AKIMOV, G. A.

USSR/Human and Animal Physiology - The Nervous System. V-10

Abs Jour : Ref Zhur - Biol., No 2, 1958, 8963

Author : I.R. Petrov and G.A. Akimov
Inst : -
Title : Functional and Morphological Changes in the Nervous System of Cats When the Heart is Isolated from the Circulation under Conditions of Artificial Hypothermy.

Orig Pub : Vestn. khirurgii, 1957, 78, No 1, 27-43, 156

Abstract : Nine out of twelve cats endured well the prolonged (from $18\frac{1}{2}$ to 23 minutes) exclusion of the heart from the circulation while a prophylacted complex was employed: ether-oxygen anesthesia, hexone, vitamins B_1 and C, glucose and general chilling. Full restoration of the functions of the central nervous system occurred in the same sequence as, but more rapidly than after aphyxial cessation of the heart. Of the animals which survived, in two focal changes were observed in the hippocampus, in two others there

Card 1/2

AKIMOV, G.A., kandidat meditsinskikh nauk (Leningrad, 24, Nevskiy pr. d.148, kv.32)

Changes of the nervous system following cardiac arrest [with summary in English, p.159]. Vest.khir. 78 no.5:80-86 My '57. (MIRA 10:7)

1. Iz kafedry nervnykh bolezney (nach. - prof. S.I.Karchikyan) Voyenno-meditsinskoy ordena Lenina akademii im. S.M.Kirova.

(NERVOUS SYSTEM, pathol.
in cardiac arrest)
(CARDIAC ARREST, pathol.
nerv. system changes)

COUNTRY : USSR T
CATEGORY : Human and Animal Physiology, Thermoregulation

ABS. JOUR. : RZhBiol., No. 5 1959, No. 21872

AUTHOR : Akimov, G.A.; Burakovskiy, V.I.; Gubler, E.V.
INST. :
TITLE : The Effect of Deep Total Hypothermia on Functional and Morphological Changes in the Central Nervous System when the Heart is Excluded from the Circulation.
ORIG. PUB. : Byul. eksperim. biol. i meditsiny, 1957, 43, No.6, 99--103
ABSTRACT : On the day following an operation in which the heart was removed from the circulation for $4\frac{1}{2}$--$6\frac{1}{2}$ minutes, the condition of the animals was practically no different from normal. When the heart was excluded from the circulation for periods of 7 minutes to 7 minutes and 45 seconds, 2 out of 3 dogs died. In first group during the period the heart was isolated, abrupt disturbances in hemodynamics were noted. Increasing inhibition in the central nervous system was seen in this period. In dogs which underwent

Card: 1/2

COUNTRY	: USSR	T
CATEGORY	:	
ABS. JOUR.	: RZhBiol., No. 5 1959, No. 21872	
AUTHOR	:	
INST.	:	
TITLE	:	
ORIG. PUB.	:	
ABSTRACT	: prolonged isolation of the heart, the changes observed were, on the whole, reversible. The functional disturbances following exclusion of the heart from the circulation were in a number of cases less pronounced than the morphological changes.--F.I.Mumladze	
Card:	2/2	

AKIMOV, G.A.

Morphologic changes in the nervous system following rupture of a dissecting aortic aneurysm. Vop. psikh i nevr. no.3:121-129 '58. (MIRA 12:3)

1. Iz kliniki nervnykh bolezney Voyenno-meditsinskoy ordena Lenina akademii im. S.M. Kirova.

(AORTIC ANEURYSMS) (NERVOUS SYSTEM--DISEASES)
(BRAIN--DISEASES)

AKIMOV, G.A.

Hypothermia in the prevention of neural lesions in general acute disorders of blood circulation. Vop. psikh. i nevr. no.3:148-160 '58. (MIRA 12:3)

1. Iz kliniki nervnykh bolezney Voyenno-meditsinskoy ordena Lenina akademii im. S. M. Kirova.

(HYPOTHERMIA) (ANOXEMIA)
(NERVOUS SYSTEM--DEGENERATION AND REGENERATION)

AKIMOV, G.A.

Changes in the nervous system in general circulatory disorders; clinical and morphological observations [with summary in French]. Zhur.nevr. i psikh. 58 no.1:3-12 '58. (MIRA 11:2)

1. Kafedra nervnykh bolezney (nachal'nik - prof. S.I.Korchikyan) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M.Kirova.
(NERVOUS SYSTEM, pathology,
in circ. arrest & defic. of various causes (Rus))
(CARDIOVASCULAR DISEASES, pathology,
circ. arrest & defic. of various causes, NS
histopathol. (Rus))

AKIMOV, G.A.

Nervous system in myocardial infarct. Sbor. trud. Len. nauchn. ob-va nevr. i psikh. no.6:128-141 '59. (MIRA 13:12)

1. Iz kafedry nervnykh bolezney (nachal'nik - prof. S.I. Karchikyan) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova.
(NERVOUS SYSTEM) (HEART—INFARCTION)

GUBLER, Ye.V.; AKIMOV, G.A.; ALISHEV, N.V.; LIKHOTA, V.N.

On the sequelae of deep hypothermia. Arkh. pat. 22 no. 12:29-36 '60. (MIRA 14:1)

(BODY TEMPERATURE)

AKIMOV, G.A. (Leningrad S-24, Nevskiy prosp., d.148.kv.32); LIBOV,A.S.; VIDENIN, V.S.

