absorption bands at short-wavelengths. There are 7 figures, 3 tables and 11 references, 6 of which are Soviet, 2 American, 2 Italian and 1 French

ASSOCIATION: Moskovskiy gosudarstvennyy pedagogicheskiy institut im. V.I. Lenina (Moscow State Pedagogical Institute im. V.I. Lenin)

SUBMITTED: July 8, 1957

1. Aromatic compounds - Luminescence 2. Aromatic compounds-Absorption 3. Paraffins - Applications 4. Spectographs - Applications

SOV/53-66-2-9/9

AUTHORS: Shpol'skiy, E. V., Bonch-Bruyevich, V.

TITLE: Bibliography (Bibliografiya)

PERIODICAL: Uspekhi fizicheskikh nauk, 1958, Vol 66, Nr 2, pp 349-351 (USSR)

ABSTRACT: Shpol'skiy discusses the first volume of the "Textbook of Nuclear Physics" edited by G. Hertz and published 1958 by Teubner (Leipzig).

Bonch-Bruyevich discusses a translation of the book on "Semiconductors" by D. Rayt, which was published in English. The translation was made by V. Ya. Moyzhes, under the editorship of S.S. Shalyt.

Card 1/1

24(0)
AUTHOR: Shpol'skiy, E. V.

SOV/53-66-3-7/7

TITLE: Bibliography (Bibliografiya) The Creative Career of M. Planck (Tvorcheskiy put' M. Planka)

PERIODICAL: Uspekhi fizicheskikh nauk, 1958, Vol 66, Nr 3, pp 535-542(USSR)

ABSTRACT: The author in detail discusses the first three volumes of Max Planck's work "Physikalische Abhandlungen and Vorträge" (Physical Treatises and Lectures) which was published by Friedrich Vieweg und Sohn, Braunschweig, 1958. There are 2 references, 1 of which is Soviet.

Card 1/1

USCOMM-DC-60,651

21(0),24(0) PHASE I BOOK EXPLOITATIO' SOV/3:

Akademiya nauk SSSR. Fizicheskiy institut

Issledovaniya po eksperimental'noy i teoreticheskoy fizike; [sbornik] (Studies on Experimental and Theoretical Physics; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 304 p. Errata slip inserted. 2,300 copies printed.

Ed.: I. L. Fabelinskiy, Doctor of Physical and Mathematical Sciences; Eds. of Publishing House: A. L. Chernyak and V. G. Berkgaut, Tech. Ed.: Yu. V. Rylina; Commission for Publishing the Collection in Memory of Grigoriya Samuilovich Landsberg: I. Ye. Tamm (Chairman), Academician; M. A. Leontovich, Academician; P. A. Bazhulin, Doctor of Physical and Mathematical Sciences; S. L. Mandel'shtam, Doctor of Physical and Mathematical Sciences; I. L. Fabelinskiy, Doctor of Physical and Mathematical Sciences; F. S. Landsberg-Baryshanskaya, Candidate of Physical and Mathematical Sciences; and G. P. Motulevich (Secretary), Candidate of Physical and Mathematical Sciences.

PURPOSE: This book is intended for physicists and researchers engaged in the study of electromagnetic radiations and their role in investigating the structure and composition of materials.

COVERAGE: The collection contains 30 articles which review investigations in spectroscopy, sonics, molecular optics, semiconductor physics, nuclear physics, and other branches of physics. The introductory chapter gives a biographical profile of G. S. Landsberg, Professor and Head of the Department of Optics of the Division of Physical Technology at Moscow University, and reviews his work in Rayleigh scattering, combat gases, spectral analysis of metals, etc. No personalities are mentioned. References accompany each article.

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SOV/51-7-6-38/38

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AUTHORS: Shpol'skiy, E.V. and Klimova, L.A.

