

PILIPETS, G., dotsent

Checkrow planting helps to increase sugar beet yields and the
productivity of labor. Nauka i pered. op. v sel'khoz. 9 no.4:7-10
Ap '59. (MIRA 12:6)

1. Khar'kovskiy sel'skokhozyaystvennyy institut.
(Sugar beets)

PILIPETS, G. V., Doc Agric Sci (diss) -- "The square method of cultivating sugar beets". Khar'kov, 1959. 35 pp (Min Agric USSR, Khar'kov Order of Labor Red Banner Agric Inst im V. V. Dokuchayev, Chair of Plant Growing), 200 copies (KL, No 24, 1959, 144)

PILIPETS, G. U.

Office / Division of Plans, Plans for Technical Dev. of Plants, ...
State Plants.

Address :, 1951,

Name : ~~...~~

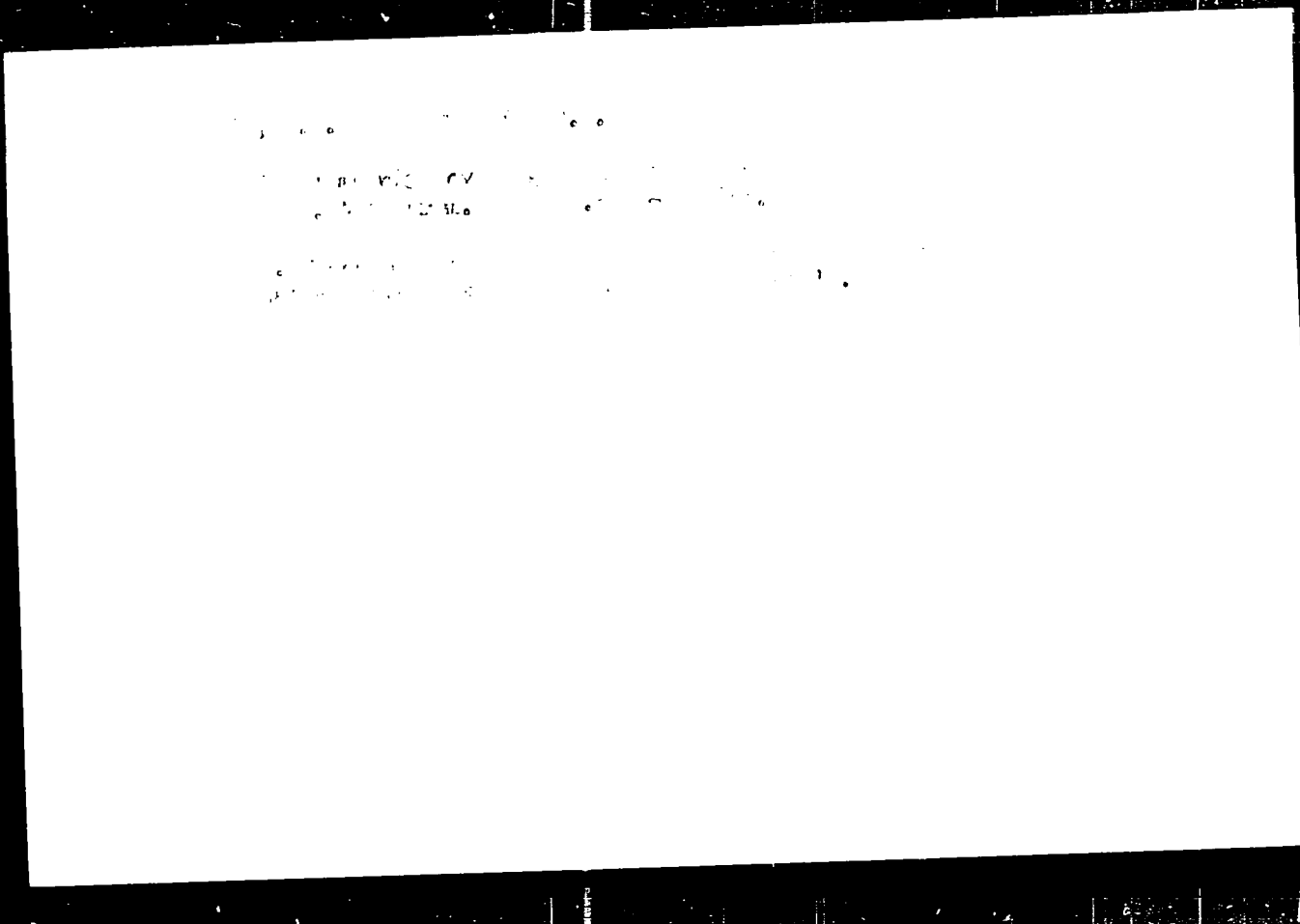
Inst :

Title :

Code :, 1951,

Remarks :
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PILIPETS, O.A. (Khar'kov)

Treating circulatory insufficiency with corglysane, a glycoside preparation, with consideration of some aspects of proto-plasmodynamics. Terap.arkh. 29 no.11:79-82 N '57. (MIRA 11:2)

(CARDIAC GLYCOSIDES, therapeutic use,
corglysane (Rus))

USSR / Pharmacology, Toxicology. Cardiovascular Drugs. V

Abs Jour: Ref Zhur-Biol., No 9, 1958, 42385.

Author : ~~Pilipets, O. A.~~

Inst : Not Given.

Title : Treatment of Heart Failure with the Glycoside Preparation Corglysan with Consideration of Some Phases of Protoplasmodynamics.

Orig Pub: terapevt. Arkiv, 1957, 29, No 11, 79-82.

Abstract: Eighty patients with various diseases of the cardio-vascular system (heart damage, myocardial diseases) were treated with corglysan (I; a glycoside preparation from syrenia angustifolia). I was given intravenously, subcutaneously, orally and in combinations. As a result of treatment, disappearance of dyspnea, attacks of nocturnal asthma, precordial pains, manifestation of pulmonary stasis, effusions

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PILIPETS, P.

Technical creativeness of students. Prof.-tekh.obr. 12 no.3:
25-26 Mr '55. (MIRA 8:5)

1. Zamestitel' direktora po uchebno-proizvodstvennoy chasti
gornopromyshlennogo uchilishcha No. 4 (Voroshilovgradskaya
oblast').
(Technical education)

ACCESSION NR: AR4027938

S/0137/64/000/002/E071/E072

SOURCE: RZh. Metallurgiya, Abs. 2E478

AUTHOR: Pilipets, Yu. G.

TITLE: Refinement of the technique of magnetographic control of weld joints

CITED SOURCE: Tr. Khar'kovsk, aviats. in-ta, vy*p. 22, 1963, 166-172

TOPIC TAGS: weld joint control, welding defect detection, magnetographic weld joint control

TRANSLATION: -A description is given of the technique employed in experiments carried out in the metals technology department of the Kharkov Aviation Institute and in the welding and metal testing laboratory of the "Teploenergomontazh" (Trust for Heat and Power Installations). It was found that perpendicular magnetization does not reveal any internal defects, and that transverse magnetization does reveal basic defects. The magnitude of the magnetizing current in the winding of the electromagnet must be selected in accordance with the thickness of the articles being checked. I. Kislyakova

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L 11264-56 FED/EWT(l)/EWT(m)/EEC(k)-2/T/EWP(+)/EWP(k)/EWP(h)/EWA(m)-2/EWA(h)/EWA(c)

ACC NR: AP6002361 SCTB/IJP(c) JD/WG SOURCE CODE: UR/0207/65/000/006/0084/0086

AUTHOR: Aver'yamova, T. M. (Moscow); Mirkin, L. I. (Moscow); Pilipetskiy, N. F. (Moscow); Rustanov, A. P. (Moscow)

ORG: none

TITLE: The effect of intense light beams on the surface of a metal

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 6, 1965, 84-86

TOPIC TAGS: ruby laser, laser application, laser induced damage, metal damage, microhardness, armco iron, steel, lead, Duralumin, laser machining

ABSTRACT: The effects of high-intensity laser beams on metals (Armco iron, high- and low-carbon steels, lead, Duralumin) were investigated. The emission from the pulsed ruby laser shown in Fig. 1 was focused on the metal surface by means of a lens. The surface of the specimens was bombarded at right angles with 60-80 pulses per discharge, each pulse lasting 2-3 sec and delivering an energy of 1.4-1.6 j. The formation of beam-induced craters, 1.5 mm deep and ~1.5 mm in diameter, was observed. In the steels, three distinct regions around the craters were observed: a poorly-etched region with a fine-specular, martensitic structure directly abutting the crater, an adjacent region containing white, poorly etchable sections consisting of complex-shaped grains, and a third region, the outermost, exhibiting the original metal structure. The increased hardness (by $700 \pm 500 \text{ kg/mm}^2$) observed in the

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L 11264-66

ACC NR: AP6002361

crater region for low-carbon steels far exceeded that which results from thermal and mechanical methods of metalworking. The intensive hardening in low-carbon steels was associated with extremely short periods of energy liberation, although not all laser-induced effects can be considered as purely deformation effects. Increases in the hardness of the other metals was as follows: Armco iron, 80 kg/mm^2 (from

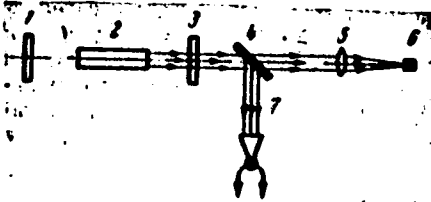


Fig. 1. Schematic of the ruby laser

1 - Mirror (reflection coefficient $R = 99\%$);
 2 - ruby crystal; 3 - mirror (reflection coefficient $R = 30\%$); 4 - plane-parallel glass plate; 5 - lens;
 6 - irradiated specimen; 7 - thermocouple calorimeter.

180 to 260 kg/mm^2); U-10 high-carbon steel (1% C), 600 kg/mm^2 (from 380 ± 140 to 1000 kg/mm^2); and high-speed steel, from 430 ± 50 to $650 \pm 50 \text{ kg/mm}^2$. The depth of the crater in lead was considerably greater than in steel, and no changes in the structure and hardness in the crater region were observed. Duralumin showed certain softening in the crater region and was the only material to exhibit cracks in that region. The results confirm an earlier assumption (Mirkin, L. I., Fizika metallov i metallovedeniye, v. 7, no. 4, 1959, 628) that the relative hardening of metals due to thermal or mechanical working is lower the higher the strength of the original material attained by the introduction of doping elements. Orig. art. has: 6 figures.