State of the nervous system following surgery with the use of artificial blood circulation. Grud.khir. 5 no.1:25-34 Ja-F'63. (MIRA 16:7)

1. Iz khirurgicheskoy kliniki dlya usovershenstvovaniya vrachey no.1 (nachal'nik deystvitel'nyy chlen AMN SSSR prof. P.A. Kupriyanov) I kafedry nervnuch bolezney (nachal'nik prof. A.I. Panov) Voyenno-meditsinskoy ordena Lenina akademii imeni Kirova.

(BLOOD—CIRCULATION, ARTIFICIAL)
(HEART—SURGERY) (BRAIN—DISEASE)

AKIMOV, G.A. (Leningrad, S-24, Nevskiy prospekt 148, kvartira 32)

"Neuromorphological studies". Reviewed by G.A. Akimov. Arkh. anat., gist. i embr. 45 no.7:121-122 Je '63. (MIRA 17:4)

AKIMOV, G.A., doktor med.nauk, polkovnik meditsinskoy sluzhby; ZVEREV, S.P., mayor meditsinskoy sluzhby

Neurologic disorders in acute hypothermia. Voen.-med.zhur. no.1:30-34 '65. (MIRA 18:10)

PETROV, I.R.; AKIMOV, G.A. (Leningrad)

Functional and morphological changes in the central nervous system of animals having had prolonged anemia of the brain under conditions of cerebral hypothermia. Arkh. pat. 27 no. 12:46-50 '65. (MIRA 18:12)

1. Voyenno-meditsinskaya ordena Lenina akademiya imeni Kirova.
Submitted Febr. 29, 1964.

AKIMOV, G. G., voditel' motovoza

*One can not do without this. Transpstroi 13 no. 11:77 N '63. (MIRA 17:5)

1. Trest Moselektrotyagstroy.

AKIMOV, G.P. (Kuybyshev)

Forming the definition of function in the 5th through 7th grades.
Mat.v shkole no.1:65 Ja-F '60. (MIRA 13:5)
(Algebra--Problems, exercises, etc.)

AKIMOV, G. S.

Akimov, G. S.

"Basic Principles of Breeding Brown Latvian Cattle on the Kolkhozes of the Vidzem State Breeding Farm." Acad Sci Estonian SSR. Department of Biological, Agricultural, and Medical Sciences. Tallin, 1955 (Dissertation for the degree of Candidate in Agricultural Sciences)

SO: Knizhnaya letopis' No. 27, 2 July 1955

AKIMOV, G. V. DECEASED

Electrochemistry see IIC

AKIMOV, I.

Let's walk along the city streets! Znan.ta pratsia no.9:6-7 S '59. (MIRA 13:1)
(Kiev--Communication and traffic)

AKIMOV, I.

On integrals, friendship and coke pie. Znan. ta pratsia no.10:6-7 O '61. (MIRA 14:8)
(Zaporozh'ye—Chemical industries)

KOSYGIN, A.; NOVIKOV, V.; MURAV'YEVA, N.; ZOTOV, V.; AKIMOV, I.; SPORYSHEV, V.; KOLOSOVA, V.; CHESNOKOV, N.; NEFEDOVA, O.; BOGAYEVA, A.; PIKOVSKIY, G.; KARMANOV, M.; SIYTAM, Ye.; KHODAKOVA, S.; KUSHNER, P.; BLYAKHMAN, I.; BASSIAS, L.; KINESHEMTSEVA, A.; REZNIKOV, M.; KALININ, S.; MILANOVA, D.; VENGEROVA, R.; AGROSKINA, M.; RATNER, B.; NARODETSKIY, B.; MARKOVA, L.; GOLUBENKOVA, N.; TSEKHANSKAYA, S.; TERENT'YEVA, N.; NESTEROVA, S.; AKSENOV, S.

D.M.Khazan-Andreeva; obituary. Tekst.prom. 21 no.12:90 D '61. (MIRA 15:2)
(Khazan-Andreeva, Dora Moiseevna, 1894-1961)

