KORENYAKO, A.S.; KHEMENSHTEYN, L.I.; PETROVSKIY, S.D.; OVSIYENKO, G.M.; BAKHANOV, V.Ye.; Prinimal uchastiye YEMTS, P.M.; IVANOV, A.P., prof., retsenzent

[Preparation of a course project on the theory of mechanisms and machines] Kursovoe proektirovanie po teorii mekhanizmov i mashin. [By] A.S.Koreniako i dr. Izd.4., perer. Moskva, Leningrad, 1964. 324 p. (MIRA 17:9)

TOPIC TAGS: lubricating oil, oil additive, metal corrosion, spindle oil,

with temperature drops of 20-40C. The oil with the additive was applied to samples of the

L 19853-65

ACCESSION NR: AR4048157

amides of a mixture of C_{10}-C_{18} fatty acids and a mixture of C_{14}-C_{20} fatty acids; the

The best results were obtained with additives MSDA-18 and MSDA-11 and the amide of a mixture of C_{16}-C_{18} fatty acids, which are recommended for practical use. Good results were also obtained with alkylresorcinol and the acid ester of sebacic acid. A. Ravikovich

SUB CODE: FP, MM ENCL: 00

Card 2/2

L 27891-66 EWT(1) IJP(c)

ACCESSION NR: AP5025091 UR/0368/65/003/003/0238/0247
535.37

AUTHOR: Zege, E. P.; Ivanov, A. P.

TITLE: Nonlinear luminescence of a plane-parallel layer

SOURCE: Zhurnal prikladnoy spektroskopii, v. 3, no. 3, 1965, 238-247

TOPIC TAGS: luminescence, nonlinear effect, light absorption , absorption pump, nonlinear optics

ABSTRACT: It is shown qualitatively that the intensity of radiation governs the optical parameters of a substance, especially its absorptivity. Variation in absorptivity causes a nonlinear relationship between the luminescence intensity and pumping power. This paper treats a plane-parallel layer of thickness *l* illuminated uniformly from one direction by an infinitely thick, parallel beam of intense radiation. An elementary layer within this volume is studied. It is assumed that luminescence is proportional to absorption. On the basis of nonlinear optics this proportionality holds as long as the induced transitions are not commensurate with the spontaneous transitions. Luminescence emitted upward and downward was calculated

Card 1/2

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L 27891-66

ACCESSION NR: AP5025091

on a computer as a function of the position of the elementary layer within the volume. The resultant data are then used to construct curves of luminescence as a function of other parameters, which reveal the existence of an optimum layer thickness. The effect of pumping intensity on luminescence is discussed in detail in relation to light transmission and reflection. Simple expressions are derived for luminescence of a layer that 1) absorbs radiation weakly, 2) strongly, and 3) for the luminescence of an infinitely thick layer. The errors involved in the calculations are estimated. Orig. art. has: 15 equations, 1 table, and 4 figures. [14]

ASSOCIATION: none

SUBMITTED: 16May65 ENCL: 00 SUB CODE: OP

NO REF SOV: 009 OTHER: 004 ATD PRESS: 4135

Card 2/2

ACC NR: AM6032827 (N) Monograph UR/

(Candidate of Technical Sciences)

Smirnova, Muza Konstantinovna; Sokolov, Boris Pavlovich; Sidorin, Yakov Sergeyevich; Ivanov, Aleksey Pavlovich

Strength of fiberglass reinforced plastic ship hulls (Prochnost' korpusa sudna iz stekloplastika) Leningrad, Izd-vo "Sudostroyeniye", 1965. 331 p. illus., biblio. 2700 copies printed.

TOPIC TAGS: shipbuilding engineering, plastic, laminated plastic, reinforced plastic, plastic strength

PURPOSE AND COVERAGE: This book is intended for workers of design and planning organizations, enterprises, and scientific-research institutes; it can also be used by students attending shipbuilding institutes of higher education and technical schools. The book describes the peculiarities of fiberglass-reinforced plastic as a new construction material, and presents data on its physicomechanical properties and methods for determining them. In addition, the basic principles for designing and calculating the strength of fiberglass-reinforced-plastic ship hulls is presented. Chapters I, IV, V, and VI were written by M. K. Smirnova on the basis of experiments carried out by her together with B. P. Sokolov, L. N. Vinogradova, M. V. Mikhaylov, I. A. Yelsukov, V. M. Tsyganenko, N. N. Makarova, G. P. Gur'yanov, N. A. Shadrinova, and L. O. Vinogradova. Chapter II

Card 1/2 UDC: 629.12.011.678.5

ACC NR: AM6032827

was written by Ya. S. Sidorin and A. P. Ivanov with the assistance of S. F. Glasov. Chapter III was written by B. P. Sokolov. There are 76 references, 34 of which are Soviet.

TABLE OF CONTENTS (Abridged):

Introduction -- 3

Ch. I. Fiberglass-reinforced plastic used in shipbuilding -- 9
Ch. II. Strength and deformation characteristics of fiberglass-reinforced plastic -- 49
Ch. III. Effect of reinforcing on the strength and deformation characteristics of fiberglass-reinforced plastic -- 159
Ch. IV. Basic principles for designing joints of ship hulls from fiberglass-reinforced plastic -- 212
Ch. V. Several results of strength tests of hull structures of fiberglass-reinforced plastic -- 220
Ch. VI. Calculation methods and strength standards -- 266

References -- 327

SUB CODE: 11, 13/ SUBM DATE: 10Jul65/ ORIG REF: 033/ OTH REF: 044/

Card 2/2

ACC NR: AM6030648 Monograph UR/

Gevorkyan, Ashot Mushegovich; Ivanov, Andrey Pavlovich; Metelkin, Aleksandr Fedorovich; Moskalev, Mikhail Aleksandrovich

Technology of aircraft engine construction; a manual for thesis writers (Tekhnologiya aviadvigatelestroyeniya; uchebnoye posobiye po diplomnomu proyektirovaniyu) Moscow, Izd-vo "Mashinostroyeniye", 1966. 174 p. illus., biblio., tables. 9200 copies printed. Textbook for students at aviation schools and faculties.

TOPIC TAGS: aircraft engine, ~~production,~~ production engineering, industrial management

PURPOSE AND COVERAGE: The book is intended for students writing theses on aircraft engine technology, for teaching staffs in aviation institutes, and for production engineers. It can also be useful to other machine building specialities. A systematic presentation is given on the planning of thesis writing on aircraft engine production, production management, introduction of new methods, new machinery, quality control, production automation, and equipment replacement and repair. Included as appendices are several tables dealing with production control and production management. There are 36 references, all Soviet.

Card 1/2 UDC: 629.13.003.3 (075.8)

ACC NR: AM6030648

TABLE OF CONTENTS (Abridged):

Introduction - 3

Ch. I. Content of diploma project - 5
Ch. II. Methodical presentation of production study and fulfillment of basic branches of the technological part of the diploma project - 21
Ch. III. Design portion of the project - 52
Ch. IV. A methodical indication on technological plant planning - 63
Ch. V. Economic organization part of the project - 104

Order of consultation and defense of the thesis - 143

Appendices - 147

References - 172

SUB CODE: 21, 1 / SUBM DATE: 07May66/ ORIG REF: 036/

Card 2/2

132-58-7-6/13

AUTHORS: Enenshteyn, B.S., Ivanov, A.E., Rybakova, Ye.V.

TITLE: Method of Electromagnetic Sounding of Geological Structures (Metodika elektromagnitnogo zondirovaniya geologicheskikh struktur)

PERIODICAL: Razvedka i okhrana nedr, 1958, Nr 7, pp 31-37 (USSR)

ABSTRACT: The authors describe the functioning principle of the method of electromagnetic sounding of geological structures. This method, still in its initial stage, is being devised in the Institut fiziki Zemli (The Institute of Terrestrial Physics) under the leadership of A.N. Tikhonov. A short description of a generating station and of analytical and graphical calculations is given. There are 4 graphs and 2 Soviet references.

