Shpak, I. M.

3

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3754. Complex Growths of Graphite Spherulites in Cast Irons. K. P. Bunin, Yu. N. Taran, and I. M. Shpak. Henry Brutcher Translation No. 3623, 4 p. (Abridged from *Doklady Akademii nauk SSSR*, v. 101, no. 1, 1955, p. 63-67.) Henry Brutcher, Altadena, Calif.

Previously abstracted from original. See item 9341, v. 4, July 1955.

[illegible], I. A. Cand. Geogr. Sci.

Dissertation: "Experience Gained in Studying the Hydrological Features of a Small River." Moscow Order of Lenin State U. imeni M. V. Lomonosov, 24 Dec 47

SO: Vechernyaya Moskva, Dec 1947 (Project [illegible])

SHPAK, I.S.

Calculating overflow-measuring devices under field conditions. (MIRA 11:6)
Trudy GGI no.36:84-90 '52.
(Stream measurements) (Calibration)

SHPAK, I.S.

Observations on soil moisture at runoff stations in hilly moraine landscapes. Trudy GGI no.45:196-232 '54. (MLRA 8:11)
(Soil moisture)

SHPAK, I.S.

Accuracy of observations on snow cover by means of snow surveying.
Trudy GGI no.45:233-284 '54. (MLRA 8:11)
(Snow)

SHPAK, I.S.

Methods of surveying snow on reservoir surfaces. Meteor. i gidrol. no.3:46-48 Mr '56. (MLRA 9:7)
(Snow--Measurements)

SHPAK, I.S.; MURZIN, L.P.

Squall in the region of the Tsimlyansk Reservoir, June 25, 1956.
Meteor.i gidrol. no.4:28-30 Ap '57. (MLRA 10:5)
(Tsimlyansk Reservoir--Storm, 1956)

[illegible]

3(7) PHASE I BOOK EXPLOITATION SOV/1945

Tsimlyanskaya gidrometeorologicheskaya observatoriya

Sbornik rabot...Vyp. 1. (Collected Papers of the Tsimlyansk Hydrometeorological Observatory Nr. 1) Leningrad, Gidrometeoizdat, 1958. 159 p. 460 copies printed.

Additional sponsoring agency: USSR. Glavnoye upravleniye gidrometeorologicheskoy sluzhby.

Ed. (Title page): P.P. Kokoulin; Ed. (Inside book): Z.I. Mironenko; Tech. Ed.: M.Ya. Flaum.

PURPOSE: This publication is intended for all specialists concerned with the study and exploitation of water reservoirs and large lakes.

COVERAGE: This collection of articles is concerned with a study of the following factors as they concern the Tsemlyanskoye Water Reservoir: wind produced agitation in the lake, the formation of

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shorelines, changes in the meteorological conditions induced by the flow of air currents onto the reservoir surface, surface evaporation, and the gaseous regime of the lake. The studies are based on data obtained from observations. This information is shown in tables and graphs. Each article is accompanied by diagrams, tables, and bibliographic references.

TABLE OF CONTENTS:

SHPAK, I.S.

Changes in meteorological elements due to the onflow of a current of air ~~ever~~ the reservoir. Sbor.rab.Tsim.gidromet. obser. no.1:105-134 '58. (MIRA 12:2)
(Tsimlyansk Reservoir--Meteorology--Observations)

SHPAK, I.S.

Soil moisture in catchment areas of the Desna Valley Runoff Station and methods for its calculation. Trudy UkrNIGMI no.15: 3-23 '58. (MIRA 12:7)
(Desna Valley---Soil moisture)

SHPAK, I.S.

Fluctuations of the water temperature in Tsimlyansk Reservoir.
Sbor. rab. po gidrol. no.1:62-66 '59. (MIRA 15:2)

1. TSimlyanskaya nauchno-issledovatel'skaya gidrometeoobservatoriya.
(TSimlyansk Reservoir--Temperature)

SHPAK, I.S.

Water balance of a minor field drainage basin in winter and spring. Trudy UkrNIGMI no.19:49-62 '59. (MIRA 13:4)
(Laska Valley--Hydrology)

SHPAK, I.S.; KOSTYUCHENKO-PAVLOVA, M.M.

Accuracy of the single sample system in determining soil moisture by the gravimetric method. Pochvovedenie no.6: 107-111 Je '61. (MIRA 14:6)

1. Severo-ukrainskaya opornaya gidrogeologicheskaya stantsiya. (Soil moisture)

SHPAK, I.S.

Water balance of a small field watershed. Trudy UkrNIGMI
no.30:41-52 '61. (MIRA 15:1)
(Desna Valley—Hydrology)

SHPAK, I.S.

Soil moisture and ground-water conditions in the basin of the Golovesnya River. Trudy UkrNIGMI no.30:53-66 '61. (MIRA 15:1)
(Golovesnya Valley--Water, Underground)

SHPAK, I.S.

Heat balance of Tsimlyansk Reservoir. Sbor.rab.Tsim.gidromet.obser. no.2:27-35 '61. (MIRA 15:3)

(Tsimlyansk Reservoir--Temperature)

SHPAK, I.S.

Moisture variations in steppe soils during summer. Trudy UkrNIGMI no.34: 39-44 '62. (MIRA 15:7)

(Soil moisture) (Steppes)

SHPAK, I.S.

Water balance of a small field and a forest drainage basin for the hydrological year 1959-60. Trudy UkrNIGMI no.34:24-38 '62.

(MIRA 15:7)

(Hydrology)

SHPAK, I.S.; YUSHCHENKO, N.D.

Water balance of [illegible] and [illegible] drainage basins during 1961-1962. Trudy Ukr NIGMI no.46:91-109 '64.
(MIRA 17:10)

SHPAK, I.S.

Methodology of calculating the water reserves of the upper 10-centimeter layer of the soil. Trudy Ukr NIGMI no.46:52-62 '64. (MIRA 17:10)

SOPAK, I.S.

Methods for calculating the moisture supply in a 10-centimeter soil layer. Pochvovedenie no.9:50-53 S '65.

(MIRA 18:10)

1. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut.

SHPAK, I.S.

Natural replenishment of groundwater resources. Trudy UkrNIGMI no.50:29-39 '65.

Closed depressions (saucer-shaped sinkholes, hollow depressions, etc.) in the Ukraine and their hydrologic role. Ibid.:60-69 (MIRA 18:11)

SHPAK, I.S.; ZAPOL'SKIY, I.A.

Water balance of the drained bottomland of the Trubezh River, 1960-1963. Trudy UkrNIGMI no.50:40-49 '65.
(MIRA 18:11)

SHPAK, L.

Yaroslavl Highway. Za bezop.dvizh. no.3:12-13 Mr '60. (MIRA 13:12)

(Moscow Province--Traffic regulations)

ZHIGAYLO, Ya.V.; SHPAK, L.I.