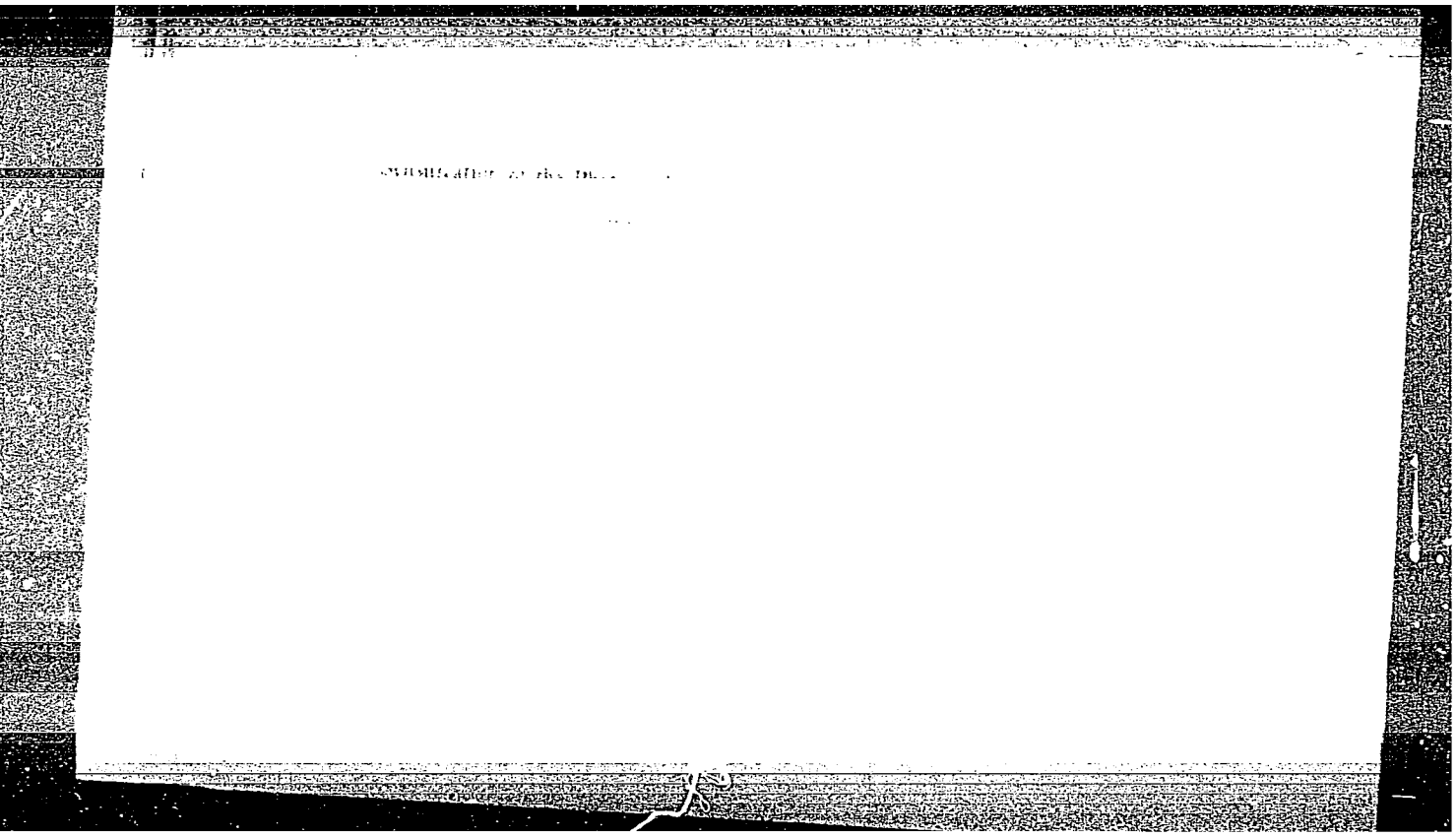
AKIMOV, I.

Second birth of precious stones. Znan. ta pratsia no.3:29 Mr '62.
(MIRA 16:7)

(Precious stones)

AKIMOV, I.

Institutein Nemchinovka. Zemledelie 26 no.7:86-87 Jl '64. (MIRA 18:7)



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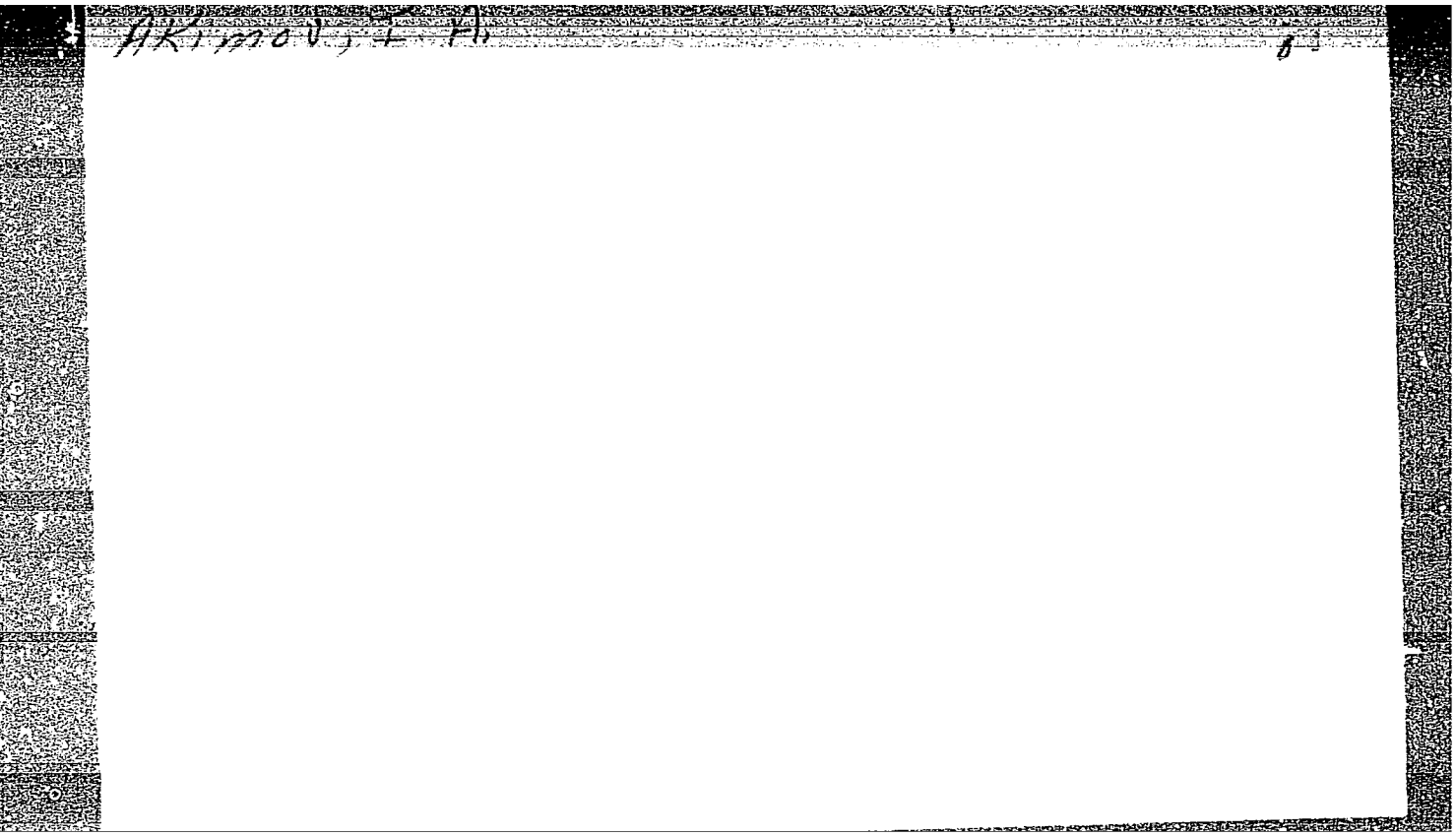