ASSOCIATION: Institut fiziki Zemli AN SSSR. (The Institute of Terrestrial Physics of the AS USSR)

1. Geophysical prospecting--Equipment 2. Electromagnetic waves --Applications

Card 1/1

SOV/24-59-5-24/24

AUTHORS: Ivanov, A.P., and Enenshteyn, B.S. (Moscow)

TITLE: Calculation of the Commutating Capacitance and Cathode Inductance of a Parallel Inverter with Resistive Load

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1959, Nr 5, pp 194-196 (USSR)

ABSTRACT: In order to make the output current wave shape of an inverter as nearly sinusoidal as possible, the resistance, inductance and capacitance of the load should be such that its natural frequency is near to the forced frequency imposed on the inverter by grid control; the commutation conditions will then also be right. If there is no need for the output current to be sinusoidal, in determining the commutating capacitance it is necessary to investigate the current wave form in the inverter load, see for example, Fig 1. If the inverter load current wave shape and the extinction time of the valve are known, a value of capacitance may be chosen such that the anode potential of the valve passes through zero at the appropriate moment. However, inverters are often required to operate over a very wide range of frequencies ranging from hundreds of cycles to

Card 1/3

Calculation of the Commutating Capacitance and Cathode Inductance of a Parallel Inverter with Resistive Load

hundredths of cycles per second. At very low frequencies the current cannot be made sinusoidal by increasing the capacitance of the commutating capacitor. In this case the transformer connection of the inverters cannot be used and the bridge circuit is used, and it is then possible to calculate the value of the capacitance from analysis of the load current shape. This brief article describes a method of estimating the value of the commutating capacitance and the cathode inductance by another method that requires information only on the load resistance and the voltage of the d.c. source. The bridge inverter circuit with resistive load, shown diagrammatically in Fig 2, is considered. Eqs (1), (4) and (5) are derived from which the value of capacitance that is required for commutation may be calculated using Eq (6). This capacitance is calculated without allowing for the shunting effect of the load resistance which must be considered separately; formulae (6) - (9) are derived from which the final value of the commutating capacitance may be determined by Eq (10). Eq (12) is then derived

Card 2/3

IVANOV, A.P. (Moskva); NIKITINA, V.N. (Moskva); ENENSHTEYN, B.S. (Moskva)

Calculation of the current wave form in the load of a real inverter. Izv. AN SSSR. Otd. tekh. nauk. Energ. i avtom. no.6:191-195 N-D '59. (MIRA13:8)

(Electric current converters)

IVANOV, A.P. (Moskva); NIKITINA, V.N. (Moskva)

Establishmeht of periodic operating conditions in an inverter. Izv.AN SSSR. Otd. tekh. nauk Energ. i avtom no.1:41-46 Ja-F '61. (MIRA 14:3)
(Electric current converters)

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S/169/62/000/007/073/149
D228/D307

9,9700

AUTHORS: Enenshteynm B. S., Ivanov, A. P. and Invanov, M. A.

TITLE: Station for frequency electromagnetic soundings

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 7, 1962, 33, abstract 7A215 (V sb. Vopr. teorii i praktiki elektrometrii, M., AN SSSR, 1961, 3-11)

TEXT: A frequency sounding station is described. It is intended for high-frequency amplitude and phase measurements over a wide range of frequencies and consists of a generating and a receiving set. Measurements are made in two cycles -- operating and calibrating. During the operating measurement cycle current of set frequency enters the power dipole AB from the generator, and the current's amplitude is recorded. Impulses of the current's initial phase are transmitted to the receiving set along an ultrashort-wave radio channel. The signal received by the electric or magnetic dipole MN is amplified and filtered from interference; then its amplitude and phase are recorded. The true magnitudes of the amplitudes and

Card 1/3

Station for frequency ...

the phases of the signals received thereby remain unknown, since the amplification factor and the natural phase angle of the amplifying-recording channel are not known. These values are determined during the second calibration cycle of measurements. This consists of sending rectangular voltage of known amplitude with a frequency, strictly corresponding to that of the current in the dipole AB, from the output of the calibration apparatus to the input of the amplifying-recording channel. The circuits are given together with a description of the arrangement and the performance of the generating and receiving sets. The generator has a power of 33 kilowatts and operates in the frequency band 0.04 - 250 c/s. It is a thyratron commutator and gives out alternating current, whose amplitude and form depend chiefly on the resistance of line AB, the capacity of the commutating condenser, and the commutation frequency. The generating set is supplied from a gasoline АБ4-Д/230 (AB4-D/230) unit with a power of 4 kilowatts, a voltage of 220 v, and a frequency of 50 c/s. The receiving set, as is pointed out, must ensure that the amplitudes and the phases can be measured very accurately (3 and 1% respectively). Since the signal received is strongly com-

Station for frequency ...

plicated by interference, a composite selective amplifier with a wide controllable transmission band and a high (about 3×10^8) amplification factor is used to amplify the low (of the order of units and tens of μv) reception signals and to filter them from interference. The chosen system of series filtration on aperiodic selective elements, distributed between several amplification stages, and the choice of amplification factors allows the time of transients in it to be reduced maximally. This is especially important when operating on infralow frequencies. The amplitude and the phase of the receiving signal are measured simultaneously by two mutually controlling methods: by means of an indicating instrument and through recording the signal on the film of a loop oscillograph. It is pointed out that tests of this station prototype have shown that it satisfies the requirements resulting from the method's theory and from the practice of field experimental research. [Abstracter's note: Complete translation.]

Card 3/3

S/169/62/000/007/078/149
D228/D307

AUTHORS: Enenshteyn, B. S., Ivanov, A. P. and Invanov, M. A.

TITLE: Generating set for frequency soundings

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 7, 1962, 34, abstract 7A220 (V sb. Vopr. teorii i praktiki elektrometrii, M., AN SSSR, 1961, 12-31)

TEXT: The generator set is intended for generating alternating currents with a frequency of 0.04 to 250 c/s. Current of up to 50 amp. is generated at an active load of 30 ohms. It is possible to get direct current of up to 100 amp. by employing a doubling circuit. The frequency and amplitude stability equals 1% over the whole range of 24 fixed frequencies. The equipment is mounted on a ЗИЛ (ZIL) vehicle in two sections -- equipmental and generating. The station's outfit also includes a special vehicle for winding and unwinding the wires. Direct current from ПН-45 (PN-45) generators is converted into alternating by a thyratron commutator. The thyratron commutator is a bridge circuit that guarantees almost

Card 1/2

S/169/62/000/007/078/149
D228/D307

Generating set for ...

square current pulses at frequencies below 3 c/s. The form of the commutated current is substantially distorted as the frequency increases. The commutator is automatically switched on at a given d.c. voltage. A blocking device guarantees the connection system. A d.c. gasoline-set with a voltage of 220 v and a power of 4 kw is provided for supplying the station's electronic equipment. The station is controlled from a panel. The work of this station includes two cycles -- calibrating and measuring. The equipment described is acceptable for commercial utilization. [Complete translation.]

Card 2/2

ENENSHTEYN, B.S.; IVANOV, A.P.

Method of continuous frequency soundings. Izv. AN SSSR. Ser. geofiz. no.11:1655-1658 N '61. (MIRA 14:11)

1. Akademiya nauk SSSR, Magnitnaya laboratoriya.
(Electromagnetic prospecting)

S/0049/64/000/003/0354/0359

ACCESSION NR: AP4030337

AUTHORS: Ivanov, A. P.; Nikitina, V. N.; Skugarevskaya, O. A.

TITLE: Frequency interpretation of curves for the establishment of an electrical field

SOURCE: AN SSSR. Izv. Ser. geofiz., no. 3, 1964, 354-359

TOPIC TAGS: electric field, frequency sounding, geophysical prospecting, field buildup

ABSTRACT: A method for setting up electrical fields for purposes of geophysical prospecting, with simplicity of equipment and techniques as primary objectives, is considered. This method is distinguished by the use of alternating current through a very broad, almost continuous, range of frequencies from tens of cycles to steady current. The field is simply established: sudden switching of direct current into a grounded electrical dipole. The entire process of field buildup is recorded by a DC amplifier in a short interval of time, on the order of a few tens of seconds. As the field spreads through the ground, it is attenuated irregularly by variations in the ground, and phase shifts give a time factor to

Card 1/2

Card 2/2

[redacted], A. [redacted]

Selection and seed cultivation of field crops. Moskva, Gos. izd-vo selkhoz lit-ry, 1951. 576 p. (Uchebniki i uchebnye posobiia dlia sel'skokhoziaistvennykh tekhnikumov)

IVANOV, A. P.

Seed Industry and Trade

Seed culture on the Stalin Collective Farm. Sots. zhiv. 14 no. 5, 1952.

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

IVANOV, A. P.

Alfalfa

Practices for producing an abundant yield of alfalfa seed. Sel. i sem. 20, No. 3, 1953.

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

IVANOV, A.P., kandidat sel'skokhozyaystvennykh nauk.

Agricultural science in China. Nauka i zhizn' 20 no.11:41-43 N '53.
(MLRA 6:11)
(China--Agriculture) (Agriculture--China)

IVANOV, A. P. comp.

Grain crops; wheat, rye, barley, oates. Moskva, Gos. izd-vo selkhoz. lit-ry, 1954.
387 p. (Populiarnye monografii)

IVANOV, A.P., red.

[Lectures on crop culture] Lektsii po rastenievodstvu. Leningrad, 1958. 184 p. (MIRA 12:4)

(Field crops)

IVANOV, Aleksandr Pavlovich, kand.sel'skokhoz.nauk; ALEKSEYEV, Yu.V., red.; BARANOVA, L.G., tekhn.red.; FRIDMAN, Z.L., tekhn.red.

[Rye] Rozh'. Leningrad, Sel'khozizdat, 1961. 302 p. (Rye) (MIRA 15:5)

IVANOV, Anatoliy Petrovich; GASTEVA, G.A., red.; FORMALINA, Ye.A., tekhn. red.

[Chemical analysis of fishes and their feeds; practical manual for pisciculturists] Khimicheskii analiz ryb i ikh kormov; prakticheskoe rukovodstvo dlia rybovodov. Moskva, Rybnoe khoziaistvo, 1963. 36 p. (MIRA 16:12)
(Fishes) (Feeds--Analysis) (Biochemistry)

IVANOV, A.A.

[illegible] the woodpulp and paper industry with graduated specialists and the growing need for them during the period of the building of communism in the U.S.S.R. Trudy LIBI no.25:71-77 '55.