TITLE: On the Problem of the Origin of Fine Structure in the Luminescence Spectra of Aromatic Hydrocarbons at Low Temperatures

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, No 6, pp 852-854 (USSR)

ABSTRACT: The authors carried out (Refs 1-6) a series of investigations of the emission spectra (fluorescence and phosphorescence) of aromatic hydrocarbons dissolved in paraffins and frozen at the liquid-nitrogen temperature (77.3°K). The spectra of coronene, pyrene and 3,4-benzopyrene in normal paraffins from pentane to decane were studied in great detail. At low temperatures the bands were split into multiplets consisting of groups of lines of 1-3 cm^{-1} width. It was established (Refs 3-5) that these multiplet spectra can be represented as superpositions of several series of lines of different intensities displaced with respect to one another by definite "splitting intervals". Recently the authors studied the same spectra at 20°K and observed certain changes in them. For example in the case of coronene new lines were found and the distribution of intensities between the multiplet components was different from that at 77°K. The new lines observed at 20°K gave rise to vibrational series similar to those observed at the liquid-nitrogen temperature; in this way the number of such series

Card 1/3

On the Problem of the Origin of Fine Structure in the Luminescence Spectra of Aromatic Hydrocarbons at Low Temperatures

in coronene increased to five or six. Moreover, separations between doublets observed in coronene (intervals of 86, 72, 38 and 42 cm^{-1}) which were regarded (Refs 3-5) as characteristic of a given solvent were found in multiplets in all the solvents (Fig 1). Similar results were obtained at 20°K in the case of benzopyrene. The splitting intervals of benzopyrene were similar or identical with the intervals of coronene in various solvents. This means that the number and relative displacement of the series is governed primarily by the properties of the solvents, in spite of the fact that the series themselves are definitely due to electron vibrational transitions in the solute molecules. These and other experimental facts become clear if it is assumed that the series forming the multiplets belong to different spatially separated emitting molecules. Local differences of the crystal field are responsible for the multiplicity of the series and variations of the spectra. The following experiment confirms the above explanation. The fluorescence spectra were recorded using benzopyrene and pyrene solutions at 77°K, prepared in two ways: the usual rapid freezing and a slow freezing. In the latter case the emission spectrum was much weaker and its colour

24(7)

AUTHORS: Shpol'skiy, E. V., Klimova, L. A. SOV/48-23-1-5/36

TITLE: Vibrational Analysis of the Phosphorescence Spectrum of Coronae (Vibratsionnyy analiz spektra fosforestsentsii koronena)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 1, pp 23-28 (USSR)

ABSTRACT: For a number of polycyclic aromatic hydrocarbons it was found that the difference of frequencies in phosphorescence and fluorescence spectra is almost equal. A vibrational analysis was impossible due to the broad indistinct bands and the fact that they almost converge. However, if a paraffin hydrocarbon is used as solvent, the bands are split into lines which are measurable within an error limit of 2-3 cm^{-1}. In this paper the phosphorescence spectrum was photographed simultaneously together with the fluorescence spectrum at an excitation by the mercury lines 3650 Å and 3135 Å. The cuvette was cooled with liquid nitrogen down to 77.3° K. The corona spectrum was photographed in various solvents, paraffin oil, heptane, octane, and pentadecane. In the figures adjoining it is shown that the corona bands in paraffin oil or ethyl alcohol are

Card 1/3

split in heptane or octane solution into lines which, however, run together already in octane. In pentadecane only very indistinct broad bands are visible, which already earlier (Ref 4) was ascribed to the ratio between the dimensions of the C axis of the solvent chain and the dimensions of the corona molecule. All spectra obtained represent three triplets which differ in their microstructure. The first triplet contains three groups of lines, each of them possessing 4 lines. Their distances within the frequency scale are equal in all three groups. The second triplet also comprises three groups, each of them possessing four lines. The distances vary in this case. The third triplet includes doublet-shaped groups of lines. In every solvent the spectrum may be represented as series which have equal frequency differences. Their distance varies only in the individual solvents. Accordingly, it is assumed that, if the emission spectrum of fluorescence was produced by the lowest level of the first state of excitation, each series indicates the structure of the vibrational level of the normal state. The phosphorescence spectrum shows quite the same features (Tables 1, 2 and Scheme. Table 2 according to Bowen and

Brocklehurst (Boyen, Broklekherst)(Ref 7)). The series possess the frequency differences 120, 365, 850, 1157, and 1350. The authors thank B. S. Neporent and P. P. Feofilov for supplying their plants. There are 5 figures, 2 tables, and 8 references, 4 of which are Soviet.