[YK]

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ACC NR: AP6002361

SUB CODE: 20 , 13 / SUBM DATE: 31Jul65/ ORIG REF: 002/ OTH REF: 001/

ATD PRESS: 4176

BC

Card 3/3

L 22707-66 EWT(m)/EPF(n)-2/T/ENP(t) IJP(c) JD/WW/JG

ACC NR: AP6009051

SOURCE CODE: UR/0207/66/000/001/0079/0082

AUTHOR: Aver'yanova, T. M. (Moscow); Mirkin, L. I. (Moscow); Pilipetskiy, N. F.
ORG: none 10

TITLE: Effect of light beam on the dislocation structure of crystals

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 1, 1966, 79-82

TOPIC TAGS: laser application, thermal optic effect, sodium chloride, crystal surface, surface hardening, crystal dislocation phenomenon

ABSTRACT: This is a sequel to earlier work by the authors (PMTF, 1965, no. 6), where it was shown that a laser beam incident on a metallic surface produces a crater, the hardness around which is several times higher than the hardness that can be obtained in the same material by any of the known mechanical or heat-treatment hardening methods. Since hardness is connected with the dislocation structure, the authors have investigated the changes produced by a laser beam in the dislocation structure of high-purity NaCl, on the surface of which the emergence of the dislocations can be readily displayed. Individual experiments were also carried out on single crystals of refractory tantalum metal. A ruby laser operating in the multiple-spike mode was used, in which stimulated emission was produced by a pump excitation at 3800-6100 Å from a flash lamp operated by

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L 22707-66

ACC NR: AP6009051

capacitor discharge. The laser and the apparatus used to measure its beam intensity are described. A microscopic investigation of the surface of the rock-salt crystals has shown that after multiple applications of the laser beam, cracks are produced on the surface, arranged in planes of the (100) type and directed along the [100] axis. Etching disclosed a large number of fresh dislocations of deformation origin. The changes in different regions of the surface are analyzed on the basis of the study of the dislocation structure. The results of the laser damage are compared with the results of other types of damage, such as cleavage, sudden cooling, and high-temperature deformation. It is concluded that the laser effect is similar to that produced by pulsed application of the same amount of heat as is released by the light beam. The authors thank G. I. Barenblat for a discussion of the results and R. V. Khokhlov for making the experiments with the laser possible. Orig. art. has: 8 figures. [02]

SUB CODE: 20/ SUBM DATE: 10Sep65/ ORIG REF: 005/ ATD PRESS: 4229

Card 2/2 BK

ACC NR: AM 1 450

SOURCE CODE: UR/0207/66/000/006/0014/0018

AUTHOR: Arzhev, A. I. (Moscow); Mirkin, L. I. (Moscow); Pilipetskiy, N. F. (Moscow)

ORG: Institute for Problems of Mechanics AN SSSR (In-t problem mekhaniki AN SSSR); Scientific-Research Institute of Mechanics of Moscow State University (NII mekhaniki MGU)

TITLE: The effect of a laser's light beam on plexiglas

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 6, 1966, 14-15

TOPIC TAGS: laser radiation, laser effect, plexiglass

ABSTRACT:

A Q-switched laser (pulse length of the order of 10^{-8} sec) and a controlled output power was used in a study of the effect of laser radiation on plexiglas. Destruction was manifested by the formation of microfractures or by the appearance of plane fractures. The type of destruction depended only on the focusing distance of the lens and not on the power of the light beam. The destruction zone had a conical form and consisted of separated dots which dispersed light. The dots concentrated at the beam entrance and near the focal point. With a decrease in focusing distance, the number of microfractures diminished and the amount of large fractures increased. Plane fractures also formed when the light pulse of the laser operated in the free

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UDC: none

ACC NR: AP7003250

generation mode (pulse duration 10^{-3} sec). In the case of giant pulses (10^{-8} sec), the fractures usually had a mutual intersection line which coincided with the direction of the laser beam. With a usual pulse (10^{-3} sec), the fractures were inclined to the axis at an angle close to 45° . At a pulse duration of 10^{-3} sec almost all destruction occurred during the pulse action. In the case of giant pulses (10^{-8} sec), the destruction had a conical form and the plane fractures grew after the pulse had stopped. The authors thank G. I. Barenblatt and B. Ye. Zel'dovich for valuable advice and for discussing the results, and V. V. Kireyev, G. F. Kuz'min, and O. Ye. Marin for their help during the experiments. Orig. art. has: 4 formulas, 2 figures, and 1 table.

SUB CODE: 20/ SUBM DATE: 17Jan66/ ORIG REF: 006/ OTH REF: 003/
ATD PRESS: 5113

Card 2/2

ACC NR: AP7007625

SOURCE CODE: UR/0386/67/005/003/0043, 005

AUTHOR: Barenblatt, G. I.; Vsevolodov, A. N.; Mirkin, L. I.; Pilyavskiy, N. P.; Rayzer, Yu. P.

ORG: Institute of Mechanics Problems, Academy of Sciences, USSR (Institut problem mekhaniki Akademii nauk SSSR)

TITLE: Destruction of transparent materials by laser radiation. Formation of gas bubbles and wedging of the material by gas pressure

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiya. Prilozheniye, v. 5, no. 3, 1967, 65-87

TOPIC TAGS: laser beam, organic glass, beam focusing, laser effect, *LASER PHOTOGRAPHY*

ABSTRACT: Results are presented of experiments on the damage produced by focused laser radiation in materials of the organic-glass type (polymethylmethacrylate, polystyrene). The results were obtained by photographing the glow due to the focused beam through a lateral surface of the sample, at right angles to the beam direction. The photographs show that the damage is initiated in the form of cracks in the sample, with linear dimensions that grow in a direction opposite that of the beam. These cracks become wedged apart by gas produced as a result of the high temperature near the focused beam. It is proposed that the damage is produced first in the region of the light channel by heat and possibly by hypersound. Minute shear defects are then produced in the planes of maximum tangential stress, which are inclined $\sim 45^\circ$ to the

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UDC: none

ACC NR: AP7007625

beam axis. Light is further absorbed by the resultant inhomogeneities, the material is evaporated and partially burned, and this gives rise to gas bubbles of high pressure and temperature. The gas pressure produces near the bubbles large stresses and initiates the development of cracks. This development proceeds in the main via wedging of the previously produced shear defects by the gas. This proposed mechanism is confirmed by results of studies of damage in heated samples. Measurements are now under way of the individual parameters of the gas filling the cavity and of its temperature, to permit a more detailed description of the damage mechanism. Orig. art. has: 1 figure. [02]

SUB CODE: 20/ SUBM DATE: 28Oct66/ ORIG REF: 006/ OTH REF: 002 /
ATD PRESS: 5117

Card 2/2

1 22784-66 FBD/ENT(1)/EEC(k)-2/T/EWP(k)/EWA(h) IJP(c) WG/JXT(CWW)

ACC NR: AP6007635

SOURCE CODE: UR/0141/66/009/001/0095/0101

AUTHOR: Zel'dovich, B. Ya.; Pilipetskiy, N. F.

51
B

ORG: Moscow State University (Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova)

TITLE: ²⁵¹⁴⁴ Laser radiation field focused by real systems

SOURCE: IVUZ. Radiofizika, v. 9, no. 1, 1966, 95-101

TOPIC TAGS: laser, laser beam, laser optics

ABSTRACT: Unlike other published works where relative illumination distribution in the image plane is examined, the present article offers formulas for calculating the light-field amplitude when a perfect round-cross-section beam is focused by a spheric-aberration (lens) system. The constant field amplitude in the beam cross section is assumed. Diffraction phenomena are allowed for by means of evaluating the field by caustic surfaces, in a geometric-optics approximation. Asymptotic formulas for calculating the field with large aberrations are developed; specifically, formulas for calculating the field with a 2nd-order arbitrary aberration. The

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ACC NR: AP6007635

existence of an optimal (for given lens shape and beam diameter) focal length which ensures maximum local field is proven. By using conical-surface (instead of spherical) lenses and mirrors, a filamentary beam with strong field and constant effective wave vector can be created, and a vector synchronism in nonlinear optics can be realized. Orig. art. has: 2 figures and 27 formulas. [03]

SUB CODE: 20 SUBM DATE: 28Apr65 / ORIG REF: 007 / OTH REF: 001

ATD PRESS: 4229

Card 2/280

ACC NR: AP6032718

SOURCE CODE: UR/0374/6c/000/004/0624/0625

AUTHOR: Mirkin, L. I.; Pilipetskiy, N. F.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy uni-versitet)

TITLE: Main types of destruction of organic glass under the effect of pulsed laser beams

SOURCE: Mekhanika polimerov, no. 4, 1966, 624-625

TOPIC TAGS: organic glass, plexiglass, plexiglass destruction, laser beam, ~~plastic~~
~~laser beam~~, laser PULSATION, LASER EFFECT

ABSTRACT: A study has been made of the effect of pulsed laser beams on plexiglass. Plexiglass rectangular prisms and cylinders were irradiated with beams from a laser designed by the authors (ZhPMTF, 1965, 6) which produced beams with an energy of 5 j and a pulse duration of 10^{-3} to 10^{-8} sec. In the experiments the radiating power of the laser varied from 20 to 80 Mw and the focal length from 18 to 80 mm. Two types of plexiglass destruction were observed. On long-focus irradiation (10^{-6} sec.) specimens were destroyed along the entire path of the beam, and small, almost spherical pores were formed in the material. The shape of the porous region was roughly that of the laser beam in the material. In this case, destruction is apparently due to the generation of heat on the microscopic inhomogeneities in the material. The heat causes chemical reactions which, in turn, cause the formation of

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UDC: 678:539.3

ACC NR: AP6032718

pores. Long-focus irradiation produced in the material a kind of thermal explosion, whose center was located in the vicinity of the focus of the beam. Destruction of the material was strongly marked by flat cracks. In both cases, the destruction zone was not spherical and had no clearly marked center. Microscopic study indicated that the main energy was not liberated in the focus but along a certain line [sic]. It is assumed that, under the effect of laser beams, transparent plastics change their optical properties and cause the recently observed effect of the "light channel" or self-focusing of the beam (Pilipetskiy, N. F., Rustamov, A. R. ZhETF, 1965, 2, 2, 88). Orig. art. has: 3 figures.

SUB CODE://,20/ SUBM DATE: 27Dec65/ ORIG REF: 003/

Card 2/2

24(8)
AUTHOR: Pilipko, N.K., Engineer

TITLE: The Calculation and Profiling of Supersonic Nozzles
With a Curvilinear Axis

PERIODICAL: Izvestiya vysshih uchebnykh zavedeniy, Mekhanika,
1958, Nr 11, pp 109-115 (USSR)

ABSTRACT: Problems of profiling supersonic nozzles with curved
near axes are not yet completely solved. The author
suggests in this paper a method of calculating and
profiling the supersonic section of a plane nozzle for
an inviscid gas, when one of the flow lines is curved.
Such a nozzle will be always used when an expansion
of a supersonic flow takes place with a prescribed boundary.
The author bases his method on the assumption that an
ideal gas is used. Forces of a viscosity and heat conduction
are absent. The flow is plane and isentropic. The flow is
state flow with a straight transition line at the
critical section of the nozzle. The author also studies
the physical character of the expansion of the plane-
parallel supersonic gas flow at the boundary of a

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SOV/143-54-11-14/16

The Calculation and Profiling of Supersonic Nozzle With a Curvilinear Axis

surfaces, as shown in figure 1, and the profiling of a nozzle when one of the curvilinear walls has the shape of a circular arc. In table 1 data are listed for calculating and profiling a nozzle. The nozzle construction suggested by the author produces at the outlet a homogenous, supersonic plane-parallel flow with a given velocity M_2 . Regardless to its apparent simplicity, this method provides a high accuracy of the analytical calculation and the plotting of the nozzle profile, at least for an inviscid gas. The suggested method of profiling the supersonic section of a nozzle with a curvilinear axis is applicable for a curvilinear nozzle wall of any convex shape. Using the method suggested by the author, it will be possible to plot the characteristic and to calculate the parameters for any point of a plane supersonic flow. moving around any curvilinear, convex surface.