Planning the needs of industries in specialists for their [illegible] replacement. Ibid.:78-83

Problems of the grouping of the [illegible] of the woodpulp and paper industry in the U.S.S.R. Ibid.:211-220

(MIRA 9:8)

SOV/124-57-7-7582

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 7, p 17 (USSR)

AUTHOR: Ivanov, A. P.

TITLE: On the Use of a Dynamic Link to Investigate the Dynamics of a Slider-crank-type Press (K issledovaniyu dinamiki krivoshipno-shatunnogo pressa sposobom dinamicheskogo zvena)

PERIODICAL: Tr. Leningr. voyen.-mekhan. in-ta, 1955, Nr 3, pp 48-53

ABSTRACT: The problem of the motion of the punch of a slider-crank-type press is examined in terms of a linear approximation.

S. G. Kislitsyn

Card 1/1

124-57-2-1913 D

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 2, p 63 (USSR)

AUTHOR: Ivanov, A. P.

TITLE: An Outflow From a Rectangular Orifice in a Thin Wall and Forms of the Entry of the Flow Into the Tailwater (Istecheniye iz pryamougol'nogo otverstiya v tonkoy stenke i formy sopryazheniya v nizhnem b'yefe)

ABSTRACT Bibliographic entry on the author's dissertation for the degree of Candidate of Technical Sciences, presented to the Leningr. politekhn. in-t (Leningrad Polytechnic Institute), Leningrad, 1956.

ASSOCIATION: Leningr. politekhn. in-t (Leningrad Polytechnic Institute), Leningrad

1. Fluid flow--Analysis

Card 1/1

SOV/137-58-7-14017

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 5 (USSR)

AUTHOR: Ivanov, A. P.

TITLE: The Plan for the Olenegorsk Plant (Proyekt Olenegorskoy fabriki)

PERIODICAL: [Tr.] Vses. n.-i. i proyektn. in-ta mekhan. obrabotki poleznykh iskopayemykh, 1957, Nr 102, pp 49-65

ABSTRACT: Descriptions and drawings are presented of certain cross sections of departments and structures of the plant (the coarse- and medium-comminution building, the fine-grinding building, the third crushing section, the crushed-ore hopper, the concentration department, the building for table concentrations, the concentrate-dewatering storage, the drying department, the dry-concentrate storage, the concentrate loading hoppers, the coal dump. Tailings disposition economics, power, heat and water supply, process control and automation, and the personnel required to serve the equipment are described.

Card 1/1 1. Ores--Processing 2. Industrial plants--Equipment 3. Industrial plants--Organization

A. Sh.

SOV/32-24-10-25/70

AUTHORS: Danilov, T. L., Ivanov, A. P., Kroshkin, A. A., Razov, I. A., Shevandin, Ye. M., Shimelevich, I. L.

TITLE: Investigation of the Bending of a Broad Sample in Classifying the Deformability of Metals (Ispytaniye shirokoy proby na zagib dlya otsenki deformatsionnoy sposobnosti metallov)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 10, pp 1233-1236 (USSR)

ABSTRACT: Testing the bending strength in the cold state serves to classify the plasticity of steel. According to OST 1683 a certain ratio between the width and the thickness of the sample must exist in the bending tests of sheet iron and other sectional materials. Under actual conditions the width of the sheet of metal exposed to bending exceeds, however, the thickness by ten- to one hundred-fold. For this reason the testing of sheet iron is carried out with broad samples at present. The new steel types SKhL4, 09G 2, MK have a higher resistance to brittle breaking. The use of a wide sample in cold bending tests makes possible the classification of the deformability of steel under rigid limiting conditions, close to real ones. The testing of the broad sample with respect to bending is to be arranged for sheet iron of

Card 1/2

Investigation of the Bending of a Broad Sample in Classifying the Deformability of Metals

any thickness. The results obtained are called satisfactory if the sample can be bent by 120° in the case of a special mandrel diameter, and if the sample does not break into two pieces on a further bending to 180°. From a diagram it may be seen that the extent of the maximum deformation of steel of type SKhLI decreases to a great extent with increase in the span width (Ref 2). According to a suggestion by A. P. Ivanov and S. S. Kanfor and parallel to tests with samples of normal width tests on broad samples with cores were also carried out. In papers by E. S. Volokhvyanskaya (Ref 6) tests of samples with grooves and numbered cores are described. It was found that the bending tests according to OST 1683 concerning the narrow samples (b=2a) should be followed by those for broad samples (b=5a) (b=width; a=thickness). There are 2 figures and 6 references, 5 of which are Soviet.

IVANOV, A.P.

Making thick-walled blanks on pipe-rolling mills. Metallurg 4 no.3:28-31 Mr '59. (MIRA 12:4)

1. Nachal'nik truboprokatnogo tsekha Chelyabinskogo truboprokatnogo zavoda.

(Rolling (Metalwork))

30727
S/020/61/141/003/015/021
B101/B117

15.8170

AUTHORS: Piotrovskiy, K. B., Ivanov, A. P., and Dolgoplosk, B. A., Corresponding Member AS USSR

TITLE: The role of compounds of metals of varying valency in the thermal stabilization of polysiloxanes

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 141, no. 3, 1961, 677-678

TEXT: Assuming that the stabilizing effect of ferric oxide and other similar compounds was due to a formation of stable complexes with the active centers of the siloxane chain, the authors studied the effect of oxides of Fe, Co, and Cu on the anionic polymerization of octamethyl cyclotetrasiloxane (cyclic tetramer). The anionic polymerization of the tetramer was conducted at 140°C under the action of 0.0074% by weight of KOH in N_2 atmosphere. The initial product had a boiling temperature of 64°C/4 mm Hg, $d_4^{20} = 0.9575$. The tetramer was mixed with 10% by weight of Fe_2O_3, or Co_2O_3, or CuO. At regular intervals, samples were taken, weighed, dissolved in benzene, the polymer precipitated with methanol, and

Card 1/3

The role of compounds of ...

dried in vacuo at 100°C. The following was found: addition of Fe_2O_3, Co_2O_3, or CuO completely inhibited the polymerization, also when the oxides were added at a later stage of the process. This is taken as a proof that the presumed formation of stable complexes between metal oxide and active centers did really occur. This constitutes the basis for the stabilizing effect of metal oxides on polysiloxane rubbers at high temperatures. This also inhibits the polymerization process and the destruction process at high temperatures. A report by M. Kučera, M. Jelinek, I. Lanikova, K. Vesely delivered before the International Symposium on Macromolecular Chemistry USSR. M., July 14-18, 1960, Dokl. i avtoref., sekts. 2, 1960, p. 232, is mentioned. There are 2 figures and 6 references: 3 Soviet and 3 non-Soviet. The three references to English-language publications read as follows: British Patent no. 658640 (1950); US Patent no. 2558561 (1951); British Patent no. 643018 (1950).

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S. V. Lebedeva (All-Union Scientific Research Institute of Synthetic Rubber imeni S. V. Lebedev)