21(0)
AUTHOR: Chentsov, E. SOV/53-67-4-7/7

TITLE: The Fifth All-Union Conference on the Physics of Low Temperatures (5-ya Vsesoyuznoye soveshchaniye po fizike nizkikh temperatur)

PERIODICAL: Uspekhi fizicheskikh nauk, 1959, Vol 67, Nr 4, pp 745-750 (USSR)

ABSTRACT: This Conference took place from October 27 to November 1 at Tbilisi. It was organized by the Otdeleniye fiziko-matematicheskikh nauk Akademii nauk SSSR (Department of Physico-mathematical Sciences of the Academy of Sciences, USSR), the Akademiya nauk Gruzinskoy SSR (Academy of Sciences, Georgian SSR), and the Tbilisskiy gosudarstvennyy universitet im. Stalina (Tbilisi State University imeni Stalin). The Conference was attended by about 300 specialists from Tbilisi, Moscow, Kharkov, Kiyev, Leningrad, Sverdlovsk, and other cities as well as by a number of young Chinese scientists at present working in the USSR. About 50 lectures were delivered, which were divided according to research fields.

One of the most interesting lectures delivered at this Conference was that by I. M. Lifshits, B. G. Lazarev, Ya. D. Sharadzhov and V. N. Zhotkevich (FTI) on the polymorphism of metals at low temperatures; P. L. Kapitsa commented on this topic during the discussion. N. P. Bulayeva, V. S. Kogan and B. G. Lazarev (FTI) investigated the system hydrogen-deuterium by the methods of low-temperature-radiography, thermal analysis, and the visual observation of crystallization. M. I. Kaganov, Sh. Sh. Abkhanorava and R. I. Bakhtiyarov investigated the thermoelectric properties of compounds of the type $A^{III}B^{V}$ and $A^{II}B^{VI}$, and dealt with the phenomenon of the "photon wind" predicted by Gurevich; the investigation was carried out at the Degaussatsiy filial AN SSSR (Dagestan Branch, AS USSR). E. M. Reynov and A. P. Shitov (FTI - Leningrad Physico-technical Institute) gave a report on the measurement of the electricity limit of tin- and indium polycrystals at very low temperatures (3°K), and N. M. Reynov and M. I. Kaykov (FTI) spoke about attempts made to find the expected diamagnetic resonance on Cooper pairs in cuprous oxide. G. R. Khutsishvili (FTI i Institut fiziki AN Gruzinskoy SSR - Tbilisi State University and Institute of Physics AS Georgian SSR) carried out a theoretical investigation of the Overhauser effect in non-metals. Lokshin investigated the electron- and nuclear (proton) resonance in diphenylpicryl hydrazyl at helium temperature. B. N. Samoylov spoke about experiments to be carried out concerning the orientation of Co^{60}- and Au^{198}-nuclei (in iron) at extremely low temperatures. B. I. Verkin and Ya. F. Grese (FTI) investigated the absorption spectrum of a cuprous oxide crystal in the magnetic field at helium temperature and observed the effect of magneto-optical oscillations. V. P. Peshkov and K. P. Gaykov gave information concerning scientific work of Soviet scientists in foreign countries (zagranichnaya nauchnaya komandirovka), and K. V. Shpol'skiy spoke about the abstracting journal "Fizika". The head of the department for problems of the physics of low temperatures, Academician P. L. Kapitsa and the President of the Academy of Sciences Gruzinskaya SSR, Academician N. I. Muskhelishvili closed the Conference. The 6. All-Union Conference on the Physics of Low Temperatures will be held in June and July 1958 in the city of Sverdlovsk.

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24 (7), 5 (3)
AUTHOR: Shpol'skiy, E. V. SOV/53-68-1-5/17

TITLE: Emission Spectrum Analysis of Organic Compounds (Emissionnyy spektral'nyy analiz organicheskikh soyedineniy)

PERIODICAL: Uspekhi fizicheskikh nauk, 1959, Vol 68, Nr 1, pp 51-69 (USSR)

ABSTRACT: This article is an elaborated reproduction of a lecture delivered by the author at the 12th Conference on Spectroscopy held in Moscow on November 23, 1958. The author gives a survey of the range of application, possibilities, methods, and the present stage of this field of research and reports on numerous Russian publications concerning this series of problems; also some Western publications are mentioned. The following Russian authors are mentioned: G. S. Landsberg, P. A. Bazhulin, M. M. Sushchinskiy, M. A. Konstantinova-Shlezinger, P. P. Feofilov, B. S. Neporent, B. I. Stepanov, A. A. Il'ina, E. V. Shpol'skiy, L. A. Klimova, E. A. Girdzijauskaitė, P. P. Dikun, et al. The author gives photographic reproductions of the fluorescence spectra of a number of cyclic compounds at temperatures of from 20-77°K with the pertinent Å-scale. Some examples of such analyses