Card 2/3

PILIPKO, N. K. Cand Tech Sci -- (diss) "^{Calculation and profiling} Calculation and profiling of supersonic
^{nonpercussive nozzles} nonpercussive nozzles and their experimental study." Kiev, 1959. 15 pp with
drawings (Min of Higher Education UkrSSR. Kiev Order of Lenin Polytechnic Inst.
Chair of Theoretic and General Heat Engineering), 100 copies (KL, 44-59, 147)

PILIPKO, N.K., inzh.

Designing and profiling a supersonic nozzle with a curvilinear axis. Izv.vys.ucheb.zav.; energ. no.11:109-115 N '58.
(MIRA 12:1)

1. Kiyevskiy ordena Lenina politekhnicheskoy institut. Predstavlena kafedroy teoreticheskoy i obshchey teplotekhniki.
(Nozzles)

L 11179-67 EWT(d)/EMP(1) IJP(c) GG/BB/JXT(CZ)/JXT(BF)

ACC NR: AT6026468

SOURCE CODE: UR/3012/65/000/003/0005/0040

AUTHOR: Piliposyan, A. G.; Davtyan, S. M.

ORG: none

TITLE: Description of a universal compiling routine with certain transformations of logical charts

SOURCE: Yerevan. Vychislitel'nyy tsentr. Trudy, no. 3, 1965. Matematicheskiye vo, rosy kibernetiki i vychislitel'noy tekhniki; modelirovaniye protsessov upravleniya (Mathematical problems in cybernetics and computer engineering, modeling control processes), 5-40

TOPIC TAGS: automatic programming, computer programming, computer program logic, computer language

ABSTRACT: This compiling routine (CR) is based on a combination of two methods for the automation of programming; the universal compiling routine method and the standard sub-routine library method, for use in compiling object programs from source programs written in Lyapunov's operator language (A. A. Lyapunov. Sb. Problemy kibernetiki, vyp. 1, 1958; vyp. 8, 1962, M., Fizmatgiz). This necessitates constructing intermediate (linking) logical

Card 1/2

L 11179-67

ACC NR: AT6026168

charts which take into account the specific features of present-day computers and a more optimal conversion to machine languages, i.e. to programs in true addresses, on exploiting certain possibilities for optimizing the program and on automatic incorporation of the necessary routines. This particular CR differs from its counterparts in that it provides for the automatic construction of linking charts for conversion from one set of parameters to another. In addition, this CR provides for formal conversion of logical charts in accordance with specific rules which simplify their structure and implementation. The article presents the first three chapters of an eight-chapter work. Chapter 1 describes the theoretical principles of the proposed CR and examines the logical chart for an algorithm. Chapter 2 describes the class of flow charts that can be programmed with the aid of this CR. Chapter 3 deals with aspects of the construction and realization of the assembler operator. The remaining chapters (not published in this issue) describe the general structure of the CR, the transformations of logical charts and the programming of certain CR operators. "The authors are sincerely grateful to I. D. Zaslavskiy and R. I. Podlovchenko for their valuable comments on the MS of this publication." Orig. art. has: 4 formulas.

SUB CODE: 09, 12/ SUBM DATE: none/ ORIG REF: 009

Card 2/2 115

OGANYAN, R.A.; PILIPOSYAN, A.G.

Algorithm for a problem of integer convex programming. Trudy Vych.
(MIRA 18:8)
tsentra no.2:33-37 '64.

MININ, I.N.; P. I. DOKUYAN, A.M.; L. H. L. KAYA, N.A.

Tables of Ambartsumian's functions for anisotropic scattering.
Sov. Rep. Lit. no. 3.3.12-36 '64. MIRA 17 14

L 52218-65 EPA(s)-2/EWT(m)/EPT(c)/EPA(w)-2/EWP(j)/T Pc-4/Pab-10/Pr-4/Pt-7

RM
ACCESSION NR: AP5009793

UR/0292/65/000/004/0034/0037
678.076.001.2

AUTHOR: Vardenburg, A. K. (Candidate of technical sciences);
Pilliposyan, P. M. (Engineer); Khas'kin, O. S. (Engineer)

44
B

TITLE: Electrical-insulation coatings made by the method of fluidized spraying

SOURCE: Elektrotexnika, no. 4, 1965, 34-37

TOPIC TAGS: insulating coating, electrical insulation, fluidized spraying

ABSTRACT: The coating of electrical components, such as small armatures, stators, etc., with polymer insulation by the method of fluidized spraying is described. Generally-known information about coating with polyvinyl-butylal, cellulose, polyamides, polyethylene ND, and epoxy resin is presented. The epoxy A powder used for coating metals is polymerized at 170-200C for 3-5 hrs; the B powder used for electrical windings is treated at 130-150C for 6-10 hrs; this insulation withstands thermal impacts of +150-60C. Characteristics of sprayed epoxy coatings are tabulated. Generally-known advantages of the fluidized-spray insulation are listed. Orig. art. has: 5 figures and 2 tables.

Card 1/2

L-52218-65

ACCESSION NR: AP5009793

ASSOCIATION: none

SUBMITTED: 00

NO REF SOV: 000

ENCL: 00

OTHER: 000

SUB CODE: EE

geh
Card: 2/2

PILIPOSYAN, T. B., Jr Sci Assoc, Armenian Scientific Research Veterinary Institute

"Experimental Treatment of Colibacillosis in Calves with Synthomycin"

Veterinariya, Vol 31, No 2, 1954, pp42-48
Trans 466

P. L. P. O. V, SHTEFAN.

USSR/Miscellaneous - Radio amateurs

Card 1/1 Pub. 89 - 11/27

Authors : Pataki, George, and Pilipov, Shtefan

Title : In peoples democracy countries

Periodical : Radio 8, page 22, Aug 1955

Abstract : The contents of letters describing the activities and achievements of radio amateur clubs in the cities of Timisoara (Rumania) and Bratislava (Czechoslovakia), are published. Illustrations.

Institution :

Submitted :

S 250 62 006 008 003 002
1042 1242

AUTHORS Kozhevnikov, A. K. and Pilipovich, B. A.

TITLE The electroluminescence of the ZnS-Cu, Al phosphor upon pulse excitation

PERIODICAL Akademiya nauk SSSR Doklady, v. 6, no. 8, 1962, 489-491

TEXT The behavior of the electroluminescence peaks of the ZnS-Cu, Al phosphor excited by square voltage pulses with varying amplitude, duration, and frequency was studied in order to explain the migration processes. The powdered phosphor was incorporated in a mixture of resins. A layer of lead oxide and a vacuum-sprayed coat of aluminum served as electrodes. The excitation voltage was produced by means of a ГИС-2 (GIS-2) generator with a wide-band amplifier. Luminescence of the samples was recorded with the aid of an ФЭУ-19 (FEU-19) photomultiplier and an ЭХО-1 (ENO-1) oscillograph. The blue and green spectral bands were separated by filters chosen in such a manner that their transmission bands should not overlap. Measurements were made between 0.1 and 1000 cps at 200 and 600 μ sec and 400 and 800 v. Between 20-200 cps, at 400 v the amplitude of the first peak of the green band increased while that of the blue band decreased. At lower frequencies the former decreased rapidly. It is produced that the excitation energy shifts during the pause between pulses from the deeper energy levels of the blue centers to the levels of the green

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The electroluminescence

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1042 1242

centers. At 800 v there is no increase in the amplitude of the first peak of the green band. This is explained as being due to the more complete excitation of the activated levels of the green band. There are two figures.

ASSOCIATION Institut fiziki AN BSSR (Institute of Physics, AS BSSR)

SUBMITTED January 13, 1962

Card 22

PILIPOVICH, M.F., inzh.; RODENKO, K.V., inzh.; SHVEYTSER, V.D., inzh.

Specifications for boring and blasting operations. Bezop.truda v
prom. 3 no.7:29-31 J1 '59. (MIRA 12:11)
(Blasting)

RODENKO, K.V. (g. Vorkuta); SHVETSER, V.D. (g. Vorkuta); PILIPOVICH, M.F. (g. Vorkuta)

Safety certification for boring and blasting operations in coal
mines. Ugol' 34 no.10:23 O '59. (MIRA 13:2)
(Coal mines and mining--Safety measures)

PILIPOVICH, M.G., elektromekhanik.

Switching station communication systems into the M-49 switchboard. Avtom.,
telem. i sviaz' no.12:32 D '57. (MIRA 10:12)

1. Brestskaya distantiya Belorusskoy dorogi.
(Railroads--Communication systems)

PILIPENKO, A.T.; OBOLONCHIK, V.A.

Study of the reaction involved in the determination of rhenium with methyl violet. Part 3: Composition of compounds of rhenium with dyes of the triphenylmethane series, and a colorimetric method for determining rhenium. Ukr.khim.zhur. 26 no.1:99-106 '60. (MMRA 13:5)

1. Institut metallokeramiki i spetsial'nykh splavov AN USSR.
(Rhenium compounds) (Rhenium--Analysis)

PILIPENKO, V.; KARMAZO, V.