Effect of potassium addition on the rate of regeneration of a zinc-chromium catalyst. Khim. prom. no.8:591-593 Ag '63.
(MIRA 16:12)

18(5) SOV/128-59-9-20/25

AUTHOR: Shpak L.V. and Gladkiy S.I., Engineers

TITLE: Using Tall Oil in Producing Foundry Cores

PERIODICAL: Liteynoye proizvodstvo, 1959, Nr 9, p 45 (USSR)

ABSTRACT: Foundry cores used in serial production should be neither hygroscopic nor brittle. To impart them the required properties, the Zaporozh'ye Plant "Kommunar" has introduced a process of making the foundry cores out of a mixture of the fixing agent P with tall oil. The latter, a liquid of a dark-brown color, is a waste material of cellulose industry. Its moisture content is 0.6%; viscosity at 50°C - 17.7 (according to Englerl); specific gravity - 0.97; value of saponification - 206. For preparation of the mixture the tall oil, in quantity of 0.6%, is charged together with the fixing agent P into the runners, where it is mixed during 45-60 minutes. The volume of mixture is 250 litres; moisture - not over 3%; strength of cores - 0.1 to 0.25 kg/cm^2. The cores are dried at a temperature of 280° - 300°C in the course of 60-80 minutes. Tensile strength of dry cores is not under 10 kg/cm^2. The cores made on the basis of the fixing

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Using Tall Oil in Producing Foundry Cores

agent P with the addition of tall oil are far less hygroscopic and brittle than those prepared without oil. Addition of tall oil does not practically raise the cost of the mixture.

Card 2/2

SHPAK, M. T.

SHPAK, M. T. "Spectral Investigations in a Series of Polycyclic Hydrocarbons." Acad of Sci Ukrainian SSR. Inst of Physics. Kiev, 1956. (Dissertations for Degree of Candidate in Physicomathematical Science)

So: Knizhnaya Letopis', No. 17, 1956.

PRIKHOT'KO, A.F.

24(7) p.3 PHASE I BOOK EXPLOITATION SOV/1365

L'vov. Universytet

Materialy X Vsesoyuznogo soveshchaniya po spektroskopii. t. 1: Molekulyarnaya spektroskopiya (Papers of the 10th All-Union Conference on Spectroscopy. Vol. 1: Molecular Spectroscopy) [L'vov] Izd-vo L'vovskogo univ-ta, 1957. 499 p. 4,000 copies printed. (Series: Its: Fizychnyy zbirnyk, vyp. 3/8/)

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po spektroskopii. Ed.: Gazer, S.L.; Tech. Ed.: Saranyuk, T.V.; Editorial Board: Landsberg, G.S., Academician (Resp. Ed., Deceased), Neporent, B.S., Doctor of Physical and Mathematical Sciences, Fabelinskiy, I.L., Doctor of Physical and Mathematical Sciences, Fabrikant, V.A., Doctor of Physical and Mathematical Sciences, Kornitskiy, V.G., Candidate of Technical Sciences, Rayskiy, S.M., Candidate of Physical and Mathematical Sciences, Klimovskiy, L.K., Candidate of Physical and Mathematical Sciences, Miliyanchuk, V.S., Candidate of Physical and Mathematical Sciences, and Glauberman, A. Ye., Candidate of Physical and Mathematical Sciences.

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SHPAK, M.T.

Spectrum analysis of the simplest polycyclic hydrocarbon solutions in a wide temperature range [with summary in English]. Ukr. fiz. zhur. 2 no.4:347-357 O-D '57. (MIRA 11:3)

1. Institut fiziki AN URSR.
(Hydrocarbons--Spectra)

PRIKHOT'KO, A.F.; SHPAK, M.T.

Polarization of impurity absorption bands in crystals. Fiz. sbor.
no.3:21-24 '57. (MIRA 11:8)

1. Institut fiziki AN USSR.
(Luminescence) (Absorption spectra)

51- 4 -1-3/26

AUTHORS: Prikhot'ko, A. F., and Shpak, M. T.

TITLE: Absorption and Luminescence of Stilbene Impurity in Dibenzyl Crystals at 20.4°K. (Pogloshcheniye i lyuminestsentsiya stil'bena kak primesi v kristallakh dibenzila pri 20.4°K.)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol.IV, Nr.1, pp.17-29. (USSR)

ABSTRACT: The absorption bands of strongly absorbing crystals (e.g. stilbene and tolane) are still comparatively wide at liquid-hydrogen temperatures. When the absorbing molecules are separated by molecules of a foreign lattice (e.g. stilbene as an impurity in a dibenzyl crystal) the absorption bands of the impurity are sufficiently narrow to be called lines. Crystals with such impurities usually luminesce. The present paper deals with absorption and luminescence of stilbene in dibenzyl crystals. The results were obtained using a

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Absorption and Luminescence of Stilbene Impurity in Dibenzyl Crystals at 20.4°K.

Hilger quartz spectrograph of high dispersive power. The absorption spectra were photographed in polarized light. The cell with the crystal was cooled to the temperature of liquid hydrogen. A hydrogen or a krypton lamp was used as a source, and an arc spectrum between iron electrodes was used for calibration. The crystal thicknesses in absorption studies were from several hundredths of a micron to 160 μ. The stilbene content was from about 0.001% to 3-5% by weight. To study luminescent spectra crystalline plates of 1 mm thickness were used. These spectra were obtained from the same surface of the crystal onto which the exciting light fell. Luminescence was excited by means of a mercury lamp. Crystals of dibenzyl possess intrinsic

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51-4-1-3/26

Absorption and Luminescence of Stilbene Impurity in Dibenzyl Crystals at 20.4°K.

absorption in the region of 37000 cm^{-1} which consists of a large number of narrow bands and lines, some of which are strongly polarized. The stilbene impurity begins to absorb light from about 29500 cm^{-1}. Fig.1 shows the absorption spectra of dibenzyl monocrystals 160 μ thick with 0.04% of stilbene (Fig.1a), 5 μ thick with 5% of stilbene (Fig.1b) and 2 μ thick with 5% stilbene (Fig.1v). All results in this figure and subsequentfigures and tables are quoted in cm^{-1}. Table 1 shows the results of measurements on a 160 μ thick dibenzyl crystal with about 0.04% of stilbene (Fig.1a). The first column gives relative intensities obtained visually. The second column

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Absorption and Luminescence of Stilbene Impurity in Dibenzyl Crystals at 20.4°K.

gives frequencies in cm^{-1} measured with 1-2 cm^{-1} precision for narrow lines, 3-5 cm^{-1} for narrow bands and 10-15 cm^{-1} for wide bands. The third column gives the wave-number differences with respect to the 29904 cm^{-1} line and similar information. The fourth column contains remarks. Fig.2 shows the luminescence spectrum of dibenzyl with 3-4% of stilbene (5% according to the caption under Fig.2). All measured luminescence lines of a crystal with 0.015% of stilbene (Fig.3a) are given in Table 2. The first column gives the relative intensities, the second - the frequencies in cm^{-1}, the third - the frequency differences with respect to the 29902 cm^{-1} line, the fourth - similar frequency differences calculated with respect to other lines. The fifth column contains remarks. Fig.3 gives the luminescence spectra for dibenzyl crystals with 0.015% of stilbene (Fig.3a) and 5% of stilbene (Fig.3b). Analysis of the spectra yields the main absorption series due to intramolecular vibrations with frequencies: 208, 297, 402, 590, 745, 847, 978, 1249, 1333, 1427, 1538 and 1593 cm^{-1}. Each of these frequencies, except 402 and 590 cm^{-1}, is itself a beginning of a further series. In addition to the series of strong lines beginning at 29904 cm^{-1}, there is a second, weaker, series, which begins at 29840 cm^{-1} (Fig.1b). Fig.1v gives the absorption spectrum of dibenzyl 2 μ thick with 5% stilbene. Compared with Fig.1b, the absorption bands

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Absorption and Luminescence of Stilbene Impurity in Dibenzyl Crystals at 20.4°K.

in Fig.lv are slightly displaced, broadened, weakened and immersed in a strong background. The reason for such a change may lie in disorder in the orientation of stilbene molecules and formation of disordered aggregates on rapid crystallization. Comparison of the absorption and luminescence spectra shows that certain lines are either identical or very close to one another in both spectra. Table 3 shows that in a frequency interval of 200 cm^{-1} no less than nine lines coincide. It is suggested that these lines and the short series occurring with them are due to molecules of stilbene which are deformed in the dibenzyl lattice. There are 3 figures, 3 tables and 6 references, of which 5 are Russian and 1 German.