AKHMOV, I. (A.), TERENIN, A., and PUTSEYKO, E.

"Optical Sensitization of the Halides of Silver, Thallium, and Other Semi-Conductors by Dyestuffs," paper given at the International Conference on Scientific Photography, Cologne, 24-27, Sep 1956

E-3,068,138

AKIMOV, I. A.

B-5

Category: USSR / Physical Chemistry - Crystals

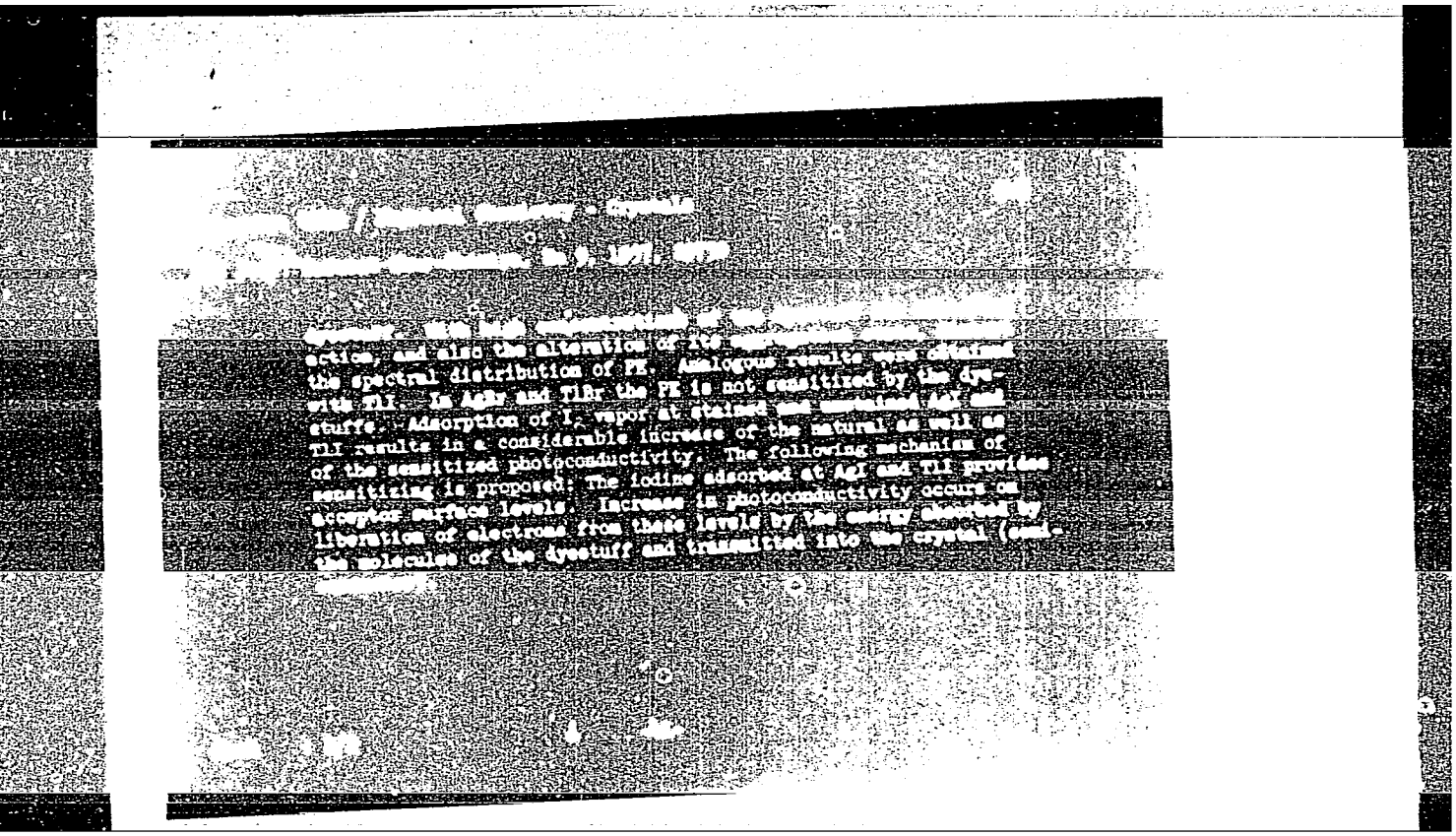
Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29750