Cargo gripping equipment for asbestos-slate pipes. Rech.transp.
19 no.1:44-45 Ja '60. (MIRA 13:5)

1. Glavnyy inzhener Kiyevskogo porta (for Pilipenko). 2. Inzhener-
konstruktor Kiyevskogo porta (for Karmazo).
(Cargo handling--Equipment and supplies)

I 64647-65 / EWT(d)/EWT(1)/EWT(m)/EPP(c)/EEC(k)-2/EPP(n)-2/T/EWP(t)/EWP(b)/ETC(m)
 TJP(G)/RPL: JD/JW/WN/WE
 ACCESSION NR: AT5009456 2/0000/64/000/000/0183/0186
 AUTHOR: Balandikov, N. I.; Zeldovich, A. G.; Pilipenko, Yu. K.
 TITLE: The cryogenic laboratory of the Joint Institute of Nuclear Research
 SOURCE: Conference on Low Temperature Physics and Techniques. 3d, Prague, 1963.
 Physics and techniques of low temperatures; proceedings of the conference. Prague,
 Publ. House of the Czechosl. Academy of Sciences, 1964, 183-186.
 TOPIC TAGS: cryogenic device, liquid helium, liquid hydrogen, para hydrogen, lique-
 faction technique
 ABSTRACT: The authors describe the equipment used to service the liquid-hydrogen
 bubble chamber and simultaneously furnish liquid normal and para-hydrogen and
 liquid helium to other experimental departments. A schematic diagram of the appa-
 ratus is shown in Fig. 1 of the Enclosure. The equipment is centered about four
 liquefiers, of which one is of the VGO-1 type (rated 80--85, 50--55, and 40 liters
 per hour of normal hydrogen, para-hydrogen, and helium, respectively), two VO-1
 liquefiers, described by the authors earlier (Byulleten' izobreteniy No. 19 (1960)
 and elsewhere), and one VO-1 liquefier, rated 230 and 140 liters per hour of normal

Card 1/3

L 64647-65

ACCESSION NR: AT5009456

and para-hydrogen, respectively (described at the 1961 Conference on Low Temperature Physics in Kiev) ³ The flow of liquid and gas in the system is briefly traced.
Orig. art. has: 1 figure, 55

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: 00

ENCL: 01

SUB CODE: TD, NP

NR REF SOV: 007

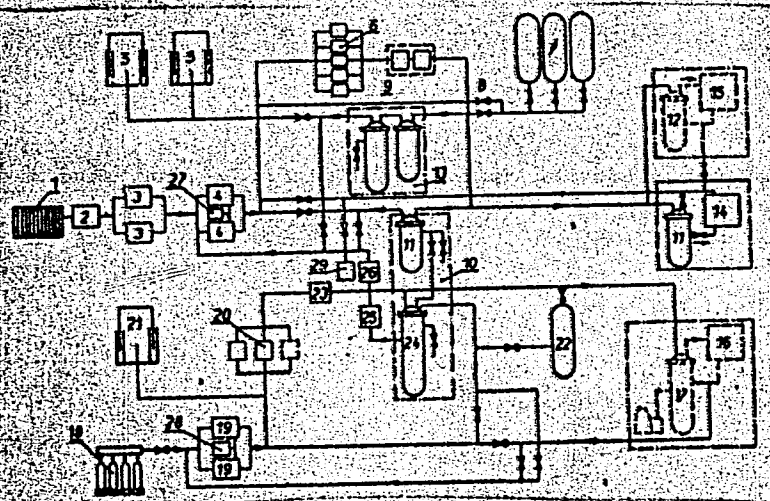
OTHER: 000

Card 2/3

L. 61617-25

ACCESSION NR: AT5009456

ENCLOSURE: 01



- 10 - VGO 1 helium liq.
- 11 - VO 1 liquefier
- 12 - VO 1 liquefier
- 13 - VO 2 liquefier

Fig. 1. Schematic diagram of cryogenic laboratory equipment

dm
Card 3/3

PILIPCHENKO, I.B.

Wages of the workers in sugar-beet growing crews. Sakh.prom.
34 no.1:56 Ja '60. (MIRA 13:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sakharnoy
svekly.

(Sugar growing)

L 16724-65 ENT(π) DIAAP
ACC NR: AP6008460

SOURCE CODE: UR/0089/65/019/005/0459/0460

AUTHOR: Grishanin, Ye. I.; Kukavadze, G. M.; Lependin, V. I.; Mamelova, L. Ya.;
Morozov, I. G.; Orlov, V. V.; Pflipets, D. T.

ORG: none

TITLE: Measurement of the absorption cross section of ¹⁵⁶Gd 79

SOURCE: Atomnaya energiya, v. 19, no. 5, 1965, 459-460

TOPIC TAGS: gadolinium, neutron cross section, thermal neutron, neutron irradiation, mass spectrometer, neutron spectrum, nuclear reactor, neutron

ABSTRACT: Samples of gadolinium oxide were irradiated in a reactor with thermal neutrons to various integral fluxes. The thermal-neutron absorption cross section of ¹⁵⁶Gd was determined from the values of the ¹⁵⁶Gd and ¹⁵⁷Gd concentrations in the irradiated samples, measured on a mass spectrometer, and the value of the ¹⁵⁷Gd absorption cross section, obtained by averaging the cross section from resonance parameters over the neutron spectrum of the reactor. The cross section for 0.025-eV neutrons was found to be 13 ± 3 barns. [NA]

SUB CODE: 18, 20 / SUBM DATE: 02Apr65 / OTH REF: 003

Card 1/1 *mt*

L 63106-65 EWI(m)/EPF(c)/EPF(n)-2/ENG(m) *W/D*

ACCESSION NR: AP5014546

UR/0089/65/018/005/0528/0529
621.039.517.5

34
19
B

AUTHOR: Barchuk, I. P.; Nazarchuk, M. M.; Ogorodnik, S. S.; Filipets, D. T.; Slesarevskiy, S. O.

TITLE: Experimental study of the thermal conditions of the fuel elements of the VVR-M reactor

SOURCE: *Atomnaya energiya*, v. 18, no. 5, 1965, 528-529

TOPIC TAGS: reactor fuel element, fuel element temperature, active zone temperature distribution, coolant rating/ VVR-M

ABSTRACT: The authors measured the temperatures of the fuel rods of the VVR-M reactor in order to choose the optimal conditions for heat transfer from the active zone when operating at different power levels, and also to determine the heat-transfer margin built into the existing cooling system. The tests consisted of measuring the temperature distribution on the surface of the fuel element relative to the height and radius of the active zone, determining the influence of the control rods on this distribution, and choosing the optimal coolant flow. The temperatures were measured with thermocouples fastened to the surfaces of all the fuel elements. The method of securing the thermocouples is described. It was found

Cont 1/2

L 63106-65

ACCESSION NR: AP5014546

that the fuel-element temperature is practically the same on both sides, and that the highest thermal stresses in the active zone is on the periphery, near the beryllium reflector. The measurements to determine the optimal coolant flow were therefore made in the peripheral layer of the active zone, and consisted of finding the maximum reactor power corresponding to each rate of coolant flow. A nomogram for determining the optimal reactor operation is plotted on the basis of the results. It is concluded that the cooling system of the VVR-M reactor has ample margin for reliable operation at its 12 MW power rating. Orig. art. has: 5 figures.

ASSOCIATION: none

SUBMITTED: 24Mar64

ENCL: 00

SUB CODE: NP,TD

NR REF SOV: .003

OTHER: 000

Jlc
Card 2/2

PTLEFFTS, I.A.; MISEVICH, N.V.

Efficiency in the development of the Vygodā oil pool in the Dolina
oil field with maintenance of reservoir pressure. Neft. i gaz. prom.
no. 2045-47. April 1966. (MIRA 1886)

L 22993-66 EWT(m)/EWP(w)/T/EWP(t) IJP(c) JD
ACC NR. AP6012238 SOURCE CODE: UR/0129/66/000/004/0070/0072

16
15
B

AUTHOR: Mirkin, L. I.; Pilipetskiy, N. F.

ORG: Moscow State University. Scientific Research Institute of Mechanics (Moskovskiy Gosudarstvennyy Universitet. Nauchno-issledovatel'skiy institut mekhaniki)

TITLE: Hardening of steels under the effect of a laser beam

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 4, 1966, 70-72

TOPIC TAGS: steel hardening, surface laser beam hardening, alloy hardening, steel property, alloy property

ABSTRACT: The effect of a laser beam on the structure and properties of carbon steels with 0.1—0.8% C in the initial and heat-treated conditions has been investigated. The laser beam formed a conical crater about 2 mm in diameter and 2 mm deep in all tested specimens. The metal of the zone adjoining the crater had a fine-grained structure and a microhardness of HV-1400; the next zone consisted of white, unetchable grains with a microhardness of HV-1500 and ferrite grains. The average hardness of the first and second zone was reduced to HV-950 and 890 after polishing the surface of specimens; it continues to

Card 1/2

UDC: 621.785.644

L 22993-66

ACC NR: AP6012238

decrease with increasing depth from the crater surface. In specimens vacuum tempered at 600C, the hardness of the laser-treated zone exceeded the hardness of the parent structure. The carbon content in the crater zone increased under the effect of a laser beam. In hardened (and untempered) steel 45 with a martensitic structure, the laser produced a zone with a hardness HV-400 higher than that of the original martensite. An intensive surface hardening was also observed in high-carbon and alloy steels such as U8, R9, and 3Kh13. The hardness of VK8 alloy increased from HV-1200 to HV-2500. Orig. art. has: 4 figures. ¹⁸ [A2]

SUB CODE: 11, 14/ SUBM DATE: none/ ORIG REF: 007/ ATD PRESS: 4237

Card 2/2 *ds*

L 1119-66 EWA(k)/FBD/EWT(1)/EPF(c)/EEC(k)-2/T/EWP(k)/EWA(m)-2/EWA(h) SCTB/

IJP(c) WG/WW/GG

ACCESSION NR: AP5021734

UR/0386/65/002/002/0088/0090

AUTHOR: Pilipetskiy, N. F.; Rustamov, A. R. 44.55

61
58
B

TITLE: Observation of the self-trapping of light in a liquid 21.44.55

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 2, no. 2, 1965, 88-90, and insert attached to p. 89

TOPIC TAGS: laser, stimulated emission, laser beam, self trapping

ABSTRACT: The authors ^{25.44} report observing self-trapping of an optical beam from a laser in several organic liquids. A 20-Mw Q-switched laser was used in the experiments. The laser emission was focused by a lens with a 28-mm focal length into a cell filled with toluene, cyclohexane, o-xylene, or carbon tetrachloride. The self-trapping of the optical beam into a narrow filament was observed in all four organic liquids. The self-trapping disappeared when the laser was operated in a non-Q-switched regime. The experiments showed that self-trapping can occur at a spot before the focal point and that the filament does not have to be formed along the axis of the lens. Only about 1% of the total laser energy output was transported

Card 1/2

L 1419-66

ACCESSION NR: AP5021734

3

along the channel of the filament and as many as two or three filaments were formed at the same time. Orig. art. has: 1 figure and 1 formula. [CS]

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova (1955)
(Moscow State University)

SUBMITTED: 31 May 65

44,55

ENCL: 00

SUB CODE: OP, EC

NO REF SOV: 002

OTHER: 001

ATD PRESS: 4099

Cord 2/2 DP

S/124/61/000/012/016/138
D237/D304

26 2160
AUTHOR: Filipko, N. K.
TITLE: A method of streamlining a supersonic nozzle
with an inner cone
PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 12, 1961,
39, abstract 12B223 (Izv Kiyevsk politekhn
in-ta, 1960, 30, 38-52)

TEXT: Flow in a supersonic nozzle with an inner cone is con-
sidered as consisting of two regions: a region of "annular source"
in which acceleration of supersonic flow takes place and which
is between the cylindrical shell and a conical surface, and a
region of non-turbulence introduced by means of a streamlined
part of the inner cone. The generator of the streamlined part
of the cone is found by integration of characteristics, connect-
ing the last characteristic of the "annular source" with the
surface of the part of the cone which is streamlined. Equations