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51-4-1-3/26

Absorption and Luminescence of Stilbene Impurity in Dibenzyl Crystals at 20.4°K.

ASSOCIATION: Institute of Physics, Academy of Sciences of the Ukrainian SSR. (Institut fiziki, AN USSR.)

SUBMITTED: March 25, 1957.

AVAILABLE: Library of Congress.

1. Stilbene crystals-Impurities 2. Stilbene crystals-Absorption

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SHPAK M. T.

51-4-1-4/26

AUTHORS: Prikhot'ko, A. F., and Shpak, M. T.

TITLE: Absorption and Luminescence of Stilbene Impurity in Tolane Crystals at 20.4°K. (Pogloshcheniye i lyuminestsentsiya stil'bena kak primesi v kristallakh tolana pri 20.4°K.)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol.IV, Nr.1, pp.30-39. (USSR).

ABSTRACT: Absorption by stilbene molecules in the tolane crystal lattice differs in certain respects from absorption by the same molecules in the dibenzyl lattice (see the preceding paper). The most important difference is in the polarization of certain absorption bands of stilbene in tolane which are rather similar to the absorption bands of tolane itself (Ref.2). Theory of this effect was developed by E.I. Rashba (Ref.3). To study this effect in detail, the technique used in Ref.2 was followed. A Hilger quartz spectrograph of

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high dispersion was used. Fig.1 shows the absorption spectra of 160 μ thick tolane monocrystals with 0.4% of stilbene. Table 1 gives the absorption bands and lines of stilbene in tolane at 20.4°K. The first four columns give the intensities of strong and weak lines shown in Fig.1. The fifth column gives the frequency in cm^{-1}, the sixth column gives the various frequency differences and the seventh column contains remarks. Table 2 gives some frequencies and intensities of the absorption spectra of tolane crystals with various amounts of stilbene. The impurity lines are found to be strongly polarized; each new transition to a deformed or differently oriented molecule could depress the remaining transitions and become the beginning for all series. The absorption bands remain narrow and sharp, although they are somewhat broadened on increase of stilbene concentration. From these results the fundamental frequencies of intramolecular vibrations of stilbene are determined. The general nature of luminescence of stilbene (1%) in tolane is shown in Fig.2. The spectrum begins with a pair of very weak lines of frequencies 29672 and 29620 cm^{-1}. Part of the luminescence spectrum is given in Fig.3. Table 3 gives the luminescence of stilbene in tolane at 20.4 K. The first column gives a rough intensity value; the second column gives the frequency; third, fourth and fifth columns give various frequency

51-14-1-4/26

Absorption and Luminescence of Stilbene Impurity in Tolane Crystals at 20.4°K.

differences. If the three series, which begin at 29672, 29528 and 29468 cm^{-1}, are separated out from the luminescence spectrum, then the frequencies of intramolecular vibrations of stilbene in tolane are found to be close to the corresponding frequencies obtained from the Raman spectrum and from luminescence of stilbene in dibenzyl. Stilbene and tolane form a continuous series of solid solutions (Ref.6), since their lattices are practically identical. Introduction of stilbene molecules into the lattice sites produces "defects" which become absorption centres. This accounts for the spectral peculiarities of tolane crystals with stilbene impurity which were described

Card 4/5 above. The authors note that tolane itself does not

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Absorption and Luminescence of Stilbene Impurity in Tolane Crystals at 20.4°K.

luminesce, but luminescence occurs only from the impurity levels. In the absorption and luminescence spectra of cadmium sulphide (Ref.5) the same peculiarities are observed as in tolane with stilbene. The difference between CdS and stilbene-tolane lies in the fact that the "defects" in the former are due to an excess of sulphur or cadmium, while in the latter the "defects" are stilbene molecules. There are 3 tables, 3 figures and 7 references, of which 6 are Russian and 1 French.

ASSOCIATION: Institute of Physics, Academy of Sciences of the Ukrainian SSR. (Institut fiziki AN USSR.)

SUBMITTED: March 25, 1957.

AVAILABLE: Library of Congress.

Card 5/5 1. **Tolane crystals-Stilbene Absorption** 2. **Tolane crystals-Stilbene-luminescence**

SOV/51-6-1-26/30

AUTHORS: Prikhot'ko, A.F. and Shpak, M.T.

TITLE: On the Origin of Certain Electron Transitions in Naphthalene Crystals (O proiskhozhdenii nekotorykh elektronnykh perekhodov v kristallakh naftalina)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 1, pp 119-120 (USSR)

ABSTRACT: Because of doubts about the purity of crystals in earlier work (Refs 2, 3) the authors re-investigated the spectra of naphthalene in order to check the origin of electron transitions in crystals. The authors used samples of naphthalene of various origins and purified by various methods: chemical, recrystallization from solution, sublimation and zone melting. It was found that the intensities of the absorption lines at 29941 and 31060 cm^{-1} varied considerably from sample to sample (the samples were monocrystalline, of 1 to 5 mm thickness). If the method of zone melting is used it is possible to obtain a rod of naphthalene from which layers of various purity can be cut. Such a rod was presented to the authors by V.I. Startsev and Yu.V. Naboykin. It was found that the 31060 cm^{-1} line was virtually absent in sample cut from the region of the rod with the highest purity. On the other hand samples of low purity, also cut from this rod, had a strong polarized absorption band at the latter frequency. [illegible]

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SOV/51-6-1-26/30

On the Origin of Certain Electron Transitions in Naphthalene Crystals

only the absorption but also luminescence spectra were found to depend on the sample purity. The observed effects suggested presence of impurities in the crystals. This was confirmed by adding β-naphthol which increased the intensity of the 29941 cm^{-1} line. Addition of β-methylnaphthalene strengthened the 31060 cm^{-1} line. Irradiation of naphthalene crystals with a beam of neutrons showed the presence of sulphur compounds in it. This irradiation and verification of the presence of sulphur compounds was carried out together with V.A. Batalin in the laboratory of M.V. Pasechnik. It is possible that one of these sulphur compounds is responsible for the 33441 cm^{-1} line and all the other related weakly polarized absorption lines. There are 6 references, 4 of which are Soviet, 1 English and 1 mixed(Soviet and English).