Author : Akimov I. A.
Inst : ~~not given~~ State Optics Inst. im. S.I. Vavilov
Title : Photoelectric Properties of the Halides of Silver and Thallium Stained with Organic Dyestuffs

Orig Pub: Zh. nauch. i prokl. fotogr. i kinematogr., 1956, 1, No 4, 254-265

Abstract: By the method of photoconductivity under constant illumination a study was made of the photoelectric properties of iodides and bromides of Ag and Tl, having adsorbed thereat organic dyestuffs (cyanines, thiazines, xanthines, triphenyl-methanes, etc). More than one half of the investigated dyestuffs sensitize the photoeffect (PE) in AgI. These dye include photographic sensitizers as well as desensitizers. Dyestuffs which do not affect the sensitivity of photographic emulsions do not sensitize the PE in AgI. Spectral distribution of additional (induced by the presence of the dyestuff) PE coincides with the absorption spectrum of the adsorbed

Card : 1/2



AUTHOR: Akimov, I. A. SOV/20-121-2-32/53

TITLE: The Optical Sensibilization of the Photoeffect in Silver- and Thallium Bromide by Organic Dyes (Opticheskaya sensibilizatsiya fotoeffekta v bromidakh serebra i talliya organicheskimi krasitelyami)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 121, Nr 2, pp. 311 - 314 (USSR)

ABSTRACT: Various authors already reported on investigations on the optical sensibilization of the internal photoeffect in inorganic semiconductors by organic dyes, the sensibilization without impurities in the bromide, however, is not explained yet (Refs 1-10). In this paper above all the influence of bromine vapor (at 0,1 torr) on dyed and undyed AgBr- and TlBr-layers is investigated; it turns out that the adsorption of the bromine vapor has a clear influence upon the intensity as well as upon the spectral distribution of the photoeffect; e.g. TlBr dyed by malachite green shows an intensification of the photo-e.m.f. and a shift of the spectrum towards greater values of λ after the adsorption of bromine vapor; (before the ad-

Card 1/3

The Optical Sensibilization of the Photoeffect in Silver- and Thallium Bromide by Organic Dyes

sorption 400-450 mμ, after the adsorption 500-750 mμ with a maximum at 700 mμ). If bromine partly is desorbed the value of the photo-e.m.f. is reduced to about half of it without displacing the position of the spectrum (Fig 1 - TlBr, Fig 2 - AgBr). The position of the maxima of the photoeffect coincides with the maximum of the adsorption of the dyes. A dying by methylene blue does not only change the intensity of the sensibilized photoeffect but also causes a displacement of the spectral distribution towards the range of the adsorption of the dye. The photoeffect sensibilized by methylene blue has a maximum at 680-700 mμ, after the adsorption of bromine vapor at 780-800 mμ (Fig 3 - TlBr, Fig 4 - AgBr). The author renders his thanks to A. N. Terenin, Member, Academy of Sciences, USSR, and Ye. K. Putseyko for their interest shown in the work and for valuable suggestions.
There are 4 figures and 16 references, 10 of which are Soviet.

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SOV/20-121-2-32/53

The Optical Sensibilization of the Photoeffect in Silver- and Thallium Bromide by Organic Dyes

PRESENTED: March 24, 1958, by A. N. Terenin, Member, Academy of Sciences, USSR

SUBMITTED: March 3, 1958

Card 3/3

AKIMOV, I., TERENIN, A. N., and PUTSEYKO, E.

"Energy Transfer in Systems o f Connected Organic Molecules,"

paper presented at a meeting of the Faraday Society in Nottingham, England, 14-19 April 1959

Angewandt Chemie, 21 June 1959.

Akimov, I.A.

24(4) PHASE I BOOK EXPLOITATION SOV/3140

Akademiya nauk Ukrainskoy SSR. Institut fiziki

Fotoelektricheskiye i optiko-skiye yavleniya v poluprovodnikakh; trudy pervogo vsesoyuznogo soveshchaniya po fotoelektricheskim i opticheskim yavleniyam v poluprovodnikakh, g. Kiyev, 20-26 noyabrya 1957 g. (Photoelectric and Optical Phenomena in Semiconductors; Transactions of the First Conference on Photoelectric and Optical Phenomena in Semiconductors...) Kiyev, 1959. 403 p. 4,000 copies printed.

Additional Sponsoring Agency: Akademiya nauk SSSR. Prezidium. Komissiya po poluprovodnikam.

Ed. of Publishing House: I. V. Kisiinj Tech. Ed.: A. A. Matveychuk; Resp. Ed.: V. Ye. Lashkarev, Academician, Ukrainian SSR, Academy of Sciences.

PURPOSE: This book is intended for scientists in the field of semiconductor physics, solid state spectroscopy, and semiconductor devices. The collection will be useful to advanced students in universities and institutes of higher technical training specializing in the physics and technical application of semiconductors.