Card 1/2

S/124/61/000/012/016/038
D237/D304

A method of

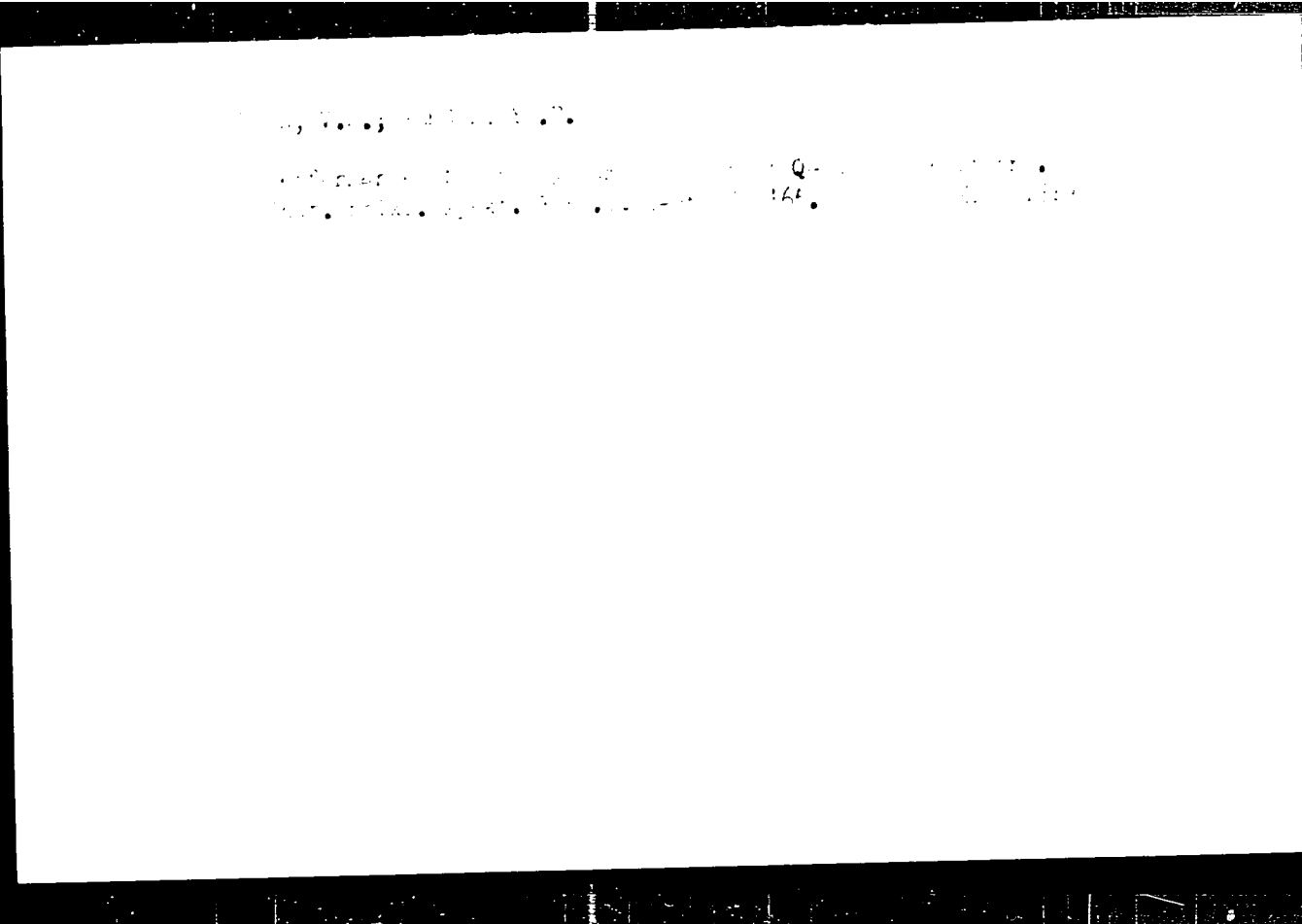
are linearized in terms of the M number of the stream and angle of velocity vector ψ . The method gives the formulas allowing quick calculations of the nozzle. 16 references [Ab-stractor's note. Complete translation.]

Card 2/2

EYZNER, Yu.Ye.; PTITSYN, O.B., PILIPOYAN, A.G.

Hydrodynamics of polymer solutions. Part 6: Intrinsic viscosity
of partially penetrable flexible macromolecules in good solvents.
Vysokom.soed. 5 no.11:1711-1716 N '63. (MIRA 17.1)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR i
Vychislitel'nyy TSentr AN Armyanskoy SSR.



L 7072-66 EWA(k)/FBD/EWT(1)/EEC(k)-2/T/EWP(k)/EWA(m)-2/EWA(h) SCTB/IJP(c)

ACC NR: AP5026320 WG

SOURCE CODE: UR/0368/65/003/004/0342/0349

AUTHOR: Lebedev, V. I.; Pillpovich, V. A.

ORG: None

TITLE: The determination of boundary losses in lasers

SOURCE: Zhurnal prikladnoy spektroskopii, v. 3, no. 4, 1965, 342-349

TOPIC TAGS: laser, laser beam, light reflection coefficient, resonator, laser energy

ABSTRACT: The present paper proposes that the harmful laser losses be divided into those within the inner rod due to scattering and inactive absorption, and boundary losses in the resonator due to the divergence of the laser beam. Formulas for the calculation of the boundary loss factor are derived using an effective reflection coefficient of laser resonator mirrors. The theoretical predictions are compared with experimental data reflecting the changes in boundary losses caused by variations in the length of the laser resonator. Results indicate that the boundary losses constitute the major portion of harmful laser losses. The authors thank A. S. Rubanov (who derived Equation (10a) of the article) for his valuable advice during the discussion of the luminescence amplification. Orig. art. has: 13 formulas and 4 figures.

[08]

SUB CODE: EC / SUBM DATE: 01Apr65 / ORIG REF: 005 / OTH REF: 003 / ATD PRESS:

nw

Card 1/1

UDC: 535.89

63

25,44

4143

11111111,

4-4-72

1. Luminescence decay

Institute of Optics

S.I.

1. Luminescence decay-Apparatus-Characteristics

1972

S v/51-4-4-13/24

AUTHORS: Filipovich, V.A. and Svesnikov, E.Ya.

TITLE: Dependence of the Decay Law of Afterglow of Fluorescent-activated Boron Phosphor on their Method of Preparation (O zavisimosti zakona zatakhaniya porlenvecheniya iznykh fosforov, aktivirovannykh fluoresceinom, ot metoda ikh izgotovleniya)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol IV, No. 1, pp. 541-546 (USSR)

ALSTRACT: Fredel' (Ref 1) showed that decay time of afterglow of boron phosphor activated with fluorescein depends on the liquid-air temperature depends on the method of preparation of phosphor. When studying of the phosphor, Fredel' reported that decay of phosphor was faster than exponential decay law. In this case, Fredel' found that the decay law was considerably from the exponential form and that separate spectral regions of after glow decayed at various rates. To explain his results, Fredel' used Tomasco's hypothesis (Ref 2), according to which activator molecules are bound with the solvent molecules, excitation centres of various kinds. Emission of each centre would decay exponentially but the total

Card1/4

Sov/51-4-4-23/24

Dependence of the Decay Law of Afterglow of Fluorescein-activated Boron Phosphors on their Method of Preparation

decay law being the sum of all separate decays would not, in general, be exponential. The present authors repeated Bredel's work. They used four methods of preparation of fluorescein-activated boron phosphors: 1) fluorescein-activated (5×10^{-6} g/g) boric acid melt at $180 - 185^\circ\text{C}$ was poured onto glass plates and compressed between them; 2) the melt was cooled in a crucible for 3 hours from 180 to 160°C and then it was cooled to room temperature in several hours; 3) the phosphor prepared by the method (1) was heated without melting to 175°C and held at that temperature for 5 hours; 4) the phosphor was heated to 215°C and held at that temperature for 5 hours. The decay laws of phosphors prepared in these ways are shown in Figure 1, where Curve 1 represents methods (2) and (3), Curve 2 represents method (1) and Curve (3) represents method (4). It was found that the decay curves for rapidly cooled phosphors prepared by the present authors and by Bredel' are similar. For such phosphors, lifetime of the phosphorescent state was found to be 3.2 sec compared with Bredel's value of 3.0 sec. If over-heating is

card 2/4

Sov/51-4-4-23/24

Dependence of the Decay Law of Afterglow of Fluorescein-Activated
Eron Phosphors on their Method of Preparation

avoided, the decay curves of slowly and rapidly cooled phosphors are similar and, in contradiction to Breidel's results, the slowly cooled phosphors decay more slowly than the rapidly cooled ones. Curve 3 in Figure 1 shows that overheating of the melt as described in method (1) produces a more rapid decay of phosphorescence. The authors suggest that the slowly cooled phosphor used by Breidel was also strongly overheated. The effect of overheating of the melt is due to some changes in the toric acid structure or chemical changes of the activator molecule. To verify the latter suggestion, the authors compared the absorption spectra of aqueous solutions of the overheated (Figure 2, Curve 2) and non-overheated (Figure 2, Curve 1) phosphors. Figure 2 shows that the two spectra differ considerably from one another, i.e. overheating produces some changes in fluorescein molecules. From the results obtained, the authors conclude that Breidel's results do not necessarily confirm Tomaschek's hypothesis and that overheating of the melt should be avoided if one wishes to prepare phosphors in which decay,

Card3/4

Sov/51-4-4-23/24

Dependence of the Decay Law of Afterglow of Fluorescein-activated
Mercuric Phosphors on their Method of Preparation

constants would be reproducible to within 5-7%. There
are 2 figures, and 3 references, 1 of which is Soviet, 1
German and 1 English.

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

SUBMITTED: September 13, 1957

Card 4/4 1. Dependence of the decay law of phosphors-preparation

SC 51-5-1-101

AUTHORS: Filipovich, V. A. and Sveshnikov, L. Ya.