SUBMITTED: May 29, 1958

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24.3500

68313

SOV/51-8-1-12/40

AUTHORS: Shpak, M.T. and Sheka, Ye.F.

TITLE: On the Intrinsic Luminescence of Crystalline Naphthalene

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 1, pp 66-72 (USSR)

ABSTRACT:

The authors investigated the luminescence spectrum of crystalline naphthalene lying in the region of fundamental absorption. The luminescence and absorption spectra were obtained at 20.4, 77, 200-210, 293 and 330-340°K. Medium-dispersion quartz spectrographs ISP-22 and Hilger E-2 were used. For the absorption spectra a krypton lamp GSVD-120 was used; luminescence was excited with 2530-2400 Å light from a mercury lamp SVDSh-1000. A Glan-Thomson prism was used as an analyser. Very pure samples of naphthalene were obtained by repeated zone purification (45 runs). Purity of the samples was judged by the absence of β-methyl naphthalene bands in the absorption spectrum. Fig 1 gives the luminescence spectra of naphthalene crystals at 20.4°K. Fig 1 shows a luminescence band at 31480 ± 3 cm^{-1} weakly polarized along the a-direction (this is called an A-band). The A-band practically coincides with a strongly polarized A_1-band at 31476 cm^{-1} in the absorption spectrum (Ref 11). The A-band is more intense in purer samples. On increase of temperature to 77°K

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another band appears in the luminescence spectrum; it lies at 31623 ± 3 cm^{-1} (the B-band) and it is polarized in the b-direction (Fig 2). At 200-210°K (Fig 3) the A- and B-bands are broader and partly depolarized (they coincide with the A_1- and B_1-bands in the absorption spectrum at the same temperature). At 200-210°K a very weak luminescence band (the I-band) appears at 31900 cm^{-1}. On increase of temperature to 293°K the A- and B-bands are depolarized still further (the spectrum is practically unaffected by a 90° rotation of the Glan-Thomson prism) and the intensity of the I-band rises (Fig 4a). The I-band is also completely depolarized. At 330-340°K the A-, B- and I-bands become stronger and another band appears in the spectrum (the II-band), which lies in the region of the A_2 and B_2 absorption bands (Ref 11). Rise of temperature depolarizes also the absorption bands which are strongly polarized at 20.4°K (Fig 5). At 77°K a new band (the III-band) is observed in the absorption spectra of thick naphthalene crystals; this band lies at 31100 cm^{-1} and its intensity

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On the Intrinsic Luminescence of Crystalline Naphthalene SOV/51-8-1-12/40

rises on increase of temperature. At 330-340°K no further changes are observed in the absorption spectrum. The authors show that the results point to exciton nature of luminescence of very pure naphthalene crystals in the region of fundamental absorption. Acknowledgment is made to A.F. Prikhot'ko for his advice. There are 5 figures and 14 references, 9 of which are Soviet, 3 English and 2 German.

SUBMITTED: June 8, 1959

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Shpak, M.T.

81915

S/051/60/009/01/010/031
E201/E691

24.3500

AUTHORS: Shpak, M.T. and Sheka, Ye.F.

TITLE: The Effect of Impurities on Luminescence of Crystalline Naphthalene

PERIODICAL: Optika i spektroskopiya, 1960, Vol 9, Nr 1, pp 57-63 (USSR)

ABSTRACT: Earlier Prikhot'ko and Shpak (Ref 1) showed that luminescence of crystalline naphthalene (Ref 2) is due to a β-methylnaphthalene impurity. It was also reported that crystalline naphthalene contains small amounts of α-naphthol, β-naphthol, thionaphthene and other substances. The present paper reports an investigation of the effect of temperature and solute (impurity) concentration on the luminescence and absorption spectra of solid solutions of β-methylnaphthalene, α-methylnaphthalene, β-naphthol and α-naphthol in crystalline naphthalene. The experimental technique was the same as described earlier (Ref 3). The experiments were carried out at 20.4, 77 and 200°K. The results (Figs 1-5 and Tables 1-4) showed

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S/051/60/009/01/010/031
E201/E691

The Effect of Impurities on Luminescence of Crystalline Naphthalene

that solute molecules produced two types of luminescence centres in the naphthalene lattice. Acknowledgments are made to A.F. Prikhot'ko for his advice and to a graduate of the Kiyev State University, Ye.G. Ruseva. There are 5 figures, 4 tables and 11 references, 8 of which are Soviet, 2 English and 1 German.

SUBMITTED: September 18, 1959

Card 2/2

SHPAK, M.T.; SHEKA, Ye.F.

Luminescence of crystalline naphthalene containing minor admixtures. . Izv.AN SSSR.Ser.fiz. 24 no.5:553-555 My '60.
(MIRA 13:5)

1. Institut fiziki AN USSR.
(Naphthalene--Optical properties)

S/048/61/025/001/002/031
B029/B067

9,4160 (also 1137, 1395)

AUTHOR: Shpak, M. T.

TITLE: The role of impurities in the luminescence of molecular crystals at low temperatures

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25, no. 1, 1961, 13-19

TEXT: This is a review on studies made at the Institut fiziki AN USSR (Institute of Physics of the AS UkrSSR) which covered the following subjects: a) the simplest aromatic compounds (diphenyl, terphenyl, quaterphenyl, etc.); b) compounds with benzene nuclei which are bound by carbon atoms not contained in the ring (dibenzyl, stilbene, etc); compounds with condensed benzene nuclei (naphthalene, anthracene, phenantrene, etc.); d) derivatives and deuterosubstitutes of some of these substances. Substances of the same class of hydrocarbons were used as impurities. The studies were made with monocrystals. Following are the most important results obtained: 1) General properties of the spectra: The absorption bands of strongly absorbing substances (stilbene, tolane, anthracene, etc.)

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The role of impurities in the ....

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B029/B067

are relatively broad even at hydrogen temperatures (50-100 cm^{-1}). On the other hand, the impurity spectra of such substances consist of very narrow, weakly polarized bands. One and the same molecule has similar frequencies in different solvents. 2) Nature of impurity centers. Usually, the impurity crystals have multiplet-type spectra. The spectra of the solutions of monosubstitutes of napthalene in naphthalene consist of two equal series of bands which are mutually shifted by constant quantities $\Delta\nu$. The phenomena predicted by the quantum-mechanical theory of absorption and luminescence of molecular crystals should be studied experimentally. 3) The role of defects. In the spectra of several crystals near the longwave edge of self-absorption, very weak bands of largely varying intensity and position lie in an interval of sometimes several hundred cm^{-1}. These bands are in resonance with the shortest-wave bands of the corresponding luminescence spectra. These characteristic features of spectra are related to defects in real molecular crystals. 4) Mirror symmetry. The bands in the impurity absorption and luminescence spectra are almost always surrounded by groups of satellite bands of different intensity. These satellite bands are mirror-symmetrically arranged with respect to the band of a pure electron transition. Hence, the satellite bands are assumed to belong to the same type of

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The role of impurities in the ......