COVERAGE: The collection contains reports and information bulletins (the latter are indicated by asterisks) read at the First All-Union Conference on Optical and Photoelectric Phenomena in Semiconductors. A wide scope of problems in semiconductor physics and technology are considered: photoconductivity, photoelectromotive forces, optical properties, photoelectric cells and photoresistors, the actions of hard and corpuscular radiations, the properties of thin films and complex semiconductor systems, etc. The materials were prepared for publication by E. I. Rashba, O. V. Snitko, K. B. Tolpygo, A. P. Lubchenko, and M. K. Sheynkman. References and discussion follow each article.

Table of Contents:

Card 12/16

41075

S/058/62/000/008/086/134
A062/A101

5.4500

AUTHORS: Akimov, I. A., Putseyko, Ye. K.

TITLE: Sign of photocurrent carriers and photoconductivity relaxation in thallium and silver iodides, sensitized by organic dyes

PERIODICAL: Referativnyy zhurnal, Fizika, no. 8, 1962, 30 - 31, abstract 8E224 (In collection: "Fotoelektr. i optich. yavleniya v poluprovodnikakh", Kiyev, AN USSR, 1959, 301 - 313)

TEXT: In order to define precisely the mechanism of photoeffect sensitization, the relaxation times and the photocurrent carrier signs were determined in non-dyed and dyed layers of TlI and AgI for different regions of the spectrum. The sign of the carriers was determined by the capacitor method. The photocurrent relaxation times were measured by the method of N. A. Tolstoy and P. P. Feofilov ("Uspekhi fiz. nauk", 1960, 41, 44) on a taumeter with an exponential sweep. It was found that the sign of the sensitized photocurrent carriers does not depend on the sign of the photocurrent carriers in the dyes, but it is determined by the photoelectric properties of the semiconductor. The role of the dye consists only

Card 1/2 SEE S/058/62/000/008/086/134

in light absorption and transmission of the absorbed energy to the semiconductor. The role of a sensitizer can also be carried out by iodine molecules (RZhFiz, 1956, no. 2, 4259, and I. A. Akimov, Ye. K. Putseyko, Dokl. AN SSSR, 1955, 102, 481; I. A. Akimov, EKFKh, 1956, 30, 1007; ZhNiPFiK, 1956, 1, 254), their absorption determines the photoelectric sensitivity in the long wavelength region of the undyed layers of TlI, AgI. The article proposes a scheme of the mechanism of the proper and sensitized photoeffect which is confirmed by the relaxation measurements of the TlI photoconductivity.

O. Shustova

[Abstracter's note: Complete translation]

AUTHOR: Akimov, I.A. SOV/77-4-1-11/22

TITLE: About the Luminescence of Colorants Adsorbed on Certain Semiconductors (O lyuminestsentsii krasiteley, adsorbirovannykh na nekotorykh poluprovodnikakh)

PERIODICAL: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, 1959, Vol 4, Nr 1, pp 64-66 (USSR)

ABSTRACT: The author investigated the luminescence of some colorants adsorbed on certain semiconductors. This work was suggested and done under the direction of Academician A.N. Terenin. Several organic colorants were tested for their ability to luminescence, in the adsorbed state, on silver and thallium halogenides and the oxides of certain metals. On these semiconductors, the sensibilization of the photoeffect can be observed. Among various other colorants, fluorescein, eosin, erythrosin, rodamin B extra, chlorophyll and magnesium

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About the Luminescence of Colorants Adsorbed on Certain Semiconductors

phthalocyanin were used for investigation. The source of light for the chemical stimulation was a chromatic device of high light intensity with diffraction lattice. The investigated colorants did not luminescence in the adsorbed state of ZnO, PbO, and the silver and thallium halogenides. But the same colorants adsorbed on MgO, BaO, TiO_2, paper, cotton wool, gelatin and polyvinyl lacquer displayed an intensive luminescence. It does not seem to be quite impossible that such substances as PbO, AgBr, TlBr, that have a red and orange luminescence, are energetically sensitized by the colorants.

SOV/77-4-1-11/22

About the Luminescence of Colorants Adsorbed on Certain Semiconductors

There are 18 references, 8 of which are Soviet, 6 American, 1 English, 2 German and 1 Japanese.

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

SUBMITTED: October 20, 1958

Card 3/3

9.(3),24(3)

AUTHOR: Akimov, I. A. SOV/20-128-4-15/65

TITLE: Effect of Illumination on the Contact Potential of Some Semiconductors

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 4, pp 691-694 (USSR)

ABSTRACT: First there is mention of previous papers in this field. V. F. Bogolyubov (Ref 8) investigated the influence of illumination on the contact potential of selenium layers. I. K. Vitol recently used a dynamic condenser for the investigation of photoelectric polarization in alkali-halide crystals. Scope of the present study is the examination of the change in the contact potential of a semiconductor under the influence of monochromatic illumination. Therefore, high requirements had to be met by the condenser cell and the amplifier device concerning sensitivity and stability of operations. The article contains a description of the measuring device. The condenser cell consists of a glass vacuum vessel in which a semi-translucent platinum layer on a mica sheet serves as vibrating electrode. The second electrode is a platinum-coated cylinder which is subdivided by incisions

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into four sectors. The layer of the semiconductor to be examined is put on one of these sectors by sublimation. The author determined the difference in the contact potential between the platinum electrode and the semiconductor electrode in vacuum and in air both for inorganic semiconductors (TlJ(p), CdS(n), ZnO(n)) and for several organic dyes and determined the spectral distribution of the contact-photoelectric potential. Two diagrams illustrate the spectral curves of the photoelectric potential for layers of ZnO and TlJ, which were sensitized by dyes. These curves are in accordance with the spectral distribution of the photoelectromotive force and the photoelectric conductivity of ZnO and TlJ layers (stained with identical dyes). This method permits, besides the examination of the spectral distribution of the photoelectrical potential, also a judgment on the sign of the current carriers. The data obtained with the described method concerning the sign of the photoelectric current carriers are in accordance with the results obtained by other authors who used different methods. When illuminating the semiconductor layer from the opposite side the photoelectric potential changes its sign as expected.