TITLE: On the Law of Phosphorescence of Organic Phosphors
(O zakonakh svyashchennykh silyem i svyashchennykh organofosforami)

PERIODICAL: Optika i Spektroskopiya, 1967, vol. 12, No. 6, p. 1000-1006 (USSR)

ABSTRACT: The author's aim was to find an explanation for the observed law of phosphorescence decay in organic phosphors. The author reports results of an experimental investigation of the dependence of the decay curves on the intensity of excitation, the wavelength of excitation and on the nature of the phosphor. Dependence of the degree of polarization of phosphorescence on the emission wavelength was also studied; the results are reported in table 1. The base material, used were carefully purified to remove an admixture of inorganic impurities. The author investigated: acetic acid, activated with fluorescein and sugar, activated with uridine diphosphate, with tryptellavine, with uracil and with acetylcholine. The concentration of phosphors was from 10^{-5} to 10^{-7} g/g. The ethylamine-activated sugar phosphors were excited by the orange line of mercury with the 400 mμ line. A ULM-1000 fluorometer was used to analyze the phosphorescence spectra. The results are shown in Figs. 1, 2 and 3. Fig. 1 gives the forms of the decay curves of the investigated phosphors. The authors

The Decay Law of Phosphorescence of Organic Phosphors

J. C. ...

(Fig 1a) and at liquid-air temperature (Fig 1b). Fig 2 shows the dependence of the decay curves of uric acid phosphors on the intensity of excitation: curve 2 was obtained with excitation 300 times weaker than that used to obtain curve 1. Fig 3 shows that the rate of decay varies with the wavelength of phosphorescence emission. Curves 1, 2 and 3 in Fig 3 represent emission at various wavelengths from 410 to 430 m μ . The results obtained show that (A) the curves of phosphorescence decay of the organic phosphors studied depart from the exponential at all stages of decay, and (B) in later stages of decay the intensity follows a hyperbolic law. It is known that the non-exponential nature of the phosphorescence decay in the initial and middle stages of decay cannot be due to superposition of a continuous and recombination emissions, as suggested by Yastrebov (ref 16), Yakovlev (ref 17) and Iwaki (ref 18). It is suggested that the non-exponential decay is due to presence of two or more metastable levels. The existence of a second metastable level is supported by the difference between the degree of polarization of the long-wavelength phosphorescence in various parts of the emission spectrum and by the

On the Law of Phosphorescence of Organic Phosphors

UDC 61-4-11.11

spectral change in the direction of phosphorescence in the presence of an external magnetic field. There are 10 figures and 25 references, in Russian.

ASSOCIATION: Gosudarstvennyy opticheskiy institut im. S.I. vavilova (State Optical Institute named S.I. Vavilov)

Serials: No. 11, 1957

1. Phosphors--Properties
2. Phosphorescence--Analysis
3. Phosphors--Excitation

AUTHORS: Pilipovich, V. A., Sveshnikov, B. Ya. 00-110-111 / .

TITLE: On the Possibility of the Existence of Several Phosphorescence Levels in Organic Lumiphors (O vozmozhnosti sushchestvovaniya u organolyuminoforov neskol'kikh fosforesstsetnykh urovney)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 117, No. 1, pp. 59-61 (USSR)

ABSTRACT: One of the fundamental theses of fluorescence theory claims that only one excited level occurs in the radiation. The most distinct proof for this thesis was given by S. I. Vavilov 1925 (Reference 1). The second very important proof for this thesis is the exponential fading law for the glow. This claim was extended of course also to the fluorescence of organic compounds. The law for the fading of the phosphorescence of organic lumiphores, however, differs considerably from the exponential law. This was found first by B. Ya. Sveshnikov (Reference 6) and then also by many other authors. Besides, various authors (Reference 3) proved the untenability of the claim that the constant of the fading of the phosphorescence does not depend on the choice

Card 1/4

On the Possibility of the Existence of Several
Phosphorescence Levels in Organic Luminiphors

20-119-1-11/52

measurements at one and the same sample showed a very good reproducibility. A table contains the measurement results for the various sugar candy samples, which were activated by esculin. The degree of polarisation of the long wave phosphorescence changes very much in case of the transition from one part of the phosphorescence spectrum to the other. This speaks for the fact that in case of long lasting radiation at least 2 phosphorescence levels occur. Such a claim considerably facilitates the explanation of the variations of the fading-curve of phosphorescence from the exponential curve and the difference of the fading-constants for various spectrum ranges of phosphorescence. Of course from the discovery of two phosphorescence levels results the problem of their nature, their interaction among each other, and their interaction with the fluorescence level results. All these problems remain unsolved.

Card 3/4

There are 1 figure, 2 tables and 13 references, 8 of which are Soviet.

24(1).24(0)
A07808

Stepanyan, B. I.; *vestnik AN SSSR* No. 10-1-9/77
Molomolozhnyy SSSR

TITLE:

Investigations by polarized light of the field of
optical activity and luminescence (theory of polarization anisotropy
in optically active media)

ABSTRACT:

Research Abstract sent SSSR, 1979, No. 1, pp 66-76 (USSR)

These investigations are being carried out at the Institute
of Physics (Institute of Physics and Mathematics)
and the Faculty of Physics, Moscow State University
(Faculty of Physics, Moscow State University) under the direction
of B. I. Stepanyan, A. B. Gerasimov, B. A. Tolstopyanov,
Academy of Sciences, USSR. In the field of optical activity,
the following are mentioned: Further, the following in-
vestigations are indicated:

B. I. Stepanyan, Yu. B. Dvornichenko used the general
principles of optoelectronics of anisotropic media in their
calculations.
On the basis of experimental data A. B. Gerasimov obtained
important results in the determination of genuine values of
optical activity of the substance examined.
A. A. Evtseyev, N. P. Khokhlov examined calculation methods of
polarization with large overlapping of absorption and lumines-
cence spectra.
N. A. Dvornichenko succeeded in obtaining fundamental results in
the field of optical activity of anisotropic media. He also
showed that the efficiency of resonant scattering may be much
less than one.
I. G. Shchegolev, under the direction of A. B. Gerasimov, examines
the influence of the solvent on the field of fluorescence as
well as the absorption and emission spectra.

A. B. Gerasimov, G. P. Ustinovich, A. E. Karbakh examined
the luminescence polarization of aly combined molecules. At
the same time they designed an improved apparatus.
A. B. Gerasimov, V. V. Kuznetsov work in the field of lum-
inescence of rare-earth complexes.
V. A. Pilyavskiy examined the phenomenon of photoluminescence.
The characteristics of optical properties of anisotropic media
and the conditions of their formation are examined in cooperation
with the Institute of Biological Chemistry, Institute of
Molecular Biology, Academy of Sciences, Molomolozhnyy SSSR.

B. E. Gokhary, Yu. A. Evtseyev, B. E. Lazarev examined the
absorption and luminescence spectra of a live leaf.
**A. B. Gerasimov, G. P. Ustinovich, K. E. Solov'yev, B. A.
Evtseyev** examined polarization spectra and the dependence
of polarization on the wave length of fluorescence.
A. B. Gerasimov, A. V. Volod'ko obtained valuable data on the
composition of complex compounds and the nature of inter-
molecular forces of interaction.

I. G. Shchegolev examined the optical and electrical properties
of anisotropic media.
A. B. Gerasimov, I. G. Stepanyan examined cellulose and its
products of transformation.
B. G. Shchegolev, I. G. Stepanyan worked at high pressure in
order to study the suspension of cellulose by means of
spectroscopic methods.

I. G. Stepanyan, B. G. Shchegolev examined the oxidizing
bleaching of cellulose by means of nitrogen dioxide, iodine
and sodium chloride.
**N. G. Zhukovskiy, B. I. Stepanyan, A. Yu. Gerasimov, A. I.
Kryzhanovskiy, A. B. Gerasimov** examined the secretory process of
enzymes.

G. M. Ivanitskiy, I. G. Stepanyan examined the oxidation
of cellulose.
B. E. Gerasimov, I. G. Stepanyan and collaborators spectroscopically
examined the absorption of coloring substances on cellulose,
of cellulose products.
I. G. Stepanyan, B. A. Dvornichenko examined the luminescence
of cellulose products.

B. I. Stepanyan, Yu. B. Dvornichenko determined the depend-
ence of the spectra of dispersed objects on the reflection
ratio, the character of the binding agent, and the layer
thickness.

Card 1/0

Card 2/0

Card 3/0

PLP/PAK/CH/VA

24.3500

S/051/60/009/006/008/018
E201/E191

AUTHOR: Pilipovich, V.A.

TITLE: On the Anti-Stokes Phosphorescence of Organic Phosphors

PERIODICAL: Optika i spektroskopiya, 1960, Vol.9, No 6, pp 754-758

TEXT: The decay laws and the degree of polarization of afterglow were studied in tryptaflavine, acridine orange, esculin and auramine. They were excited with light of various wavelengths which included the anti-Stokes region. The decay laws were obtained at room temperature and the temperature of liquid air, using a technique described earlier (Refs 10, 11). The polarization of phosphorescence was measured photoelectrically. Phosphorescence was excited with light from a mercury lamp passed through a monochromator $C\Phi-4$ (SF-4); to reduce the effect of scattered light, the monochromator was supplemented by light filters. Figs 1-3 give the decay of phosphorescence of tryptaflavine in gelatine (Fig.1), of acridine orange in glacial sugar (Fig.2), and of esculin in glacial sugar (Fig.3). Various curves in Figs 1-3 represent phosphorescence excited with different wavelengths. The absorption spectra (1) and the dependence of the degree of polarization of phosphorescence on the wavelength of the exciting light (2) are
Card 1/2

PILIPOVICH, V.A.

Polarization of the phosphorescence of organophosphors. Opt. i
spektr. 10 no.2:209-213 F '61. (MIRA 14:2)
(Phosphorescence)

S 250 62 006 002 003 007
1001 1201

AUTHOR Pilipovich, V A

TITLE The relation between temperature and phosphorescence of organic phosphors

PERIODICAL Akademiya nauk Belaruskay SSR, Doklady, v 6, no 2, 1962, 90-93

TEXT Quantum yields and average duration of phosphorescence were investigated in a series of organic phosphors through a wide range of temperatures.

The measured values of average duration were used to calculate the relative quantum yields of phosphorescence according to Svechnikov's formulae. Objects studied were fluorescein in boric acid, tryptavlin, acridine-yellow, auramine and esculin in sugar candies. Analysis of the results proved that the relationship of afterglow to variation of temperature is considerably higher in phosphors with afterglow composed of α - β processes (tryptavlin, auramine), than in phosphors having only β -phosphorescence.

It is important to notice, that in the relatively high temperature interval (from -40°C to -30°C) the afterglow extinction constant varies considerably more than in the wider range of lower temperatures from -30°C to -180°C .

The relationship between temperature, quantum yields of phosphorescence and total luminescence was calculated by assuming that the probability of transition of an excited molecule to a metastable condition does not depend on temperature. Experiments and calculations prove that for phosphors showing α and β phosphorescences the dependence of r (probability of a forced transition from a labile level to a metastable

Card 1 2



The relation between

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one) on temperature is not indispensable to explain the experimental facts. The personalities mentioned are J. Dewar, P. Barisov, Nichols and Merrit, Pringsheim and Vogels, Pvatnitskiy, Sveshnikov, G. Lewis. The most recent English-language references read as follows: G. Lewis, D. Lipkin, Th. Magel, J. Am. Chem. Soc. **63**, 3055, 1941; J. Chem. Soc. Japan **75**, 843, 1953; M. Koizumi, S. Kato, J. Chem. Phys., **21**, 2088, 1953.