S/048/61/025/001/002/031
B029/B067

discrete impurity centers and to be related to the interaction between intermolecular transitions and vibrations of the solvent lattice. The fifth section deals with the polarization of bands in absorption spectra. First, strongly polarized bands were observed in the absorption spectrum of stilbene in tolane. With increased impurity concentration, the bands in their absorption spectra are usually blurred and widened. The problem of the origin of strongly polarized bands in the absorption spectra of impurities in organic crystals has as yet not been definitely solved. The introduction of a second impurity into a molecular crystal strongly changes its spectrum considerably. The material discussed in this paper needs further examination. This is the reproduction of a lecture read at the Ninth Conference on Luminescence (Crystal Phosphors), Kiyev, June 20-25, 1960. There are 34 references: 30 Soviet-bloc and 4 non-Soviet-bloc.

ASSOCIATION: Institut fiziki Akademii nauk USSR (Institute of Physics of the Academy of Sciences UkrSSR)

Card 3/3

SHPAK, M.T.; SOLOV'YEV, A.V. [Solovyov, A.V.]; SHEREMET, N.I.;
DMITRENKO, I.P. [Dmytenko, O.P.]

Spectra investigation of chemical transformations in crystalline triphenylmethane. Ukr.fiz.zhur. 7 no.4:422-429 Ap '62.
(MIRA 15:8)

1. Institut fiziki AN UkrSSR, g. Kiyev.
(Methane) (Chemical reactions)

SHPAK, M.T.; SOLOV'YEV, A.V.; SHEREMET, N.I.

Nature of the luminescence spectra of crystalline benzene at low temperatures. Opt.i spektr. 13 no.5:694-700 N '62. (MIRA 15:12)

(Benzene crystals--Spectra)

L 11169-63 EPF(c)/EPR/EWP(j)/EWT(l)/EWT(m)/BDS/EEC(b)-2--AFFTC/ASD/SSD--
Pr-4/Ps-4/Pc-4--IJP(C)/RM/WW

ACCESSION NR: AP3002792 S/0051/63/014/006/0816/0819

AUTHOR: Shpak, M. T.; Sheremet, N. I.

80

TITLE: On the nature of the luminescence 21 of crystalline anthracene at low temperatures

SOURCE: Optika i spektroskopiya, v. 14, no. 6, 1963, 816-819

TOPIC TAGS: anthracene, luminescence

ABSTRACT: Although there have been many investigations of the luminescence of anthracene, the nature of its luminescence is still obscure. It has been shown that the luminescence at low temperatures is not due to radiative annihilation of excitons in the main lattice. On the other hand, it has also recently been shown that the luminescence spectra of naphthalene and benzene have certain characteristics that may be associated with exciton effects and that should be exhibited by other molecular crystals. The paper gives the results of investigation of the luminescence of zone refined (40 zone) crystal anthracene in polarized light at 20.4, 77 and 290°K. Excitation was realized by the light from a DRSh-250 mercury 4 discharge tube 10 passing through a Woods filter; the spectra were observed by ISP-22 and DFS-13 spectrographs. The spectra along two crystal axes are reproduced and

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L 11169-63
ACCESSION NR: AP3002792

0

described. Analysis of the luminescence data in conjunction with the literature data on the absorption spectrum shows that the first bands of both components partially overlap which indicates that they correspond to pure electronic transitions from exciton bands in the crystal. This is substantiated by the temperature dependence of the intensity and width of these bands. Three other groups of bands were distinguished in the luminescence spectrum at 20.4°K: one is attributed to an impurity; the second is associated with transitions in distorted host molecules located near lattice defects; the third is tentatively attributed to transitions from the lowest exciton band to a set of ground-state electronic-vibrational levels. Orig. art. has: 1 figure.

ASSOCIATION: none

SUBMITTED: 10Dec62 DATE ACQD: 15Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 011 OTHER: 005

lb/wm

Card 2/2

MALYKHINA, N.N.; SHPAK, M.T.

Spectroscopic study of solutions of stilbene in n-octane in polarized light at 20.4°K. Opt. i spektr. 14 no.6:829-831 Je '63. (MIRA 16:8)

(Stilbene—Spectra)

L 10164-63 EWP(c)/EWT(l)/EWT(m)/BDS--AFFTC/
ASD/SSD--Pr-4--RM/WW/MAY
ACCESSION NR: AP3000308 S/0048/63/027/005/0596/0605

65
63

AUTHOR: Broude, V. L.; Sheka, Ye. F.; Shpak, M. T.

TITLE: Exciton luminescence of molecular crystals [Report: Eleventh Conference on Luminescence held in Minsk 10-15 Sept. 1962]

SOURCE: Izvestiya AN SSR, Seriya fizicheskaya, v. 27, no. 5, 1963, 596-605

TOPIC TAGS: molecular crystals, naphthalene, excitons, energy bands, luminescence

ABSTRACT: Observation, interpretation and indentification of exciton luminescence of molecular crystals is often difficult. Analysis of luminescence data for molecular crystals shows that in many cases the observed luminescence is not due to excitons, but to impurities or defects. The specific case of low temperature luminescence of naphthalene crystals is examined and attributions are made for the different luminescence bands. Exciton series are identified. The general energy structure of naphthalene crystals can be explained in the framework of a molecular diagram, but certain distinctive features of the

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L 10164-63
ACCESSION NR: AP3000308

2

naphthalene luminescence spectrum are specifically associated with the exciton character of its crystal structure. It is hoped that the approach to analysis of these features may help elucidate the structure of the exciton bands (zones) in this crystal and can be extended to the study of other molecular crystals. Orig. art. has: 6 figures and 1 table.

ASSOCIATION: Institut fiziki Akademii nauk USSR (Institute of Physics, Academy of Sciences, USSR)

SUBMITTED: 00	DATE ACQ: 12Jun63	ENCL: 00
SUB CODE: PH	NR REF SOV: 013	OTHER: 007

Card 2/2

L 34000-66 EWT(l)/EWT(m)/EWP(j)/T IJP(c) GG/RM

ACC NR: AR6017247 SOURCE CODE: UR/0058/65/000/012/D042/D042

61
B

AUTHORS: Malykhina, N. N.; Shpak, M. T.

TITLE: Low-temperature spectral investigations of the stilbene-tolan impurity crystals

SOURCE: Ref. zh. Fizika, Abs. 12D355

REF SOURCE: Tr. Komis. po spektroskopii. AN SSSR, t. 3, vyp. 1, 1964, 173-477 [probably should be 473-477]

TOPIC TAGS: crystal impurity, absorption spectrum, luminescence spectrum, light polarization, impurity center, light excitation

ABSTRACT: The absorption and luminescence spectra of single crystal tolan with stilbehe molecules enter into the tolan lattice in several ways, forming impurity centers of different natures. The impurity concentration influences the intensity distribution in the luminescence spectra of different centers. The sharp difference in the polarization properties of the bands corresponding to the pure-electronic and electron-vibrational transitions in one and the same impurity center is qualitatively explained by means of a theory which takes into account the delocalization of the excitations of the impurity molecules. [Translation of abstract].

SUB CODE: 20

Card 1/1

MALYKHINA, N.N. [Malykhina, N.M.] ; SHPAK, M.T.