30727

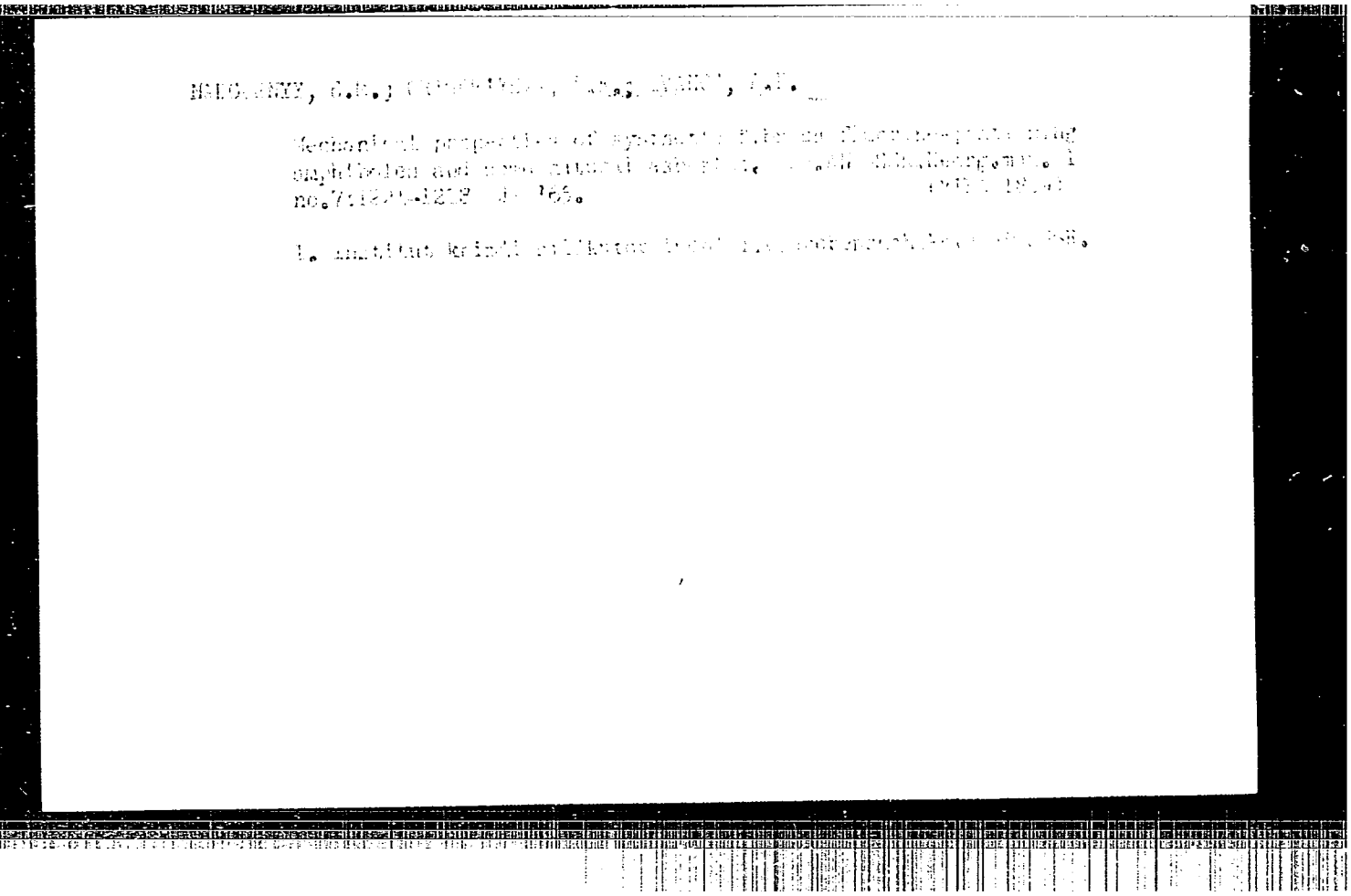
S/020/61/141/003/015/021
B101/B117

The role of compounds of ...

SUBMITTED: July 26, 1961

X

Card 3/3



USSR/Physics - Spectral analysis

Card 1/1 Pub. 43 - 51/62

Authors : Girin, O. P.; Zhidkova, Z. V.; Stepanov, V. I.; Ivanov, A. P.; and Toporets, A. S.

Title : Determination of the true absorption spectrum of diffusion colored objects by the spectrum of their diffusion reflection

Periodical : Izv. AN SSSR. Ser. fiz. 18/6, 728-729, Nov-Dec 1954

Abstract : Esperimental and theoretical investigations were conducted to determine the relation between the coefficient of diffusion reflection and the factors (internal and external) connected with the characteristics of the repulsing layer and the conditions of illumination. The method employed in measuring each component individually was based on the different properties of these components in relation to polarization. Results obtained are listed in detail.

Institution : .....

Submitted : .....

USSR/Physics - Luminescence

IVANOV, A. P.

Card 1/1 : Pub. 146-4/18

Author : Ivanov, A. P.

Title : Intensity of luminescence of powders of luminophors

Periodical : Zhur. eksp. i teor. fiz., 26, pp 275-280, Mar 1954

Abstract : The author treats theoretically the problem of the dependence of luminescence intensity of powdered luminophors upon the degree of dispersion connecting the medium and thickness of the luminescing layer. On the basis of the assumption that the absorption, scattering and radiation are continuous functions of the layer thickness, the author obtains expressions for the intensity of luminescence of the layer from the excitation side and from the opposite side. He analyzes the formulas obtained and discusses the problem of the optimum thicknesses of the luminescing layer. The author thanks Prof. M. M. Gurevich, who posed the problem, and A. V. Luizov. Six references, 1 Western (1905) and 5 Russian (e.g. A. A. Gershun, Tr. GOI, 11, 99, 43, 1936; Tr. GOI, 4, 38, 1, 1928. Z. Boda, Acta Phs. Acad. Soc. Hungar, 1, 135, 1950).

Institution :

Submitted August 3, 1953

IVANOV, A.P.; TOPORETS, A.S.

Spectrophotometric analysis of mixtures of powdery substances.
Opt. i spektr. 1 no.6:802-806 D '56. (MLRA 9:12)

(Spectrophotometry) (Glass--Optical properties)

Ivanov, A P

USSR/Optics - Physical Optics K-5

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 12976

Author : Ivanov, A.P., Toporets, A.S.
Inst :
Title : Investigation of Diffused Reflection with Application of Polarized Light. I.

Orig Pub : Zh. tekhn. fiziki, 1956, 26, No 3, 623-630

Abstract : During diffused reflection from dielectrics, the reflected flux comprises two components, an external, reflected from the surface, and an internal, reflected from the inside. In an earlier work by one of the authors (Toporets A.S., Zh eksperim i teor fiziki, 1950, 20, 390) it was proposed, that the external component retains the polarization state of the incident stream, and the internal becomes depolarized. The degree of polarization of the internal component, depending on the angles of observation, was investigated theoretically and experimentally both

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USSR/Optics - Physical Optics

Abs Jour : Ref Zhur - Fizika, No 5, 1957, 12976

for a transmitted flux as well as for a reflected one. The objects of the investigation were various kinds of paper and opal glass, both matte and polished. For polished opal glass, the results of theoretical calculations are in good agreement with the experimental values over a wide range of observation angles. In dull specimens, the agreement between the theoretical and experimental results is observed only up to angles of 50°. The discrepancies that take place at greater angles of observation are explained by the fact that no account was made during the calculation of the "shadowing" of some areas by other. In the case of a transmitted flux, the degree of polarization of the beams, scattered at various angles, increases with increasing angle of observation and reaches, for example, at an angle of 45°, a value of 4%. In the reflected flux, the direct determination of the degree of polarization of the internal component is impossible,

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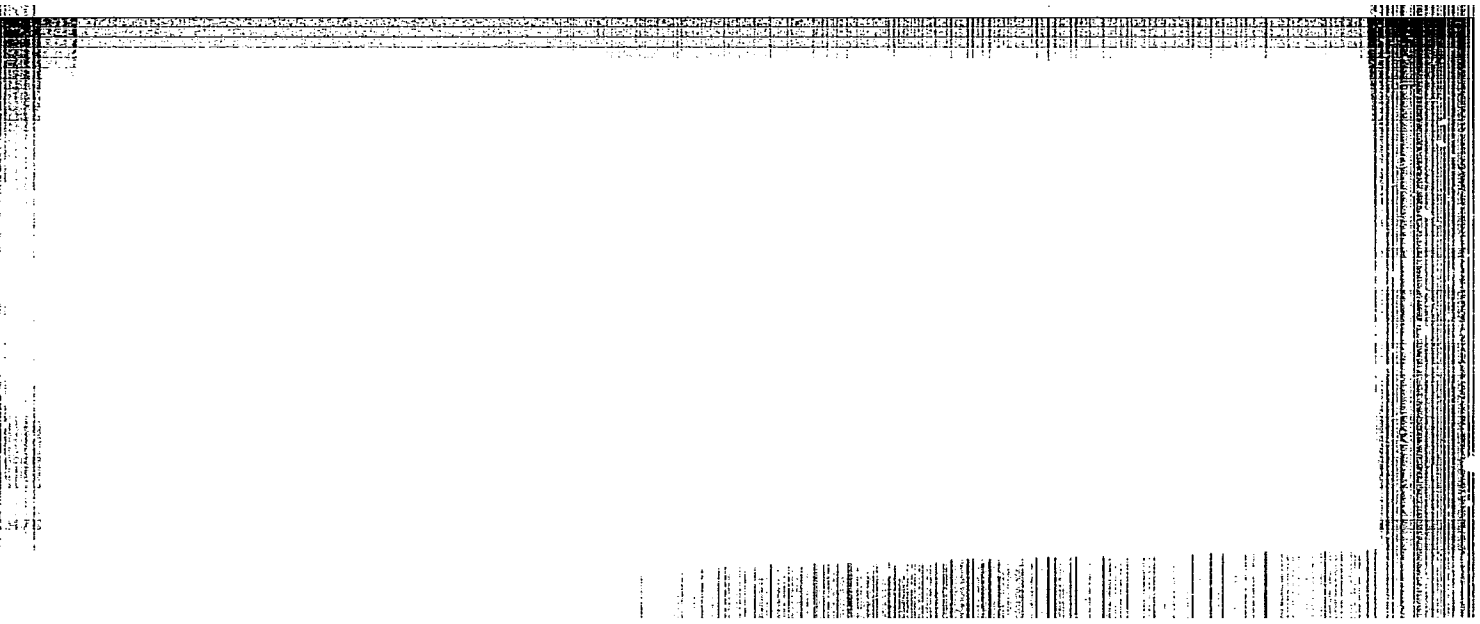

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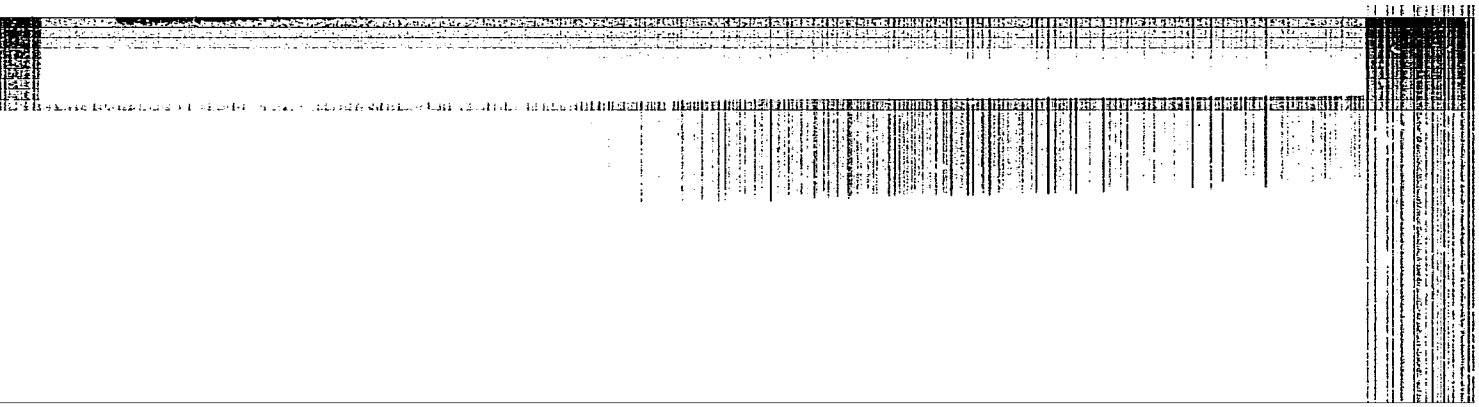