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are given. (a) Investigation of carcinogenic substances, in particular of 3,4-benzopyrene. For the purpose of identifying these substances fluorescence spectrum analysis has been employed long since. A. A. Il'ina worked out a special method for the detection of 3,4-benzopyrene. In order to increase the selectivity and sensitivity, she applied frozen vapors of the substances to be investigated; the author himself made experiments to determine the range of sensitivity of this method. Already at 10^{-3} % of the substance (in paraffin oil) the 4035-Å-line was visible, and at 5.10^{-3} % a weak trace of the 4320-Å-line. In a table the author exemplifies the analysis of oil (extracted from pit-coal black), table 2 contains an example of qualitative benzopyrene analysis with previous chromatographing and freezing of n-hexane vapors; the author gives the wavelengths of the fluorescence spectrum of 3,4-benzopyrene as well as those of the benzopyrene fractions. As second example the author discusses the detection of aromatic hydrocarbons in bituminae and oil fractions. Fundamental articles on this field were again published by Il'ina, I. Ya. Postovskiy, R. I. Personov

(he took the spectral pictures), and Kh. I. Mamedov. The author shows spectral photographs of the fluorescence spectrum of a bitumen extraction in comparison with that of pure perylene at 77.3°K, as well as two spectral diagrams. As third and last example the author discusses the determination of coronae and 1,12-benzoperylene. Figure 8 shows the scheme of the phosphorescence levels, figure 9 illustrates the spectral pictures. Fundamental articles in this field were published by Western authors as well as by V. L. Levshin, T. N. Bolotnikova, Shpol'skiy, L. A. Klimova, S. G. Bogomolov, and Kh. I. Mamedov. Also Il'ina carried out valuable investigations. Figure 10 shows the phosphorescence spectrum of an unknown product in comparison with pure coronae, figure 9 shows a fluorescence- and phosphorescence spectral diagram of two dibenzacrydines within the range of from λ = 400-600 mμ. Figure 11 shows the same for indene and two of its derivatives in alcohol at 77.3°K. There are 11 figures, 2 tables, and 40 references, 29 of which are Soviet.

24 (3)

AUTHOR: Shpol'skiy, E. SOV/53-68-3-11/11

TITLE: Semiconductor Problems (Problemy poluprovodnikov)

PERIODICAL: Uspekhi fizicheskikh nauk, 1959, Vol 68, Nr 3, pp 561-562 (USSR)

ABSTRACT: This is a review of the book "Semiconductor Problems IV" (edited by W. Schottky), published by Friedr. Vieweg und Sohn, Braunschweig 1958 (DM 46.80); this review was published in an extended form already in "Fortschritte der Physik".

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AUTHORS: Shpol'skiy, E.V., and Personov, R.I.

TITLE: Emission and Absorption Spectra of Perylene in Solid Solutions at 77 °K

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 3, pp 328-337 (USSR)

ABSTRACT: The authors obtained the absorption and fluorescence spectra of perylene solutions in ethyl alcohol and in normal paraffins (from hexane to nonane) at room temperature and at 77 °K. The fluorescence spectra of perylene (Fig 4 and Table 2) both in crystalline state and in solutions were recorded by means of a Fyuss glass spectrograph with dispersion of 42 Å/mm near 4500 Å. Fluorescence was excited with mercury lines near 3650, 4046 and 4358 Å from a PRK-2 lamp with appropriate filters. The absorption spectra of perylene solutions were recorded at room temperature with a spectrophotometer SF-4 (Fig 2). The absorption spectra of frozen solutions (Fig 3 and Table 1) were obtained with the spectrograph used to obtain the fluorescence spectra. A 350 W incandescent lamp was used as a source of continuous

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spectrum. The wavelengths were determined by linear interpolation between the closest lines of the iron spectrum. It was found that the spectra which consisted of diffuse bands in alcohol solutions were split into narrow "lines" in frozen paraffin solutions. Vibrational analysis of these spectra was carried out and the frequencies of the normal vibrations of perylene in the ground and excited electron states were determined. A mirror symmetry was found between the spectra of absorption and fluorescence (Fig 5). It is suggested that an "oriented gas" model should give satisfactory results in interpretation of the perylene spectra. Acknowledgement is made to Professor I.Ya. Postovskiy for the supply of perylene.