Spectral study of a mixed bibenzyl - stilbene crystal at 20.4° and 4.2°K. Ukr. Fiz. zhur. 9 no.2:172-178 F'64 (MIRA 17:7)

1. Institut fiziki AN UkrSSR, Kiyev.

MALYKHINA, N.N. [Malykhina, N.M.]; SHPAK, M.T.

Effect of impurities on the absorption of crystalline naphthalene and its deuterosubstituted compounds. Ukr. fiz. zhur. 9 no.9:991-1000 S '64. (MIRA 17:11)

1. Institut fiziki AN UkrSSR, Kiyev.

VATULEV, V.N.; SHEREMET, N.I.; SHPAK, M.T.

Luminescence of benzene at low temperatures. Opt. i spektr.
16 no. 4:577-586 Ap '64. (MIRA 17:5)

ACCESSION NR: AP4043011 S/0051/64/017/002/0235/0243

AUTHORS: Maly*khina, N. N.; Shpak, M. T.

TITLE: Polarized-light investigations of the spectra of a crystalline solution of stilbene in tolane

SOURCE: Optika i spektroskopiya, v. 17, no. 2, 1964, 235-243

TOPIC TAGS: light polarization, absorption spectrum, luminescence spectrum, single crystal, thin film, impurity center, electronic transition

ABSTRACT: Results are reported of an experimental investigation of the absorption and luminescence spectra of the stilbene-tolane system, made in polarized light at temperatures 20.4 and 4.2K. The tolane used was prepared by zone melting to increase its purity. Most tests were made on single-crystal thin films prepared by sublimation. Luminescence was excited by a mercury lamp and the

ACCESSION NR: AP4043011

spectral sections were separated either with a monochromator or with a glass filter. A Glan-Thomson prism was used as a polarized-light analyzer, and most of the measurements were made with a DFC-13 spectrograph with resolution 4 Å/mm. The possible arrangement of the stilbene molecules, which formed various types of impurity centers in the tolane lattice, is analyzed in the approximation of the oriented-gas model. It is shown that the concentration changes in the luminescence spectra can be related to the occurrence of an interaction between the impurity centers of different types as the impurity concentration is increased. The polarization properties of the absorption and luminescence spectra of the investigated system are found to differ greatly, and contain bands that can be set in correspondence with combinations of a purely electronic transition in the stilbene molecule and the vibration frequencies of the tolane. Orig. art. has: 4 figures and 2 tables.

ASSOCIATION: None

SHPAK, M.T.; SHEREMET, N.I.

Luminescence of crystalline anthracene. Opt. i spektr. 17 no.5: 694-704 N '64. (MIRA 17:12) [illegible] N.I.

[illegible] ral properties [illegible] Opt. i spektr. 18 [illegible] (MIRA 18:4)

[illegible] '65.

L 01265-66 EWT(m)/EPF(c)/EWP(j) RM

ACCESSION NR: AP5020787 44,55 UR/0048/65/029/008/1304/1306

43

AUTHOR: Lisovenko, V. A.; Shpak, M. T. 44,55 21,44,55

TITLE: Effect of imperfections of the crystal lattice on the luminescence properties of anthracene /Report, 13th Conference on Luminescence held in Khar'kov 25 June to 1 July 1964/ 44,55

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 8, 1965, 1304-1306, and insert facing p. 1304

TOPIC TAGS: anthracene, absorption spectrum, luminescence spectrum, crystal deformation, crystal lattice defect, crystal impurity

ABSTRACT: This paper reports a continuation of previous work (M.T.Shpak and N.I. Sheremet, Optika i spektroskopiya, 17, 694, 1964) on the effect of deformation on the exciton luminescence spectrum of anthracene. Lattice defects were introduced into the anthracene crystals by doping with molecules that are comparable in size to or larger than anthracene molecules, and by thermal deformation. The absorption and luminescence spectra were observed at 20.4°K. Doping with large molecules led to the appearance of a new series in the spectrum, similar to the room

Card 1/2

L 01265-66

ACCESSION NR: AP5020787

0

temperature luminescence spectrum of anthracene and shifted by 150-160 cm^{-1} to the long wavelength side from the beginning of the exciton luminescence. Doping anthracene with 2-methylanthracene gave rise to a spectrum coinciding with that which has been previously ascribed to the luminescence spectrum of deformed anthracene molecules (A.F.Prikhot'ko and I.Ya.Fugol', Optika i spektroskopiya, 4, 335, 1958). Mechanical stresses were introduced by depositing thin pure anthracene crystals on substrates of different thermal expansion coefficients and subsequently cooling them. This treatment led to a shift of the luminescence spectrum by 20 cm^{-1} toward the short wavelengths, to the appearance of an intense continuous background, and to the appearance of new "deformation bands" near 24840 and 24880 cm^{-1}. These phenomena were due to irreversible plastic deformation; the deformation bands could be produced by other mechanical means. The results are discussed very briefly. The intensity of the deformation bands decreased very rapidly with increasing temperature, and at 77°K the bands disappeared entirely; the reason for this is not understood. Orig. Art. has: 3 figures.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: SS, OP

NO REF SOV: 005 OTHER: 002

Card 2/2

L01266-66 EWT(l)/EWT(m)/EPF(c)/EWP(j) IJP(c) RM

ACCESSION NR: AP5020788 UR/0048/65/029/008/1307/1308

AUTHOR: Vorob'yev, V. P. 55,44; Solov'yev, A. V. 55,44; Shpak, M. T. 55,44, 68 62

TITLE: 65 Luminescence of the products of photolysis of crystalline triphenylmethane at 20°K /Report, 13th Conference on Luminescence held in Khar'kov 25 June to 1 July 1964/ 44,55

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 8, 1965, 1307-1308

TOPIC TAGS: photolysis, organic crystal, free radical, luminescence analysis, electron paramagnetic resonance

ABSTRACT: Two of the authors and collaborators have previously found that irradiation of triphenylmethane crystals at 20°K with unfiltered light from a mercury arc gives rise to five new bands in the luminescence spectrum, 21,44,55 which they have called the A, B, C, D, and E bands, in order of increasing wavelength (Ukr. fiz. zh., 7, 422, 1962). The present paper reports results of an examination of initially very pure triphenylmethane crystals which have been further purified by zone refining. After irradiation with mercury arc light these crystals showed only the A band, the B, C, D, and E bands being absent. The A luminescence band of the purified irradiated crystals was identical with the luminescence spectrum

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L 01266-66

ACCESSION NR: AP5020788

of triphenylmethyl radicals produced in other samples by chemical means, and the electron paramagnetic resonance spectra of the purified irradiated crystals and the crystals containing chemically produced triphenylmethyl radicals were also identical. It is concluded the A luminescence band induced in triphenylmethane crystals by irradiation with mercury light is due to triphenylmethyl radicals, and that the B, C, D, and E bands are due to impurities. It is noted that the luminescence method for analysing the photolysis products of crystalline triphenylmethane is more sensitive than the electron paramagnetic resonance method. "The authors are deeply grateful to A.F.Prikhot'ko, 44,55 under whose direction this work was performed, for his constant interest and help." Orig. art. has: 1 figure.