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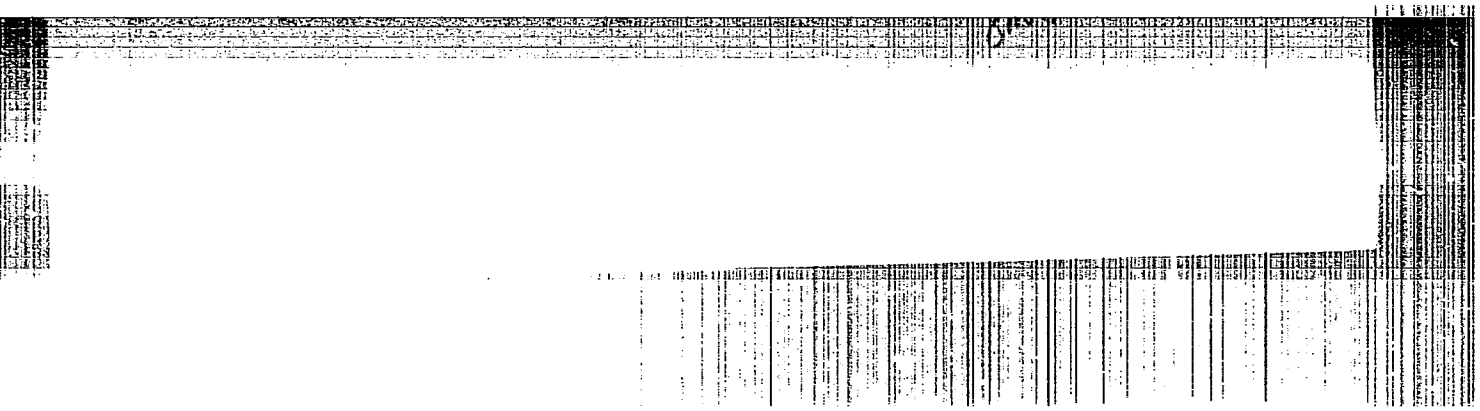

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619020004-9"

AUTHOR: Ivanov, A.P. 51-4-18/25

TITLE: Certain problems of spectrophotometry of light scattering media. (Nekotoryye voprosy spektrofotometrii svetorasseivayushchikh sred).

PERIODICAL: "Optika i Spektroskopiya" (Optics and Spectroscopy) 1957, Vol.2, No.4, pp.524-529 (U.S.S.R.)

ABSTRACT: For disperse media a diffuse reflection spectrum is often the only obtainable spectroscopic characteristic. Reflection coefficient R of such media will depend on many parameters: particle size ℓ, refractive index n and absorption coefficient k of the particulate medium, sample thickness x, and so on. Representing a disperse layer by a system of identical parallel-sided plates of size ℓ Bodo (Acta Phys. Acad. Sci. Hungar., Vol.1, p.135, 1950) finds for R :

$$R = \frac{1 + r^2 - t^2}{2r} - \sqrt{\frac{1 + r^2 - t^2}{2r} + 1}$$

where r and t are reflection and absorption coefficients of single plate given by

$$r = \frac{r_0(1 + e^{-2kl} - 2r_0e^{-2kl})}{1 - r_0^2e^{-2kl}} \quad ; \quad t = \frac{(1-r_0)^2e^{-kl}}{1 - r_0^2e^{-2kl}}$$

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51-4-18/25

Certain problems of spectrophotometry of light scattering media. (Cont.)

where r_0 = coefficient of reflection at one surface of an elementary plate. Sensitivity in determination of k from R is defined by

$$S_k = k\left|\frac{dR}{dk}\right| = \left|\frac{dR}{d \ln kl}\right|$$

Calculation of the dependence of S_k on R for various values of r_0 shows that the lower r_0 the wider the region of R in which S_k remains constant; the limiting value of S_k for very small r_0 is 0.16. This is about half the value of S_k for transparent homogeneous bodies ($r_0 = 0$) which is 0.366. Thus under the best conditions sensitivity of spectrophotometry for scattering media is only twice as small as that for transparent ones. The sensitivity S_k is small for high and low values of R. If such values obtain for a disperse medium the sensitivity can be improved by change of the degree of dispersion, introduction of binding media (change of r_0), or mixing of, say, a dark powder with a white one. The last method is discussed in detail. After trying - log R, (1-R) and 1/R as representations of k in terms of R, the author

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Ivanov, A.P.

51-6-16/26

AUTHOR: Ivanov, A. P.

TITLE: On the Effect of Re-Absorption on Luminescence Kinetics. (O vliyanii reabsorbtsii na kinetiku lyuminestsentsii.)

PERIODICAL: Optika i Spektroskopiya, 1957, Vol.II, Nr.6, pp. 800-808. (USSR)

ABSTRACT: A theoretical paper. The author gives an approximate treatment of the effect of re-absorption on luminescence kinetics when the emission and absorption bands overlap (see also Ref.1). The approximation used is valid when re-absorption is small and energy yield in the region of overlap of the emission and absorption spectra is small compared with the yield for external radiation. The following two problems are discussed: (1) kinetics of emission of an infinitely thin layer; (2) emission intensity in a layer of finite thickness due to both the exciting radiation and to re-absorption of luminescence. The formulae obtained give the dependence of the intensity of primary and secondary

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On the Effect of Re-Absorption on Luminescence Kinetics.

luminescence on physical optical parameters. The author thanks P.P. Feofilov for suggesting the subject of study. There are 5 figures, and 5 references, 4 of which are Slavic.

SUBMITTED: November 27, 1956.

AVAILABLE: Library of Congress.

48-5-47/56

SUBJECT: USSR/Luminescence

AUTHOR: Ivanov A.P.

TITLE: Investigation of Regularities of Luminescence in Fine-Dispersed Luminescent Media (Issledovaniye zakonomernostey svecheniya melkodispersnykh lyuminestsiruyushchikh sred)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1957, Vol 21, #5, p 756 (USSR)

ABSTRACT: This investigation discovered regularities in the dependence of luminescence on degree of dispersion, indices of absorption and refraction, thickness of the layer, etc. It was found that the grinding of a luminophore powder led in certain cases to an increase of luminescence brightness and in other cases to a decrease, depending on the source of excitation.

A problem of finding the optimum condition determining the maximum intensity of luminescence was studied.

The theoretical formulas obtained were checked experimentally on powders of the ZhS-9 glass, the grains of which were of 5 to 1,000μ in diameter.

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Ivanov, A. P.

48-11-7/13

AUTHOR: Ivanov, A. P.

TITLE: Investigation on Rules Governing the Luminescence of Fine-Dispersed Luminescent Media (Issledovaniye zakonomernostey svecheniya melkodispersnykh lyuminestsiruyushchikh sred).

PERIODICAL: Izvestiya AN SSSR Seriya Fizicheskaya, 1957, Vol. 21, Nr 11, pp. 1503-1504 (USSR).

ABSTRACT: The dependence of the illuminating power of the luminescence of the optic parameters of the dispersing layer is investigated. Starting from the approximated conceptions on the continuity of dispersion, absorption, and radiation in dependence on the thickness of the layer, formulae were obtained which characterize the intensity of the luminescence both from the side of the incidence of the exciting radiation and from the opposite side. The derived equations are applicable not only with an excitement of the luminescence by ultra-violet light, but also with an excitment by elementary particles (α-, β- particles). The rules governing the illumination in dependence of the dispersion of the medium, the indices of absorption and refraction, the thickness of the layer, etc. were determined from the calculation-analysis. It is shown that the different character of excitement with a crushing of the luminophor-powder, increases in

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Ivanov, A. P.

48-11-6/13

AUTHORS: Ivanov, A. P., Toporets, A. S.

TITLE: Spectrophotometric Investigations on Mixtures of Powdery Objects (Spektrofotometricheskoye issledovaniye smesey poroshkoobraznykh ob'yektov).

PERIODICAL: Izvestiya AN SSSR Seriya Fizicheskaya, 1957, Vol. 21, Nr 11, pp. 1502 - 1502 (USSR).