ASSOCIATION Institut fiziki AN BSSR (Institute of physics, AS BSSR)
[Presented by A. N. Sevchenko, academician AS BSSR]

SUBMITTED April 28, 1961

Card 2 2

8/250/63/007/003/005/006
A059/A126

AUTHORS: ~~Pilipovich, V.A., Tarsunov, N.I.~~

TITLE: The absorption spectra of excited organophosphors

PERIODICAL: Doklady Akademii nauk BSSR, v. 7, no. 3, 1963, 163 - 165

TEXT The changes of the absorption spectra of sugar-candies, activated with tryptaflavine, acridine orange, and rhoduline orange, and fluorescein-activated boron phosphors were examined when exposed to the radiation of a 500 w mercury lamp. The spectra were measured with the spectrophotometer CФ-4 (SP-4). Both for the absorption spectra of irradiated tryptaflavine in sugar-candy and for those of irradiated fluorescein in boric acid, three absorption bands were established. The long-wave maximum in the region of 1,100 mμ has not been recorded by N. Lewis and collaborators (J. Am. Chem. Soc., 6. 63, 3,005, 1941), the remaining two maxima having the consistent values of 505 and 650 mμ. In the main band, clarification of the sample irradiated with intense light is found, whereas in the long-wave portion, three bands due to triplet-triplet absorption appeared. Analogous absorption spectra and energy-level diagrams were

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8/250/63/007/003/005/006
A059/A126

The absorption spectra of excited organophosphors

also established for acridine orange and rhoduline orange. From the absorption spectra of illuminated organophosphors obtained by the authors the absorption coefficient of the metastable molecule was calculated using the well-known formula for the absorption coefficient:

$$K_{ji} = \frac{B_{ji} h \nu_{ji}}{c} \left(n_j - \frac{B_{ji}}{g_i} n_i \right) \quad (1)$$

A four-level scheme is considered with two levels (1 and 3) unstable and two others (2 and 4) metastable. The equation

$$\frac{\int_a^b \Delta K_{13} d\nu}{\int_a^b K_{24} d\nu} = \frac{B_{13} \nu_{13}}{B_{24} \nu_{24}} \quad (6)$$

with the areas of the corresponding absorption bands on the left-hand side. For tryptaflavine and acridine orange, $B_{13}/B_{24} = 0.72$. Thus, the oscillator forces for the transitions 1.3 and 2.4 are almost the same, i.e., the transition of the molecule to the metastable state is not connected with an excessive change of

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The absorption spectra of excited organophosphors

S/250/63/007/003/005/006
A059/A126

its absorption coefficient. S.I. Vavilov and V.L. Levshin are mentioned. There are 2 figures.

ASSOCIATION: Institut fiziki AN BSSR (Institute of Physics of the AS BSSR)

PRESENTED: by A.N. Sevchenko, Academician of the AS BSSR

SUBMITTED: October 24, 1962

Card 3/3

L 10393-63

EW(1)/BDS--AFTC/ASD/SSD

ACCESSION NR: AP3000317

B/0048/63/027/005/0641/0643

AUTHOR: Pilipovich, V. A.; Tursunov, N. I.

TITLE: Concerning the temperature dependence of the phosphorescence efficiency of organic phosphors [Report; Eleventh Conference on Luminescence held at Minsk 10-15 Sept. 1962]

SOURCE: Izvestiya AN SSSR. Seriya fizicheskaya, v. 27, no. 5, 1963, 641-643

TOPIC TAGS: phosphoroscopes, temperature dependence of phosphorescence

ABSTRACT: Sveshnikov, B. Ya. (Zhur. eksp. i teor. fiz., 18, 878, 1948; Doklady AN SSSR, 105, 1208, 1955) deduced equations by means of which one can calculate the probability for transitions of a molecule from the labile to the metastable state on the basis of the following experimentally determined quantities: mean persistence of fluorescence, persistence of phosphorescence and quantum yield of phosphorescence. Adequate procedures for measuring the persistences are now available, but present methods for determining phosphorescence yields are not sufficiently accurate. Also the phosphorescence of many organic phosphors varies

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ACCESSION NR: AP3000317

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with the temperature; hence methods involving successive measurement of the total luminescence and phosphorescence may lead to erroneous results. Accordingly we undertook to develop a procedure and instrument for rapid and accurate measurement of the phosphorescence yield. This is accomplished by rapid recording of the spectrum by means of a loop oscillograph. The developed phosphoroscope is diagramed in the Enclosure. The distinctive feature of the phosphoroscope is the double rotating disk shutter: one disk has two cutouts; the other four, into two of which neutral filters can be inserted. The equipment has been used to measure the temperature dependence of the phosphorescence yield of tryptaflavine in solidified sugar and fluorescein in boric acid. The results (not reported) are consistent with published data, but are not in numerical agreement which may be attributed to the lower accuracy of the earlier measurements. Orig. art. has: 1 equation and 3 figures.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 12Jun63

ENCL: 01

SUB CODE: PH

NR REF SOV: 009

OTHER: 000

Card 2/3/2

L 04615-07 EWT(1)/EWP(e)/EWT(m)/LCC(k)-2/T/EWP(k) LJP(c) WG/WH
ACC NR: AP6033158 SOURCE CODE: UR/0250/66/010/009/0644/0646

AUTHOR: Lebedev, V. I.; Pilipovich, V. A.

ORG: Institute of Physics, AN BSSR (Institut fiziki AN BSSR)

TITLE: Generation losses of a solid-state laser

SOURCE: AN BSSR. Doklady, v. 10, no. 9, 1966, 644-646

TOPIC TAGS: solid state laser, ruby laser, laser resonator, resonator loss, laser cavity, laser pumping, laser energy

ABSTRACT: Resonator losses during different stages of generation were measured experimentally in terms of variation in the beam divergence and spot diameter at the rod end of a ruby laser. The test laser consisted of a polished cylindrical ruby rod 120 mm long and 12 mm in diameter. The laser cavity was formed by two external dielectric mirrors (each 99% reflective) placed 46 cm apart. The rod was pumped by two IPKKh 130/14⁰ straight pulsed xenon lamps placed inside a polished cylindrical Duralumin reflector 36 mm long. The lamp input was 2900 j and the pulse threshold energy 900 j. Changes in beam divergence and beam spot diameter were recorded on film by means of a high-speed camera. The beam divergence angle was measured using a method proposed by the authors elsewhere (ZhPS, 3, 342, 1965). Experimental data indicate that cavity losses increase with the pumping energy. The losses are nearly the same at the beginning and end of generation, which would seem to indicate their weak dependence on rod heating due to pumping. Optical deformation of the rod is

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L 04615-67

ACC NR: AP6033158

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negligible. An increase in the loss coefficient and divergence angle of a ruby laser is attributed to rod inhomogeneities and to the nature of the mode excitation in the cavity. The effect is possibly enhanced by an increase in ruby inhomogeneity from the center to the lateral surfaces of the rod. A more detailed analysis of how inhomogeneity of an active medium affects laser losses will be published shortly. Orig. art. has: 1 formula and 1 figure.

SUB CODE: 20/ SUBM DATE: 18Feb66/ ORIG REF: 006/ OTH REF: 006/ ATD PRESS: 5100

Card 2/2 LC

I 26710-66 FBD/EWT(1)/EWP(e)/EWT(m)/EEC(k)-2/T/EWP(k)/EWA(h) IJP(c) WG/WH

ACC NR: AP6015591

SOURCE CODE: UR/0368/66/004/005/0403/0409

AUTHOR: Morgun, Yu. F.; Pilipovich, V. A. 55
B

ORG: none

TITLE: Comparison of the parameters of ruby and neodymium lasers with pulsed Q-switching

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 5, 1966, 403-409

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

ABSTRACT: An investigation was made of a ruby laser operating in a pulsed Q-switching mode. Q-switching was controlled by rotating the prism of total internal reflection. The giant pulses obtained from the ruby laser differed from the pulses of the neodymium laser by their parameters. A neodymium laser generates a single pulse at a prism rotation speed of 25,500 rpm and a pumping energy of 2020 joules, while the ruby laser with the same rotation speed and a smaller pumping energy (1520 joules) generates 2-3 pulses which diminish in power. The parameters of ruby and neodymium lasers operating under similar conditions were compared. Neodymium glass rods and ruby rods with identical dimensions were used. The illuminator, the rotating prism, and the electrical and measuring parts of the installation in both cases were the same. The prism rotated at 24,000 rpm. The optimum mirror from the emergence side in the neodymium laser had a reflection coefficient of 60% and in the ruby laser,

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ACC NR: AP6015591

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42%. The investigations showed that the rate of resonator Q-switching, which determines the character of the laser emission, depends not only on the rotation speed of the prism but also on the optical properties of the active substance. Orig. art. has: 4 figures. [JA]

SUB CODE: 20/ SUBM DATE: 19Jul65/ ORIG REF: 007/ OTH REF: 002/ ATD PRESS: 4258

Card 2/2

L 15622-66 FED/EWP(1)/ERG(k)-2/T/EWP(k)/EWA(h) SCTR/LIP(c) WG
ACC NR: AP6006969 SOURCE CODE: UR/0368/66/004/002/0179/0179

AUTHOR: Pilipovich, V. A.; Morgun, Yu. F.

ORG: none

66
B

TITLE: Synchronization switching system for a Q-spoiled laser 25,44

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 2, 1966, 179

TOPIC TAGS: laser, Q-switched laser, giant pulse laser, laser synchronization, laser switching, synchronization switching, photodiode/FD-1 photodiode

ABSTRACT: A laser synchronization system featuring an FD-1 photodiode is described and shown in Fig. 1. The proposed system differs from existing systems, which use photocells or photomultipliers, in that it eliminates the need for complex power supplies, is very compact, and is convenient and reliable in operation. The system consists essentially of a receptacle with an aperture, which is mounted axially with respect to the total-internal-refraction prism 1. An SM-36 type bulb 3 is placed in the receptacle. An FD-1 type photodiode 5 is inserted into a cylinder 4 at the same level as the aperture in receptacle 2. Laser firing is achieved when bulb 3 is switched in, causing light to be incident through the aperture on the photodiode.

Cord 1/3

UDC: 535.89

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ACC NR: AP6006969

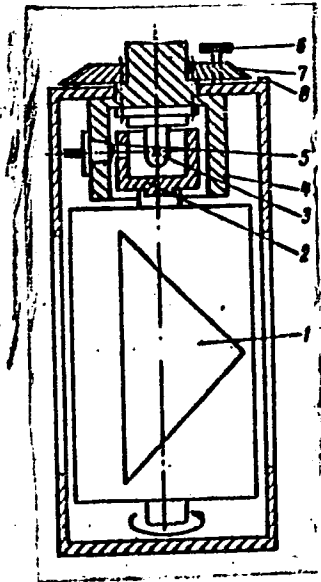


Fig. 1. Schematic diagram of synchronization system

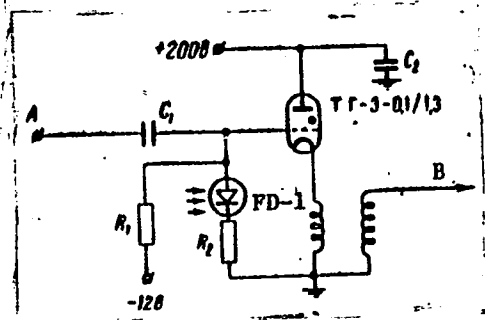


Fig. 2. Photodiode-thyratron switching circuit

$R_1 = 100 \text{ kohm}$; $R_2 = 10 \text{ kohm}$; $C_1 = 1000 \text{ pf}$;
 $C_2 = 0.5 \text{ } \mu\text{f}$; A—input; B—output to pump.