ASSOCIATION: Institut fiziki Akademii nauk UkrSSR (Institute of Physics, Academy of Sciences, UkrSSR) 44,55

SUBMITTED: 00 ENCL: 00 SUB CODE: SS, OP

NO REF SOV: 001 OTHER: 002

Card 2/2

[illegible] ...; [illegible], V.F.

[illegible] ...ysis products of crystalline triphenylmethane [illegible] 29 no.8:1307-1308 '65.

(MIRA 18:8)

1. [illegible]

L 28450-66 FBD/EWT(1)/EWT(m)/EEC(k)-2/T/EWP(k)/EWP(e) IJP(c) WG/WH

ACC NR: AP6016052 SOURCE CODE: UR/0185/66/011/005/0567/0569

AUTHOR: Tykhonov, Ye. O.; Shpak, M. T. 44,

ORG: Institute of Physics, AN UkrSSR, Kiev (Instytut fizyky AN URSR) B

TITLE: Certain characteristics of ruby laser with passive Q switching

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 11, no. 5, 1966, 567-569

TOPIC TAGS: ruby laser, resonator Q factor, laser modulation

ABSTRACT: The authors have experimentally determined the energy and frequency parameters of single pulses of a ruby laser with passive Q-spoiler based on a kryptocyanine solution. The solution was kept in a cell with optically finished surfaces and placed in the resonator close to the mirror with 99.5% reflectivity (Fig. 1). To prevent generation in the secondary resonator made up by the cell and the exit mirror, the cell was inclined to the resonator axis. The ruby used was 120 mm long and 13 mm in diameter, with matte surface. The energy was measured by a calorimeter method, and the system used to record the single pulses ensured a time resolution up to 4 nsec. The output reflector was a Fabry-Perot etalon with two plane-parallel quartz plates. Its energy reflection coefficient was an oscillating function of the wavelength and its maximum value was ~55%. Such a resonator yielded a single pulse with peak power ~30 MW and width ~30 nsec. A study of the oscillograms of the single pulses for different values of initial absorption showed that a considerable decrease takes place in the duration of the generated pulse with increasing initial absorption.

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L 28450-66

ACC NR: AP6016052

O

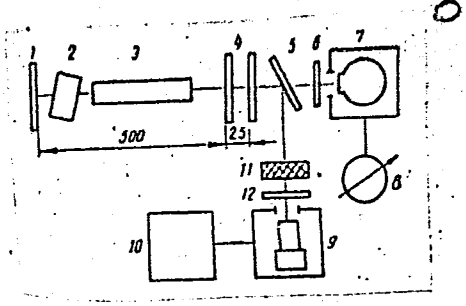

Fig. 1. Schematic diagram of setup. 1 - Mirror with multilayer dielectric coating, 2 - Q-spoiler, 3 - ruby rod, 4 - output reflector, 5 - beam splitter (glass plate), 6,12 - filters, 7 - calorimeter, 8 - mirror galvanometer, 9 - photomultiplier (FEU-22), 10 - oscilloscope (S1-11), 11 - attenuator

This result, together with data on the single-pulse energies and the peak power, are in good agreement with the theoretical calculations of A. Szabo and R. A. Stein (J. Appl. Phys. v. 36, 1562, 1965). The modulation efficiency, defined as the single-pulse energy to the laser energy in the absence of the Q-spoiler, decreases with increasing initial absorption, but this efficiency is still relatively high (33-60%). This is taken to demonstrate the advantages of Q-switching with kryptocyanine. Orig. art. has: 2 figures, 1 formula, and 1 table. [02]

SUB CODE: 20/ SUBM DATE: 04Feb65/ ORIG REF: 001/ OTH REF: 004 / ATD PRESS: 5605

Card 2/2 IC

L 38483-66 EWT(m)/EWP(j) IJP(c) RM/JW/FDN

ACC NR: AR6017246 SOURCE CODE: UR/0058/65/000/012/D042/D042

46
B

AUTHOR: Vatulev, V. N.; Sheremet, N. I.; Shpak, M. T.

TITLE: Spectral investigation of crystalline benzene at low temperatures

SOURCE: Ref. zh. Fizika, Abs. 12D350

REF SOURCE: Tr. Komis. po spektroskopii. AN SSSR, t. 3, vyp. 1, 1964, 468-472

TOPIC TAGS: absorption spectrum, luminescence spectrum, exciton zone, crystalline benzene

ABSTRACT: The luminescence and absorption spectra of crystalline benzene were investigated at 20.4 and 4.2K. The temperature relationships in luminescence spectra were evaluated. Preliminary information on the structure of benzene exciton zones, including their width and effective-mass characteristics, were obtained on the basis of a qualitative analysis of the shape of bands corresponding to transitions from the exciton zones to the basic vibration level. [Translation of abstract] [KP]

SUB CODE: 20/ SUBM DATE: none/

Card 1/1 pb

ACC NR: AN6030892 (N) SOURCE CODE: UR/9034/66/000/075/0003/0003

AUTHOR: Shpak, N. (Candidate of medical sciences; Odessa)

ORG: none

TITLE: Toxoplasmosis and optical pathology

SOURCE: Meditsinskaya gazeta, 16 Sep 66, p. 3, col. 2-5

TOPIC TAGS: parasitology, animal parasite, opthalmology, tissue disease, drug treatment, sulfa drug

ABSTRACT: Toxoplasmosis has been identified as one of the most common causes of endogenous eye diseases and the cause of 36% of all cases of uveitis. The congenital form of this parasitism is transmitted by women carriers (with no symptoms) to their children. In 30% of these cases a relapse of inflammation occurs (in either the diseased or healthy eye) in the form of uveitis, chorioretinitis or neuroretinitis. Treatment with Chloridin and Sulfadimezine reduces inflammation and lowers the titer of specific antibodies in the blood. The frequent localization of this disease in the eye is explained by the lower titer of specific antibodies in aqueous humor as compared with blood serum. Toxoplasmin can be used for diagnosis

Card 1/2

KOMSKAYA, M.S. [Koms'ka, M.S.], kand. tekhn. nauk; SHPAK, N.A.

Effect of coloring oxides on the whiteness of kaolin.
Leh. prom. no.4:20-22 O-D '65. (MIRA 19:1)

KOMSKAYA, M.S. [Koms'ka, M.S.], kand.tekhn.nauk; SHKOL'NIK, A.Ya.
[Shkol'nyk, H.IA.]; SHPAK, N.A. [Shpak, N.P.]; YATSUNOVA, S.Ye.
[IAtsunova, S.IU.]

Method for the regulation of the addition of electrolytes to porcelain slips. Leh.prom. no.1:63-66 Ja-Mr '64.
(MIRA 19:1)

SHPAK, N. I.

SHPAK, N. I. -- "The Conservation of Tissue for Keratoplasty and Tissue Therapy Using Certain Preservatives of Biological Origin." Odessa State Medical Inst imeni N. I. Pirogov. Odessa, 1955. (Dissertation for the Degree of Candidate in Medical Sciences)

SO: Knizhnaya Letopis', No 1, 1956

SHPAK, N.I.

New method of preserving soft animal tissues by using horse-radish phytoncides. Zool.zhur.35 no.3:467-468 Mr '56. (MIRA 9:7)

1.Ukrainskiy eksperimental'nyy institut glaznykh bolezney imeni V.P.Filatova.
(Zoological specimens--Collection and preservation)(Phytoncides)
(Horse-radish)

SHPAK, N.I.