Effect of Illumination on the Contact Potential of Some Semiconductors SOV/20-128-4-15/65

According to V. Ye. Kozhevin and V. Ye. Lashkarev (Ref 18) the magnitude and the sign of the photoelectromotive power of the condenser investigated in 2 previous papers (Refs 10,11) depend on the character of the insulating intermediate layers. To clarify this problem the author examined the contact difference of the potentials for TlJ and phtalocyanine between the platinum electrode and a layer of the semiconductor, which was in vacuum, in air or in contact with various insulating media. In darkness the contact difference of the potentials can be varied within wide limits (from -0.4 to +4.5 v). But these variations were of no considerable influence on the rate and sign of the photo potential in the case of TlJ and the phtalocyanine. The excess electrons and holes developed by the light diffuse either into the depth or to the surface and recombine subsequently. The author expresses his gratitude to Academician A. N. Terenin for suggesting the topic and for his advice, and to Ye. K. Putseyko for his counsel . There are 3 figures, 1 table, and 20 references, 13 of which are Soviet.

PRESENTED: June 1, 1959, by A. N. Terenin, Academician

SUBMITTED: May 26, 1959

Card 3/3

24.3500
5.2620

69847

S/051/60/008/03/035/038
E201/E191

AUTHORS: Akimov, I.A., and Korsunovskiy, G.A.

TITLE: The Effect of some "Electronophylic" Compounds on the Absorption and Luminescence Spectra of Magnesium Phthalocyanine Solutions

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 3, pp 427-428 (USSR)

ABSTRACT: The authors investigated the effect of hydrochloric acid and of some metal chlorides on the absorption and luminescence spectra of magnesium phthalocyanine solutions. On addition (in air) of a solution of ferric chloride ($FeCl_3.6H_2O$) in acetone to an acetone solution of magnesium phthalocyanine, the blue colour of the solution changes to olive green and the absorption spectrum is altered as shown in Fig 1. The absorption bands of magnesium phthalocyanine with maxima at 665 and 601 mμ disappear and new absorption bands appear with maxima at 707 and 682 mμ. When the solution is allowed to stand the latter two bands decrease in intensity. After several hours new weak bands, characteristic of phthalocyanine without a metal, appear at 688 and 655 mμ. Simultaneously a deposit is formed

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69847

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E201/E191

The Effect of some "Electronophylic" Compounds on the Absorption and Luminescence Spectra of Magnesium Phthalocyanine Solutions

which when dissolved in dioxane exhibits a spectrum of phthalocyanine without a metal. Similar behaviour is observed also on mixing of an acetone solution of magnesium phthalocyanine with an acetone solution of hydrochloric acid of 10^{-3} m/ℓ concentration. These experiments indicate that the central magnesium atom is replaced by hydrogen and that this reaction proceeds via an intermediate unstable complex which has absorption bands at 707 and 682 mμ. An unstable complex is formed also on addition of $SbCl_3$, $SnCl_4$ and SnI_4 to an acetone solution of magnesium phthalocyanine but in this case the absorption bands of phthalocyanine without a metal are not observed. Addition of bases such as pyridine, aniline or a concentrated aqueous solution of potassium hydroxide, destroys phthalocyanine complexes, as shown by the reappearance of the absorption spectrum characteristic of magnesium phthalocyanine. The authors investigated also the luminescence spectra of the mixtures described above. The spectra were recorded spectrophotometrically and they

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E201/E191

The Effect of some "Electronophylic" Compounds on the Absorption and Luminescence Spectra of Magnesium Phthalocyanine Solutions

were excited with the 365/366 mμ group of lines emitted by a mercury lamp SVDSh-250. Fig 2 shows the luminescence spectra of the solutions of magnesium phthalocyanine (curve 1), of the intermediate complex (curve 2) and of phthalocyanine without a metal (curve 3). A table on p 428 shows that the bands observed on excitation of the complex (683 and 745 mμ) coincide with the bands of magnesium phthalocyanine, and that the bands of the complex at 720 and 780 mμ are close in their positions to the bands of phthalocyanine without a metal. The 708 μ band, characteristic of phthalocyanine without a metal, is not observed in the luminescence spectrum of the complex, probably because of strong absorption by the complex in this region. The complex itself does not luminesce, since all its luminescence bands are due to either magnesium phthalocyanine or due to phthalocyanine without a metal and at longer wavelengths no new luminescence bands of the complex were observed. On addition of pyridine and aniline to the complex the

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S/051/60/008/03/035/038
E201/E191

The Effect of some "Electronophylic" Compounds on the Absorption and Luminescence Spectra of Magnesium Phthalocyanine Solutions

luminescence bands of phthalocyanine without a metal disappear and the bands of magnesium phthalocyanine are intensified. Acknowledgement is made to A.V. Shablya for lending the apparatus for luminescence measurements.