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There are 6 figures, 2 tables and 18 references, of which 8 are Soviet, 7 English and 3 German.

SUBMITTED: July 16, 1959

S/053/60/071/02/02/011
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AUTHOR: Shpol'skiy, E. V.

TITLE: Fluorescence Line Spectra of Organic Compounds and Their Applications

PERIODICAL: Uspekhi fizicheskikh nauk, 1960, Vol. 71, No. 2, pp. 215-242

TEXT: The present article gives a detailed survey on results obtained by the author and other scientists in the above-mentioned field. In the introduction, the author discusses a method which has been developed in collaboration with A. A. Il'ina and L. A. Klimova. This method is based on the utilization of neutral, easily crystallizable normal paraffins as solvents for the substances to be investigated. Fluorescence spectra of organic compounds have hitherto been studied at 77.3°K. At the Institut fizicheskikh problem AN SSSR (Institute for Physical Problems, AS USSR) the author carried out investigations at the temperatures of liquid hydrogen and helium, which had been made possible by Academician P. L. Kapitsa. Fig. 1 shows a schematic representation of the experimental device. Various spectrographs were used, including a small glass

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spectrograph with Rutherford prism (dispersion 25 A/mm at 4000 A) a ИСП-51 (ISP-51) spectrograph with three glass prisms, a camera with F = 840 mm (10 A/mm at 4000 A) and, at the temperatures of liquid helium and hydrogen, a spectrograph with a plane diffraction grating (600 lines per mm). In the present paper, only the most important results and applications are discussed. For more detailed data see the original papers by Shpol'skiy et al. (Refs. 4-28). The main object of the investigations were polynuclear aromatic hydrocarbons with condensed benzene rings. First, fluorescence spectral analyses are dealt with in connection with structural determinations. Next, some fluorescence spectra are shown, and numerical spectral data of 3,4-benzopyrene in paraffin oil at 77°K are compiled in Table 1. Fig. 6 shows the fluorescence spectra of perylene under various conditions (crystalline and dissolved in ethyl alcohol at different temperatures - no splitting into bands or lines; in n-hexane and n-heptane - splitting into bands and lines at 77°K). Numerical spectral data of perylene dissolved in n-hexane at 77°K are given in Table 2. Further details are given on the fluorescence spectra of coronas in hexane and heptane at 77°K and 20°K, on those of 3,4-benzopyrene in paraffin oil and n-heptane at 77.3 and 20°K. No

SHPOL'SKIY, E.V.

From the history of physics and chemistry in the 20th century ("Contributions to physics and chemistry in the 20th century" [in German]). Usp.fiz.nauk 71 no.3: 529-530 Jl '60. (MIRA 13:7)
(Nuclear physics)

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)

SHPOL'SKIY, E.V.; KLIMOVA, L.A.

Linear spectra of aromatic hydrocarbons in frozen crystalline solutions. Part 1. Continued study of the first singlet-singlet transition in 3,4-benzopyrene at 20° and 4°K. Opt.i spektr. 13 no.2:174-191 Ag '62. (MIRA 15:11)
(Benzopyrene--Spectra) (Quantum theory)

SHPOL'SKIY, E.V.; KLIMOVA, L.A.; PERSONOV, R.I.

Linear spectra of polycyclic aromatic hydrocarbons in frozen crystalline solutions. Part 2. Singlet-singlet and triplet-singlet spectra of 1,2-benzopyrene at 77° and 4°K. Opt. i spektr. 13 no.3:341-352 S '62. (MIRA 15:9)
(Benzopyrene—Spectra)

SHPOL'SKIY, E.V.; PERSONOV, R.I.

Emission spectral analysis based on line spectra at low temperatures (survey). Zav.lab. 28 no.4:428-433 '62. (MIRA 15:5)
(Spectrum analysis)

S/053/62/077/002/004/004
B117/B138

AUTHOR: Shpol'skiy, E. V.