Effect of volatile fractions of horse-radish phytoncides on the respiration of isolated tissues [with summary in English]. Antibiotiki 3 no.6:111-112 N-D '58. (MIRA 12:2)

1. Ukrainskiy eksperimental'nyy institut glaznykh bolezney i tkanevoy terapii imeni V.P. Filatova, Odessa.
(HORSE-RADISH)
(PHYTONCIDES)
(RESPIRATION)

SHPAK, N.I., kand. med. nauk

Preservation of eyes for corneal transplantations. Uch. zap. UEIGB 4: 91-96 '58. (MIRA 12:6)

1. Ukrainskiy eksperimental'nyy institut glaznykh bolezney i tkanevoy terapii imeni akademika V.P. Filatova.
(EYE BANKS)

SHPAK, N.I., kand.med.nauk

Toxoplasmosis and its manifestation in eye diseases. Oft. zhur. 16 no.2:102-106 '61. (MIRA 14:3)

1. Iz Ukrainskogo nauchno-issled. eksperimental'nogo instituta glaznykh bolezney i tkanevoy terapii imeni akademika V.P.Filatova (direktor - prof. N.A.Puchkovskaya).
(TOXOPLASMOSIS) (EYE—DISEASES AND DEFECTS)

SHPAK, N.I., kand.med.nauk

Diagnosis and treatment of congenital and acquired toxoplasmosis of the eye. Oft. zhur. 16 no.8:451-455 '61. (MIRA 15:4)

1. Iz Ukrainskogo nauchno-issledovatel'skogo eksperimental'nogo instituta glaznykh bolezney i tkanevoy terapii imeni akademika V.P.Filatova (direktor - prof. N.A.Puchkovskaya).
(TOXOPLASMOSIS)

PANFILOVA, G. V., kand. med. nauk; SHPAK, N. I., kand. med. nauk

X-ray examinations in congenital toxoplasmosis. Oft. zhur. no.2: 82-87 '62. (MIRA 15:4)

1. Iz Ukrainskogo nauchno-issledovatel'skogo eksperimental'nogo instituta glaznykh bolezney i tkanevoy terapii im. akad. V. P. Filatova (direktor - chlen-korrespondent AMN SSSR prof. N. A. Puchkovskaya)

(TOXOPLASMOSIS) (EYE--DISEASES AND DEFECTS)

SHPAK, N.I.

Effect of volatile fractions of the phytoncides of garlic on the respiration of isolated tissues. Uch.zap. UEIGB 5:329-332 '62. (MIRA 16:11)

*

SHPAK, N.S.

Recent data on the stratigraphy of the Archean and Proterozoic of the eastern margin of the Aldan Shield. Trucy VAGT no.7:14-22 '61. (MIRA 14:7)

(Aldan Plateau--Geology, Stratigraphic)

ZLENKO, N.D.; SHPAK, N.S.

Early Sinian subvolcanic formations of the southeastern Aldan Shield. Trudy VAGT no.7: 52-65 '61. (MIRA 14:7)
(Aldan Plateau—Geology, Stratigraphic)

ALEKSEYEV, V.R.; GAVRILOVA, Z.S.; KALIMULIN, S.M.; MORALEV, V.M.;
NUZHNOV, S.V.; SHPAK, N.S.

Problem of the ancient rare metal placers of the eastern part of the Aldan Plateau. Dokl.AN SSSR 144 no.2:409-411 My '62. (MIRA 15:5)

1. Aldanskaya ekspeditsiya Vsesoyuznogo aerogeologicheskogo tresta. Predstavleno akademikom N.M.Strakhovym.
(Aldan Plateau--Rare earth metals) (Geological time)

L 20034-65 EWT(d) IJP(c) S/0140/64/000/005/0127/0136
ACCESSION NR: AP5003637

5
B

AUTHOR: Shpak, G. S. (Khar'kov)

16

TITLE: Method of obtaining estimates for functions which assume given values at given points

SOURCE: IVUZ. Matematika, no. 5, 1964, 127-136

TOPIC TAGS: function theory

Abstract: N.A. Lebedev determined conditions which, when satisfied, entitle one to find functions that are regular in the circle $|z| < 1$; which at points z_k, $|z_k| < 1$, $k = 1,2,\ldots,n$, assume given values $f^{(\nu)}(z_k)$, $\nu = 0,1,\ldots,\alpha_k$; and whose ranges for $|z| < 1$ are contained in the simply-connected space G: i.e., there exist functions which are subordinated to G. In this article the author determines another property of subordinate functions. A region $G(\rho)$, $\rho \in [\rho_1, \rho_2]$, varies continuously with ρ and $G(\rho^*) \subset G(\rho^{**})$ if $\rho_1 \leq \rho^* < \rho^{**} \leq \rho_2$. If the above-described functions in $G(\rho_2)$ exist, there exists a lower bound

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L 20034-65
ACCESSION NR: AP5003637

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ρ' of ρ for which $G(\rho')$ commands only one extremal function, and ρ' is the largest root of the same equation. The article shows how to construct this equation, which, in turn, enables one to obtain some accurate estimates for various subclasses of regular functions. These are not carried out here, except in one particular case, using a treatment different from that of Lebedev. Orig. art. has 29 formulas.

ASSOCIATION: none

SUBMITTED: 10May63 ENCL: 00 SUB CODE: MA

NO REF SOV: 003 OTHER: 000 JPRS

Card 2/2

[illegible], [illegible]

[illegible], [illegible] - "Ultra-high-frequency therapy of inflammatory diseases of the internal female reproductive organs". Khar'kov, 1955. Khar'kov Medical Inst. (Dissertation for the Degree of Candidate of Medical Science.)

SO: Knizhnaya Letopis', No. 43, 22 October 1955. Moscow

SHPAK, P.L.

[Concise manual on the organization of physical therapy in villages and methods of applying it] Kratkoe posobie po organizatsii fizioterapii na sele i metodike ee primeneniia. Moskva, Medgiz, 1957. 201 p. (MIRA 10:11)

(PHYSICAL THERAPY)

SHPAK, Pavel L'vovich, otv.red.

[Experimental and clinical investigations in physiotherapy]
Eksperimental'nye i klinicheskie issledovaniia po fizioterapii.
Khar'kov, 1959. 196 p. (MIRA 13:12)

1. Kharkov. Oblastnaya klinicheskaya bal'neologicheskaya
lechebnitsa.
(PHYSICAL THERAPY)

SHPAK, P. L.

"On principles of organization of rural health services in the Ukrainian SSR"

report to be submitted for the United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas - Geneva, Switzerland, 4-20 Feb 63.

SHPAK, R.L.

Cultivation of Eremurus in the botanical garden. Izv. AN Kir.
SSR. Ser.biol.nauk 1 no.3:109-121 '59. (MIRA 13:7)
(FRUNZE--EREMURUS)

SHPAK, R.L.

Tulips and their cultivation in Kirghizistan. Izv.AN Kir.SSR.Ser. biol.nauk 4 no.3:105-128 '62. (MIRA 15:11)

(KIRGHIZISTAN--TULIPS)