ABSTRACT: Investigating this problem it was tried to approach it from the angle of those elaborate studied which take account of the real characteristics of the light-dispersing medium and its discontinuity. The used objects was glass-powder. Starting from the conceptions developed by Bodo (reference 1), and Girin, Stepanov (reference 2), a new method for calculating coefficients of reflection of the mixture based upon known constants of the initial components, was suggested. The values of the coefficient of reflection obtained by this method, agree with the test-data. Further it was stated in this context that the appearance of the spectroscopic reflection-curves does not only depend on the composition of the mixture, but also on the dispersion of the powders. With mixtures of the same composition, but of different

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sizes of the particles, the curves cannot coincide with respect to the position of both maxima and minima.
There are 2 Slavic references.

AVAILABLE: Library of Congress.

Investigation on Rules Governing the Luminescence of Fine-Dispersed Luminescent Media. 48-11-7/13

one case the illuminating power, whereas it decreases it in an other case. The question of finding optimum conditions which determine the maximum intensity of luminescence was investigated. The results of investigation make it possible to judge according to the measured spectrum and the output, the real spectrum and the real output, the real spectrum and the real output of luminescence of the substance. Simultaneously with the calculation, the present problem was solved also experimentally. It is shown that the results agree in both cases.
There is 1 figure.

AVAILABLE: Library of Congress.

Card 2/2

IVANOV, V.A,P., ... Cand Phys-Math Sci -- (diss) "Spectro-photometric ~~research~~ ~~investigation~~ of flow of dispersed luminescent objects." [Len], 1958., 11 pp

(St te Order of Lenin Optical Inst im S.I.Vavilov), 150 copies

(KL, 44-58, 119)

IVANOV, A.P.

Sensitivity of spectrophotometric methods for the study of light-scattering media. Inzh.-fiz.zhur. no.5:30-33 My '58. (MIRA 12:1)

(Spectrophotometry)
(Light--Scattering)

51-4-2-13/28

AUTHOR: Ivanov, A. P.

TITLE: Theoretical Investigation of Luminescence Rules of Dispersed Luminescent Objects. (Teoreticheskoye issledovaniye zakonomernostey svecheniya dispergirovannykh lyuminestsiruyushchikh ob"yektov.)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol.IV, Nr.2, pp.225-235 (USSR)

ABSTRACT: The author discusses plane-parallel luminescing disperse layers with a binder of refractive index different from that of the surrounding medium. In this case it is necessary to take into account reflection of both the exciting light and the luminescent light at the layer surfaces. For the special cases of (1) emission by non-scattering luminescing layer, (2) emission under the action of strongly absorbed radiation, (3) emission under the action of weakly absorbed and scattered radiation, the author gives tables and graphs for determination of the luminescent intensity from the optical constants (coefficient of absorption, scattering coefficient, refractive index etc.) of the layer. The effect of the individual optical constants on luminescent emission is analysed. The problem of determination of

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51-4-2-13/28

Theoretical Investigation of Luminescence Rules of Dispersed Luminescent Objects.

an optimal set of the optical constants in order to obtain maximum luminescence from the layer is discussed. The paper is entirely theoretical. There are 9 figures, 2 tables and 2 Soviet references.

ASSOCIATION: State Optical Institute imeni S.I. Vavilov. (Gos. opticheskiy institut im. S.I. Vavilova.)

SUBMITTED: April 1, 1957.

1. Luminescence-Theory

Card 2/2

51-4-2-14/28

AUTHOR: Ivanov, A. P.

TITLE: Experimental Investigation of Luminescence Rules of Dispersed Luminescent Objects. (Eksperimental'noye issledovaniye zakonomernostey svecheniya dispergirovannykh lyuminestsiruyushchikh ob"yektov.)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol.IV, Nr.2, pp.236-244 (USSR).

ABSTRACT: The preceding paper (Ref.1) gave a theoretical analysis of the effect of the optical constants of disperse layers on the intensity of luminescence. The present paper gives the results of an experimental investigation of the same problem. The apparatus used is shown in Fig.1. A PRK-4 lamp was used as the excitation source. This lamp was supplied with d.c. (130 V) from accumulators. A photomultiplier with a d.c. amplifier was used as the receiver. Powders of glass ZhS-9 were used as disperse luminescing objects. 18 powders with particles from 10 to 1000 μ in diameter were used. The light-scattering layers were prepared from powders by deposition from solution. The results are shown in Figs.2-10. From these results the following conclusions

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Experimental Investigation of Luminescence Rules of Dispersed Luminescent Objects.

were made: (A) When the exciting and luminescent light are both on the same side of a powder layer, the intensity of luminescence increases: (a) on increase of the luminescent yield, the absorption coefficient for the exciting light and the thickness of the layer, (b) on decrease of the absorption coefficient for luminescence. Increase of the relative refractive index for the layer and of the size of the particles composing the layer may either increase or decrease the luminescent intensity depending on the values of other constants of the layer. (B) When the exciting light and luminescence are at the opposite faces of the layer, the luminescent intensity increases: (a) on increase of the luminescence yield, and of the particle size, (b) on decrease of the absorption coefficient for luminescence and the relative refractive index. Increase of the absorption coefficient for exciting light and of the layer thickness may either increase or decrease the luminescent intensity depending on the values of other constants of the layer. The results obtained agreed well

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Experimental Investigation of Luminescence Rules of Dispersed Luminescent Objects.

with those calculated in the preceding paper (Ref.1). The author also finds the thickness of a layer at which the luminescent intensity, from the side of the layer opposite to the side on which the exciting light is incident, is maximum. The author thanks Candidate of Physico-Mathematical Sciences A.S. Toporets for his interest. There are 10 figures and 3 Soviet references.

ASSOCIATION: State Optical Institute. (Gos. opticheskiy institut).

SUBMITTED: April 1, 1957.

1. Luminescence-Intensity-Test results

Card 3/3

51- 4-2-15/28

AUTHORS: Ivanov, A. P. and Mosunova, S. M.

TITLE: On a Relationship Between the Intrinsic and Technical Yields of Luminescence of Infinitely Thick Light-Scattering Layers. (O svyazi mezhdu istinnymi i tekhnicheskimi vykhodami lyuminestsentsii beskonechno tolstykh svetorasseivayushchikh sloyev.)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol.IV, Nr.2, pp.245-251 (USSR)

ABSTRACT: In scattering media where luminescence undergoes multiple reflections the final luminescent emission may be considerably weakened and therefore the experimentally determined ratio of the luminescent energy to the absorbed energy gives, not the intrinsic luminescence yield η_i, but the technical luminescence yield η_t. The author derives a formula for η_t in terms of η_i and the optical constants of the luminescing layer. In a table on pp.247-8 numerical values are given for the ratio of the technical to the intrinsic yield for various values of the absorption and scattering coefficients of the layer. Figs.1-3 give the dependences of the

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On a Relationship Between the Intrinsic and Technical Yields of Luminescence of Infinitely Thick Light-Scattering Layers.

technical-to-intrinsic yield ratio on the optical constants of the layer. Experimental verification of the formula for the technical yield obtained by the author was made on powders of uranium glass of two types with different degrees of dispersion. The apparatus used was described in the preceding paper. The authors measured the luminescent intensity of a powder relative to the intensity of luminescence of a plane-parallel plate of the same glass from which powder was made. The glass plate used was sufficiently thin to neglect absorption of luminescence in it. Fig.4 gives the dependence of the yield ratio on dimensions of the powder particles for excitation with various wavelengths (265, 334 and 365 mμ). The continuous curves are theoretical and the experimental results are shown by circles. At 265 mμ the ratio of the yields is greatest and at 365 mμ it is least, because at 365 mμ the exciting light passes into a deeper layer of the powder, since at that wavelength the absorption of the exciting light is small. Consequently in the latter case luminescence comes from a deeper layer

On a Relationship Between the Intrinsic and Technical Yields of Luminescence of Infinitely Thick Light-Scattering Layers.

and therefore it is weakened more on passing through the layer, leading to a lower value of the technical luminescence yield. The effect of the binder, which can be air (curve 1), water (curve 2) or alcohol (curve 3), on the ratio of the luminescence yields is shown in Fig.5 for 365 mμ excitation. Fig.5 shows that the technical-to-intrinsic yield ratio is greatest in dry powder and least in the powder immersed in alcohol. The reason for this lies in the relative refractive index of the powder particles which is 1.491 in air, 1.130 in water and 1.095 in alcohol. The lower the refractive index of particles the more weakly the binding medium scatters light and therefore luminescence is produced at greater depths with consequent greater absorption on emission. The intrinsic yield was obtained by measurements on a plane-parallel plate of uranium glass in which the absorption of light is negligibly small. Knowing the intrinsic yield the authors found the technical yield of powders. Dependences of the intrinsic and technical yields on particle dimensions

On a Relationship Between the Intrinsic and Technical Yields of Luminescence of Infinitely Thick Light-Scattering Layers.

are shown in Fig.6 for various exciting light wavelengths and in Fig.7 for various binding media. In both Figs. 6 and 7 the continuous curves represent the technical yields of powders, the dashed curves give the intrinsic yield for a glass plate and the points give the intrinsic yield of powders. Figs.6 and 7 show that for powders the intrinsic yield does not change with wavelength or with change of the binding medium and that the powder intrinsic yield is practically equal to the intrinsic yield of a thin glass plate. There are 7 figures, 1 table and 5 Soviet references.

ASSOCIATION: State Optical Institute imeni S.I. Vavilov. (Gos. opticheskiy institut im. S.I. Vavilova).

SUBMITTED: April 1, 1957.