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ACC NR: AP6006969

When this happens, the photodiode resistance decreases, which triggers the thyatron and supplies the firing pulse to the flash lamp. The switching circuit is shown in Fig. 2. The desired Q-switching delay time for any rotation rate of the prism can be regulated by appropriate rotation of cylinder 4 with respect to the rotation axis. The proposed system operated without failure for 18 months. Orig. art. has:
2 figures. [YK]

SUB CODE: 20/ SUBM DATE: 19Jul65/ ATD PRESS: 4200

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JS
Card 3/3

L 22684-66 FBD/EWT(1)/EWP(e)/EWT(m)/EEC(k)-2/T/EWP(k)/EWA(h) IJP(c) WG/WH

ACC NR: AP6010447 SOURCE CODE: UR/0368/66/004/003/0236/0239

AUTHOR: Pilipovich, V. A.; Bogdanovskaya, L. A.; Lebedev, V. I. 42

ORG: none 41

TITLE: Determination of losses in a ruby⁵ laser with a detune²⁵ resonator B

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 3, 1966, 236-239

TOPIC TAGS: ruby laser, laser resonator, resonator loss, resonator mirror, mirror alignment

ABSTRACT: Losses in a detuned resonator were determined experimentally by studying the threshold excitation energy as a function of the mirror alignment angle in resonators of various lengths. Measurements were carried out on a ruby laser consisting of a rod 65 mm long and 12 mm in diameter. One of the resonator mirrors was coated with a multilayer dielectric whose coefficient of reflection was 1. The other mirror was 92% reflective and could be rotated around the vertical axis by any angle from 0 to 2°. The mirror angle accuracy was checked by a collimator within 3 sec of arc. In order to reduce the effect of Fresnel scattering, the second ruby end was coated. It was established that the minimum distance between mirrors at which nonaxial (undesirable) modes were not observed was 35 cm. Losses induced by resonator

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UDC: 535.89

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ACC NR: AP6010447

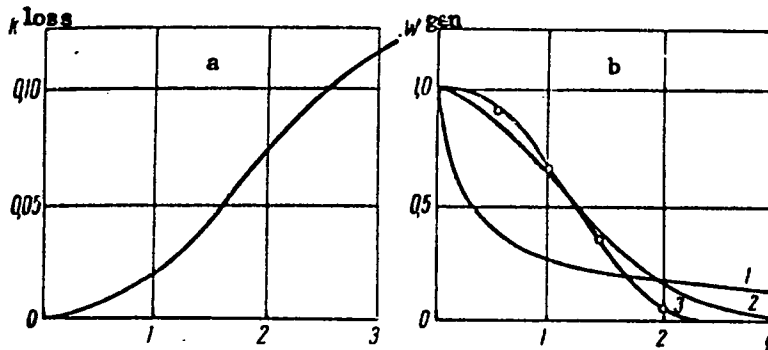


Fig. 1. Dependence of the coefficient of losses k_{loss} (cm^{-1}) (a) and the generation power W^{gen} (rel. units) (b) of a laser on the angle of alignment of the resonator mirror γ (min)

1 - Theoretical curve from B. I. Stepanov and A. P. Prishvalko. ZhPS, 1, 333, 1964; 2 - curve calculated according to a formula from B. I. Stepanov and V. P. Gribkovskiy. UPN, 82, 201, 1964, taking into account changes of the loss coefficient on Fig. 1a; 3 - experimental curve.

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L 22684-66

ACC NR: AP6010447

detuning were determined experimentally from a comparison of the threshold excitation energy for various values of useful losses (using mirrors with different reflection coefficients) and for various mirror alignments. The pumping conditions and the resonator base were not varied. The results are indicated in Fig. 1. The generated power (curve 2), calculated and adjusted for losses by means of the probability method formula derived by B. I. Stepanov and V. P. Gribkovskiy (UFN, 82, 201, 1964) compares favorably with the experimental data (curve 3), although it is at variance with theoretical data calculated by Stepanov and A. P. Prishvalko (ZhPS, 1, 333, 1964) for gas and neodymium glass lasers. Orig. art. has: 4 figures. [YK]

SUB CODE: 20/ ^b SUBM DATE: 19Jul65/ ORIG REF: 008/ ATD PRESS: 4228

Cord 3/3 BK

L-62250-65 ERM(x)/ABD/ENT(1)/ENT(m)/EEC(x)-2/T/ENP(t)/EEC(b)-2/ENP(k)/ENP(b)/
ENT(2)-2/BA(h) SC1/IJP(c) WC/JD/JG

APPROVED BY: AFJOM 8/30

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Author: Ill'vich, V. A. Khryz, Ya. V.

TITLE: Operation of a Q-switched neodymium laser

SOURCE: Zhurnal prikladnoy spektroskopii, v. 3, no. 1, 1965, 92-95

TOPIC TAGS: laser, neodymium laser, Q switching, giant pulse, level population, pump energy, loss factor

ABSTRACT: The authors investigated the parameters of a single pulse produced by a neodymium laser in which a Porro prism rotating at speeds up to 30,000 rpm was used for Q-switching. Since the most difficult part of the analysis is the calculation of the inverse population at the instant when the interferometer is switched on, the authors propose to determine this population from the dependence of the threshold pump energy on the useful loss factor. The medium used was a cylindrical neodymium rod 12 mm in diameter and 120 mm long, placed in a cylindrical illuminator with two straight lamps. The pump energy reached 1500 J. The maximum generated power was 60 MW and the pulse duration was 20 nsec. The luminescence curves in the 1.06 μ region were obtained with a ZMR monochromator. The pulse energy was measured with a bolometer. The time characteristics of the pump, luminescence, and laser generation pulses were investigated with oscilloscopes. A certain dis-

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ACCESSION NR: AP5018870

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cr,pancy between the calculated and the experimental results is attributed to the fact that the interferometer does not switch on instantaneously. The results confirmed the applicability of the method. "The authors thank A. M. Samson and V. A. Savva for useful discussions." Orig. art. has: 3 figures and 4 formulas. [02]

ASSOCIATION: none

SUBMITTED: 16Mar55

ENCL: 00

SUB CODE: EC

NO REF SOV: 011

OTHER: 008

ATD PRESS: 4076

Card 2/200P

L 01263-66 EWT(1) IJR(c)

ACCESSION NR: AP5020805

UR/0048/65/029/008/1385/1370

AUTHOR: ^{44.55} Pilirovich, V. A.; ^{44.55} Lebedev, I. V.; ^{44.55} Tursumov, N. I.

40
37

TITLE: ^{21.44.55} Concerning the phosphorescence of organic phosphors ^{41.5} Report, 13th Conference on Luminescence held in Khar'kov 25 June to 1 July 1964

SOURCE: AN SSSR. ^{41.5} Izvestiya, Seriya fisicheskaya, v. 29, no. 8, 1965, 1385-1390

TOPIC TAGS: luminescence, phosphorescence, light absorption, metastable state, light intensity

ABSTRACT: The authors have investigated the absorption, fluorescence, and phosphorescence under intense illumination at room temperature and liquid air temperature of rock candy activated with tryptaflavine, acridine orange, and rhoduline orange, and boron phosphors activated with fluorescein. Illumination was provided by the focused light of a 500 watt mercury arc. The actual intensity at the specimen is not given. The fluorescence rise times and phosphorescence decay times were measured with the aid of light flashes, obtained with an "electromagnetic shutter", having rise times of 0.1 millisecc. The data are analyzed in terms of a theory given by B.I. Stepanov (Dokl. AN BSSR, 5, No. 11, 1961). At room temperature the increase in optical density due to the intense illumination was propor-

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ACCESSION NR: AP5020805

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tional to the intensity, in accord with the theory. At liquid air temperatures the optical density increased more rapidly with increasing intensity at low intensities than at high intensities. The absorption at the maximum of the first triplet-triplet band was measured at a number of temperatures between room temperature and -186°C . The increased optical density in this band and the phosphorescence decay time depended similarly on the temperature. The phosphorescence decay time of tryptophan in rock candy was 0.5 sec, independent of the illumination intensity. The number of particles in the metastable state was estimated from the intensity of the first triplet-triplet absorption band. The reciprocal of the growth time for the number of particles in the metastable state increased linearly with the illumination intensity. The equilibrium value of the number of particles in the metastable state increased linearly with illumination intensity at both room temperature and liquid air temperature. Orig. Art. has: 10 formulas and 6 figures.

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

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ENCL: 00

SUB CODE: OP, GC

NO REF SOV: 006

OTHER: 004

Card 2/2

L 43192-65 EEC(b)-2/ENG(r)/EEC(k)-2/EWA(h)/EWA(k)/EWP(k)/EWT(l)/EWT(m)/
 EEC(t)/FBD/EWP(l)/T/EWA(m)-2/EWP(o) Pf-4/Pi-4/P1-4/Pm-4/Pn-4/Po-4/Pob
 ACCESSION NR: AP5010041, IJP(o) WH/WG UR/0368/65/002/002/0132/0137

AUTHOR: Philipovich, V. A.; Lebedev, V. I.; Morgun, Yu. F.

TITLE: Determination of losses in lasers 3

SOURCE: Zhurnal prikladnoy spektroskopii, v. 2, no. 2, 1965, 132-137

TOPIC TAGS: laser loss, laser efficiency, laser pump threshold, ruby laser, laser

ABSTRACT: In view of experimental and theoretical difficulties inherent in earlier methods, the authors propose a new method for determining the total loss in lasers. It is based on determining the ratio of the laser output power to the pump power in the range in which the threshold pump energy (defined as the energy necessary to produce a single spike) is linearly proportional to the level inversion population. The latter range was measured experimentally for two rubies of equal size, with the useful losses varied by replacing one of the resonator mirrors. The equations derived were used to determine the harmful losses, the efficiency of the active medium, the efficiency of the illuminator, and the laser gain. Tables are presented of the harmful loss as a function of the pump power and of the laser efficiency

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ACCESSION NR: AP5010041

as a function of the pump power and of the percentage pump power of one ruby laser.
"We are deeply grateful to Academicians of the AN BSSR A. N. Sevchenko and B. I. Stepanov for interest in the work and useful advice." Orig. art. has: 2 figures, 13 formulas, and 1 table. [02]

ASSOCIATION: none

SUBMITTED: 03Aug64

NO REF SOV: 003

ENCL: 00

SUB CODE: EG

OTHER: 005

ATD PRESS: 3242

Card 2/2

ROGOVIN, D.A., Inzh., M.P.P.H., M.S. inzh. MOGILEVSKIY, V.M. Inzh.

Gas flame straightening of main section girders of electric
bridge cranes. U.S.S.R. Patent No. 11432. My 1964.

(MOSKVA 21)

1. Mogilevskiy zavod pod yamno-transportnyye stroitel'stvo
imeni Kirova.