TITLE: Problems of the origin and structure of quasi-line spectra of organic compounds at low temperatures

PERIODICAL: Uspekhi fizicheskikh nauk, v. 77, no. 2, 1962, 320 - 336

TEXT: This paper was read at the plenary meeting of the VIII Soveshchaniye po fizike nizkikh temperatur (8th Conference on Physics of Low Temperatures) held in Kiyev on October 13, 1961. It deals with electron spectra of polyatomic organic compounds. A method was discussed by which it is possible to excite electron spectra of a great number of organic compounds in the form of a continuum of bands so narrow that they can properly be considered as lines. The formation of such "quasi-line spectra" was caused by low temperatures (nitrogen 77.3°K, hydrogen 20°K, helium 4.2°K). The resolution of broad bands into quasi-line spectra specific for a given molecule is not only affected by the deep cooling but also by the interaction between the emitting or absorbing molecule and the medium. The formation of an undistorted or only slightly distorted molecular spectrum can be achieved by introducing the emitting (absorbing) molecules

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Problems of the origin and ...

into a foreign crystal lattice which satisfies certain requirements. Such a lattice must react as little as possible with emitting molecules, forming a hard matrix for them without either deforming them or giving them too much freedom, and must be transparent in the emission or absorption range of the molecules introduced. Matrices satisfying these requirements are normal paraffins, i.e., saturated compounds of the series $C_nH_{2n+2} = CH_3CH_2CH_2.....CH_2CH_3$, owing to their chemical inactivity and perfect optical transparency to far ultraviolet. With the use of paraffin matrices, nearly all substances investigated showed, in the crystalline state, a fluorescence spectrum in the form of the above-mentioned continuum, down to the lowest temperatures. Unlike the discrete line spectra observed in frozen paraffin solutions, they were shifted toward the longwave range. This showed that the substance (activator) is contained in the paraffin matrix in the form of a molecular disperse solid. With strongest resolution of the quasi-line spectrum, there was not only a similarity of length between activator and matrix molecules but also a geometrical similarity of the zigzags, the so-called "synmorphism" (according to Bruni), which is of great importance for the structural analysis. Some peculiarities of the spectra of organic compounds in

SHPOL'SKIY, E.V.

Recent data on the radiation properties of quantum light generators (lasers). Usp.fiz.nauk 77 no.3:553-558 Jl '62. (MIRA 15:7)

(Masers)

SHPOL'SKIY, E.

"Treatises and lectures on physics and the theory of knowledge" [in German] by W.Pauli. Reviewed by E.Shpol'skii. Usp.fiz. nauk 77 no.4:749 Ag '62. (MIRA 15:8)
(Physics) (Knowledge, Theory of)
(Pauli, W.)

SHPOL'SKIY, Eduard Vladimirovich; ZHABOTINSKIY, Ye.Ye., red.; LIKHACHEVA, L.V., tekhn. red.

[Atomic physics] Atomnaia fizika. Moskva, Fizmatgiz. Vol.1.[Introduction to atomic physics] Vvedenie v atomnuiu fiziku. Izd.5, ispr. i dop. 1963. 575 p. (MIRA 17:2)

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ACCESSION NR: AP3005214 S/0053/63/080/002/0255/0279

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AUTHOR: Shpol'skiy, E. V.

TITLE: New data on the nature of quasi-linear spectra of organic compounds

SOURCE: Uspekhi fizicheskikh nauk, v. 80, no. 2, 1963, 255-279

TOPIC TAGS: quasi-linear spectra, organic compound

ABSTRACT: The possibilities presented by quasilinear spectra for practical applications and for studies in the fields of spectroscopy, crystal chemistry, and solid-state physics are discussed. In the introduction, some of the new spectroscopic results obtained in the Soviet Union and abroad with the aid of quasilinear spectra are described. Applications of these spectra to qualitative and quantitative analysis are mentioned, and the interpretation of quasilinear spectra as an independent means of study of molecules is emphasized. McClure's study (J. Chem. Phys. v. 22, 1012, 1954) of the absorption and fluerescence spectra of naphthalene in durene, as interpreted by Bolotnikova (Opt. i spektr. v. 77, 44, 1959) and Craig (Phil. Trans. Roy. Soc. v. A253, 543, 569, 1961), is cited as proof of the correctness of the notion that quasilinear spectra are

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