1. Luminescence-Effects of reflecting layers 2. Luminescence-Measurement-Mathematical analysis

SOV/51-4-6-9/24

AUTHOR: Ivanov, A.P.

TITLE: On the Spatial Distribution of Emission of Phosphor Powders (O prostranstvennom raspredelenii izlucheniya poroshkov lyuminoforov)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol IV, Nr 6, pp 767-771 (USSR)

ABSTRACT: Indicatrices of emission by highly disperse phosphor layers are of interest both from the practical and scientific point of view. It is known that if fluorescence is not polarized, then the emission by a non-scattering element of volume is the same in all directions (Refs 1, 2). This is known as Lommel's law. When fluorescence is polarized this uniform angular distribution of emission no longer holds. Lommel's law is not obeyed by light emitted by plane surface of a transparent luminescing medium because, with increase of the angle of observation, the emitted light is partly reflected from the boundary medium-air and at a certain angle the total reflection occurs. To study the emission indicatrices of elementary centres the substance studied may be immersed in a suitable liquid or the indicatrices of measured emission by a layer may be converted into indicatrices of emission by luminescent centres by a suitable calculation. The theoretical basis for such a calculation is given in the present paper.

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On the Spatial Distribution of Emission of Phosphor Powders

Measurements were made using an apparatus shown schematically in Fig 3. A lamp PRK-4 was used as a source of ultraviolet radiation (I in Fig 3). A parallel beam of light is reflected by a mirror Z on to the sample (Obr in Fig 3). A filter F_1 separates out the required spectral line. The receiver consists of a lens L_2 with a diaphragm D_2, a photomultiplier and a d.c. amplifier. By rotation of the optical system with respect to the sample in the plan of Fig 3, emission at various angles could be measured. The emission indicatrices were measured for powders of luminescent glass ZhS-9 of different grain sizes and layer thicknesses and for non-scattering plane parallel plates of the same glass ZhS-9. Fig 4 shows in polar coordinates the indicatrices of screens of various thickness for the same side as the incident exciting light. Fig 4 gives also the indicatrix for a plane-parallel plate (curves 4). The effect of particle dimensions in an infinitely thick powder layer on the angular distribution of luminescence intensity is shown in Fig 5. Fig 5 gives also the angular distribution for a plane parallel plate (curves 4). The results obtained indicate that the angular distribution of the intensity of luminescence of powders depends both on the layer thickness and on particle dimensions and obeys a law which is intermediate between Lommel's and

On the Spatial Distribution of Emission of Phosphor Powders

Lambert's laws. The angular distribution of luminescence of a non-scattering plane-parallel plate is close to the Lambert distribution. There are 5 figures and 11 references, 7 of which are Soviet, 2 French, 1 English and 1 German.

ASSOCIATION: Gosudarstvennyy Opticheskiy Institut im. S.I. Vavilova (State Optical Institute imeni S.I. Vavilov)

SUBMITTED: July 22, 1957

SOV/51-5-1-13/19

AUTHOR: Ivanov, A.P.

TITLE: Investigation of the Luminescence Spectra of Powder Phosphors (Issledovaniye spektrov lyuminestsentsii poroshkoobraznykh lyuminoforov)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 1, pp 78-82 (USSR)

ABSTRACT: Scattering and absorption of light in disperse (powdered) phosphors may alter considerably the luminescence spectrum compared with the intrinsic spectrum of a massive sample. The present paper deals with the experimental investigation of the effect of optical and geometrical parameters on the luminescence spectra of powder phosphors. The luminescence spectra were measured using the same apparatus as described in Ref 7 except for the projection of the emitted light on to a glass monochromator instead of directly on to a photomultiplier. If the dispersion of the monochromator and the spectral sensitivity of the photomultiplier are known, the multiplier galvanometer indicates the luminescence spectrum intensity. The author studied luminescence spectra of powders of various degree of fineness both in air and using binders. The powders were made of uranium glass ZhS-9 for which the

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Investigation of the Luminescence Spectra of Powder Phosphors

absorption spectrum and the refractive index were known. Dimensions of the powder particles were determined using a microscope. Water and methyl benzoate were used as binders. Both these substances show practically no absorption in the visible and near ultraviolet regions of the spectrum. When the powders were in air or water the luminescence spectra were distorted only due to changes in the absorption by the powder. In methyl benzoate ($C_6H_5CO_2.CH_3$) the luminescence spectrum is altered due to both absorption and scattering (scattering was absent at one wavelength at which the refractive indices of the glass powder and methyl benzoate were equal). Fig 1 shows the luminescence spectra obtained for powdered glass in air (curves 2, 3) which was 10 single-particle layers thick. Curve 2 was obtained on excitation with the 365 mμ line and curve 3 using the 265 mμ line. A theoretically calculated luminescence spectrum for a massive sample is represented by curve 4 in Fig 1, while curve 1 in Fig 1 represents an experimental spectrum for a thin glass plate. The effect of the binder on the luminescence spectrum is shown in Fig 2. The measurements were made on a powder sample consisting of 40 single-particle layers, with particles 93 μ in diameter. The luminescence was excited using the 365 mμ line. Curve 1 represents the intrinsic spectrum of the glass

Investigation of the Luminescence Spectra of Powder Phosphors

used, curve 2 represents powder in air and curve 3 represents powder in water. Fig 3 shows the luminescence spectra of glass powder in methyl benzoate at various temperatures from 20-60°C (curve 1 represents the intrinsic spectrum). Dependence of the luminescence spectra of powders in methyl benzoate at 20°C on particle size is shown in Fig 4. Curve 1 represents the intrinsic spectrum, curves 2 and 3 represent powders with particle size of 737 μ and 94 μ respectively. Fig 4 indicates that the luminescence spectra of powders depart more strongly from the intrinsic spectrum when the particle size is decreased. The author also studied the effects of admixtures on the luminescence spectra. As an admixture powdered blue glass SS-4, which does not luminesce and absorbs strongly the long-wavelength end of the visible region, was used. Fig 5 shows the luminescence spectra of mixtures of powders SS-4 and ZhS-9 for various concentrations

of the latter. With decrease of the amount of the ZhS-9 glass powder the luminescence spectrum changes considerably in the region of absorption by the blue glass powder SS-4. There are 5 figures and 8 references, 7 of which are Soviet and 1 American.

ASSOCIATION: Gosudarstvennyy opticheskiy institut im. S.I. Vavilova (State Optical Institute imeni S.I. Vavilov

SUBMITTED: June 22, 1957

Card 4/4 1. Phosphor powders - Luminescence 2. Phosphor powders - Spectrographic analysis 3. Phosphor powders - Optical properties 4. Photomultipliers - Applications 5. Spectrum analyzers - Applications

SOV/51-5-4-17/21

AUTHOR: Ivanov, A.P.

TITLE: Spectrophotometric Properties of Dispersion Light-Filters (Spektrofotometricheskiye svoystva dispersionnykh svetofil'trov).

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 4, pp 473-477 (USSR)

ABSTRACT: Dispersion filters are made of powders in binders, whose refractive index is the same as the refractive index of the powder at one wavelength only (λ_o). For this wavelength λ_o the medium is optically uniform and light is transmitted through it without loss. Other wavelengths are scattered and are, therefore, considerably weakened after passage through such a filter. Dispersion filters were studied both experimentally (Refs 1-12) and theoretically (Refs 13, 14). The present paper reports measurements of transmission, reflection and polarization spectra, and scattering indicatrices of dispersion filters. The filters were made of glass K-8 powders in $C_6H_5CO_2.CH_3$. The curves of the refractive indices of the powder and the solvent cut at about 550 mμ (Fig 1) at 25°C. Measurements were made using apparatus described in Ref 15. This apparatus is based on a double glass

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Spectrophotometric Properties of Dispersion Light-Filters

monochromator with an aperture angle at the receiver of 1°. A polarizer and an analyser were used for work in polarized light. The apparatus of Ref 15 was adapted for the purpose of the present paper under the guidance of A.S. Toporets and Ye.V. Lukina. Fig 2 gives the angular distribution of the light intensity after passing through the filter which consisted of 490 layers of particles of 160 μ diameter. Fig 3 shows the transmission spectra of a filter consisting of 330 layers of 160 μ particles obtained at various angles of observation from 0° to 20°. Fig 4 gives the transmission spectra for two angles of observation (0° and 15°) and three thicknesses of filters (133, 330 and 490 layers of 160 μ particles). The reflection spectra are not given in the paper since they are not of practical interest because of the

Spectrophotometric Properties of Dispersion Light-Filters SOV/51-5-4-17/21

very low reflectivity of dispersion filters. There are 4 figures and 16 references, 6 of which are American, 5 Soviet, 2 German, 2 Indian and 1 English.

ASSOCIATION: Gosudarstvennyy opticheskiy institut im. S.I. Vavilova (State Optical Institute imeni S.I. Vavilov).

SUBMITTED: November 27, 1957

Card 3/3 1. Optical filters--Materials 2. Optical filters--Performance 3. Optical filters--Properties

IVANOV, A.P.; LEBEDEVA, G.A.

Luminiscence intensity of two-component powder systems. Inzh.-fiz. zhur. no. 6:106-109 Je '58. (MIRA 11:7)
(Luminiscence)

SAPOZHNIKOV, Rostislav Alekseyevich; IVANOV, A.P., red.; ZHITNIKOVA, O.S., tekhn.red.

[Theoretical photometry; fundamentals of light intensity calculations] Teoreticheskaia fotometriia; osnovy rascheta, osveshcheniia. Moskva, Gos.energ.izd-vo, 1960. 176 p. (MIRA 13:5)

(Photometry)

IVANOV, A.P.

Effect of strong illumination on the absorption capacity of complex molecules. Opt. i spektr. 8 no.3:352-358 Mr '60. (MIRA 14:5)
(Absorption spectra)
(Molecular theory)

IVANOV, A.P.; KHODOS, E.B.

Light scattering in media of varying optical parameters. Opt. i spektr. 8 no.4:556-562 Ap '60. (MIRA 13:11)
(Light--Scattering)

IVANOV, A.P.

Light scattering in discoloring objects. Opt. i spektr. 11 no.6: 754-758 D '61. (MIRA 14:11)
(Light--Scattering)

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S/201/62/000/003/001/002
I045/I245

AUTHORS: Ivanov, A.P., Berkovskiy, B.M., and Katsev, I.L.

TITLE: Calculation of the emission of a light scattering layer by methods of non-linear optics

SOURCE: Izvestiya Akademii Nauk Belorusskoy SSR. Seriya fisiko-tekhnicheskikh nauk. no.3. Minsk, 1962, 23-26

TEXT: The authors investigate by means of the Schwarzschild-Schuster method the propagation of radiation of strong intensity in a turbid, plane-parallel layer, in the case when the negative absorption coefficient depends on the intensity of the light field. Conditions for selfexcitation of the turbid layer and an expression

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Calculation of the emission of....

for the intensity of the generated light are derived. The generated intensity is given by

$$S_{emit} = -\frac{W}{2} = -\frac{k_0 l}{2\alpha} + \frac{\alpha(sl)^2 + bsl + c}{2\alpha sl} \qquad (13)$$ where

W-absorbed energy per unit time; k_A-absorption coefficient at the absence of light field; α -parameter of non-linearity ($\alpha > 0$); s-scattering constant; l-thickness of the scattering layer; a,b, c-constants depending on the reflexion coefficient r at the parallel boundaries of the scattering layer. Significant is the fact, that at $r = 0$ αS_{emit} increases strongly with increasing sl, whereas at $r \to 1$ it becomes a constant $\frac{k_0 l}{2}$ determining the maximum possible value of the generated intensity. At small r a slight increase of the light scattering substance within the turbid layer causes a transition from a non-excited to a selfexcited system. There are 3 figures.

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IVANOV, A.P.; BERKOVSKIY, B.M.; KATSEV, I.L.

Reflection and transmission of a plane-parallel layer within the scope of nonlinear optics. Inzh. -fiz. zhur. 5 no.10:58-64 O '62.
(MIRA 15:12)

1. Institut fiziki AN BSSR, Minsk.
(Optics, Geometrical)

IVANOV, A.P.; STEPANOV, B.I.; BERKOVSKIY, B.M.; KATSEV, I.L.

Calculating the effect of inhomogeneities on the light regime of a parallel-plate layer in nonlinear approximation. Dokl. AN BSSR 6 no.3:147-150 Mr '62. (MIRA 15:3)

1. Institut fiziki AN BSSR.

(Optics, Physical)

IVANOV, A.P.

Relation between the optical properties of the layer and the substance in light-diffusing media. Dokl.AN BSSR 6 no.4:217-219 Ap '62. (MIRA 15:4)

1. Institut fiziki AN BSSR. Predstavleno akademikom AN BSSR B.I.Stepanovym.

(Optics, Geometrical)

STEPANOV, B.I.; IVANOV, A.P.; BERKOVSKIY, B.M.; KATSEV, I.L.

Radiation transfer inside a plane-parallel layer in the approximation of nonlinear optics. Opt. i spektr. 7 no.4:533-536 Ap '62. (MIRA 15:5)

(Radiation) (Light--Transmission)

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AUTHORS: Stepanov, B.I., Ivanov, A.P., Berkovskiy, B.M., Katsev, I.L.

TITLE: The transfer of radiation in a plane parallel layer in the approximation of nonlinear optics

PERIODICAL: Optika i spektroskopiya, v.12, no.4, 1962, 533-536

TEXT: The problem of the transfer of radiation in a plane parallel layer is considered on the basis of equations for the transmission of radiant energy with a nonlinear dependence of the absorption coefficient for dense radiation. The calculations are for monochromatic radiation (flux S_0) propagated normal to the surface of a layer of thickness l. On account of multiple reflections between the boundary layers there will be two fluxes S_1 and S_2 in opposite directions at any point x in the layer. An expression for the absorption coefficient k is derived

$$k = \frac{k_0}{1 + \alpha(S_1 + S_2)} \qquad (2)$$

where k_0 is the absorption coefficient in the absence of a

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The transfer of radiation ...

light field and α the nonlinear parameter ($\alpha \geq 0$). The problem is only considered for a particular case which allows an easy analytical solution, namely by putting S_o equal to zero. Equations are derived for the change in value of the absorption coefficient with position in the layer and its dependence on the reflectivity of the surface. The effect of a supplementary field of density $u^{ж}$ due to the thermal background is also considered and equations derived for the absorption coefficient k and the intensity of radiation $S_{ИСП}$ escaping from the layer.

$$k = \frac{k_o}{1 + avu^{ж} + \alpha(S_1 + S_2)} \qquad (16)$$

and

$$S_{ИСП} = \frac{(1 + avu^{ж}) \ln r - k_o l}{2\alpha} \qquad (17)$$

where r is the coefficient of reflection and v is the velocity of light. It follows that the condition for radiation from the layer is

IVANOV, A.P.

Second Conference on the Spectroscopy of Light-scattering Media. (MIRA 15:5)
Opt.i spektr. 12 no.5:664-665 My '62.
(Spectroscopy--Congresses)

IVANOV, A. P.

Colors and absorption spectra of dyes adsorbed on light-scattering materials. Opt. i spektr. 13 no.6:831-834 D '62. (MIRA 16:1)

(Absorption spectra) (Dyes and dyeing)
(Light—Scattering)

IVANOV, A.P.; LEYTSYNA, V.G.; PUPLIKOVA, I.N.

Determination of the concentration of several dyes simultaneously adsorbed on fiber. Zhur.anal.khim. 17 no.4:511-517 Jl '62. (MIRA 15:8)

1. Institute of Physics, Academy of Sciences of the Byelorussian S.S.R., Minsk.
(Dyes and dyeing—Textile fibers) (Spectrum analysis)

IVANOV, A.P.; BERKOVSKIY, B.M.; KATSEV, I.L.

Calculation of the radiation of a light-scattering layer within the framework of nonlinear optics. Vestsi AN BSSR. Ser. fiz.-tekh. nav. no.3:23-26 '62. (MIRA 18:3)

SHERBAF, I.D.; IVANOV, A.P. [Ivanou, A.P.]

Design of apparatus for studying various properties of light-diffusing objects. Vestsi AN BSSR. Ser. fiz.-tekh. nav. no.2: 39-43 '62. (MIRA 18:4)

IVANOV, A.P.; RUBINOV, A.N.

Choice of optimum operating conditions for flash bulbs for attaining the maximum disturbance of thermodynamic equilibrium in a substance. Dokl. AN BSSR 7 no.11:746-751 N '63. (MIRA 17:9)

1. Institut fiziki AN BSSR. Predstavleno akademikom AN BSSR B.I. Stepanovym.

IVANOV, A.P.; MAKAREVICH, S.A.

Effect of the width of a beam of light on the depth of its penetration into a scattering medium. Izv. AN SSSR. Ser. geofiz. no.11:1754-1757 N '63. (MIRA 16:12)

1. Institut fiziki AN BSSR.

RUBINOV, A.N.; IVANOV, A.P.

Determining the parameters of pulsed tubes from observations of nonlinear optical phenomena. Dokl. AN BSSR 7 no.8:524-527 Ag '63. (MIRA 16:10)

1. Institut fiziki AN BSSR. Predstavleno akademikom AN BSSR B.I. Stepanovym.

RUBINOV, A.N.; IVANOV, A.F.

Determining the self-excitation threshold of a three-level laser. Opt. i spektr. 17 no.5:759-764 N '64.
(MIRA 17:12)

L 17309-63 EWT(1)/BDS AFFTC/ASD/IJP(C)/SSD
ACCESSION NR: AP3005998 S/0250/63/007/008/0524/0527

AUTHOR: Rubinov, A. N.; Ivanov, A. P.

TITLE: Pulse lamp parameter determination by observation of nonlinear optical phenomena

SOURCE: AN BSSR. Doklady*, v. 7, no. 8, 1963, 524-527

TOPIC TAGS: pulse lamp parameter, pulse lamp efficiency, pulse lamp parameter determination, pulse lamp temperature determination, pulse lamp temperature, pulse lamp efficiency determination

ABSTRACT: A simple method is presented for determination of the temperature and efficiency of a high-power light source from its effect on the absorption capacity and luminescence of an irradiated sample substance. It is assumed that the efficiency factor remains practically constant during small changes in the voltage applied to the lamp. The spectral density of radiation of the sample in its absorption wavelength can be determined experimentally by measuring the intensity of the phosphorescence of the sample at any voltage, thus obtaining the ratio of corresponding luminescence intensities. By the method

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