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There are 2 figures, 1 table and 4 Soviet references.

SUBMITTED: November 16, 1959

84668

9,4300 (1043, 1143 only)
9,4160 (3201, 1331 only)
26,2420

S/020/60/135/001/021/030
B004/B056

AUTHORS: Akimov, I. A., and Terenin, A. N., Academician

TITLE: Sensitization of the Photoeffect in Semiconductors by Means of Organic Dyes, Which Are Acidity Indicators

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 1, pp. 109-112

TEXT: The authors investigated the photoeffect in thallium iodide and zinc oxide, which had been dyed by means of organic indicators. Measurement of the photoeffect was carried out in air and in vacuo, as well as after adsorption of anhydrous HCl and NH_3 vapor. Between the results obtained in air and in vacuum there was no difference. Aurin, safranine T, thymolphthalein, bromothymol blue, Nile blue, and Congo-red were used, whose structural formula, reaction-pH, λ_{max} and sensitizing effect upon TlI and ZnO are given in Table 1. Besides, experiments were made with malachite green, erythrosine, and methylene blue (Fig. 3). The spectral distribution of the photo-emf is represented in Figs. 1-3. The

Sensitization of the Photoeffect in Semiconductors by Means of Organic Dyes, Which Are Acidity Indicators

S/020/60/135/001/021/030
B004/B056

summational photoeffect sensitized by the indicators changes in the case of TlI after adsorption of HCl only little, but the spectral distribution changed in accordance with the absorption spectra of the dyes. After adsorption of NH_3, the sensitized photoeffect decreased or had vanished altogether. In ZnO, on the other hand, the photoeffect vanished after adsorption of HCl. After desorption of HCl, ZnO again possessed the initial sensitized photoactivity. The indicators thus sensitize in neutral form both the photoeffect of the p-type semiconductor TlI, and also that of the n-type semiconductor ZnO. In the protonized state (after adsorption of HCl), they are no longer able to sensitize ZnO, nor to sensitize TlI in the anionic state (deprotonized by NH_3). These effects are explained by the change in the electron acceptor levels at the surface of the semiconductor, which, in ZnO, are formed by the adsorption of oxygen ions, and in TlI by adsorbed iodine ions. The authors mention a paper by Ye. K. Putseyko. There are 3 figures, 1 table, and 4 references: 5 Soviet, 1 US, and 1 French.

SUBMITTED: July 8, 1960

AKIMOV, I.A.; TERENIN, A.N.

Use of organic dyes for the optical sensitization of the internal photoelectric effect in silver bromide. Zhur.nauch.i prikl. fot. i kin. 6 no.2:108-115 Mr-Ap '61. (MIRA 14:4)

1. Gosudarstvennyy opticheskiy institut im. S.I.Vavilova.
(Photoelectricity) (Photographic emulsions)

S/181/62/004/006/025/051
B104/B112

AUTHORS: Akimov, I. A., and Putseyko, Ye. K.

TITLE: Determination of the spectra of photoelectric sensitivity of semiconductors by different methods

PERIODICAL: Fizika tverdogo tela, v. 4, no. 6, 1962, 1542 - 1548

TEXT: The spectral characteristics of the internal photoeffect of uncolored and colored TlI and ZnO semiconductors and of phthalocyanine were investigated by four different methods in the region of characteristic and sensitized sensitivity: (1) The photoconductivity was determined at constant voltage and under constant or intermittent illumination; (2) the longitudinal photo-emf in a capacitor with a semi-transparent electrode was determined; (3) the changes in contact potential and in the sign of the surface charge of the semiconductor were determined with a dynamic capacitor under constant illumination; (4) the photodielectric effect in a semiconductor layer was determined. The alternating signal of the photoeffect (150 or 600 cps) was measured with a resonance amplifier. A correlation between the absorption

Card 1/3

Determination of the...

spectrum and the photo-emf was found for metal-free phthalocyanine in the visible and ultraviolet spectral regions. No overlap of the two spectra could be found in phthalocyanine layers of the same kind when different forms of α- and β-pigments were present in them. A correlation between the absorption spectra and the spectral curves of photoconductivity could be established only for thin layers of organic and inorganic semiconductors. Differences appear for thick layers: weakly absorbed light sets free photoelectrons far from the surface, while strongly absorbed light sets them free near the surface. The spectral curves obtained by the four different methods for the sensitized photoeffect of ZnO, AgI, and TlI colored with different pigments agree with one another and correspond to the absorption spectra of the adsorbed pigments. The spectral curves of photoconductivity of AgI and TlI, obtained by various methods in the region of self-absorption of the semiconductors, do not agree with another. As in the case of phthalocyanine, the maxima of photoconductivity obtained by measurements of the photodielectric effect, the photocurrent, the photo-emf, and the contact potential are shifted to the short-wave side of the spectrum. There are 6 figures.

Card 2/3

S/181/62/004/006/025/051
B104/B112

Determination of the.. .

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

SUBMITTED: January 27, 1962

Card 3/3

S/181/62/004/006/026/051
B104/B112

AUTHOR: Akimov, I. A.

TITLE: Investigation of the spectral distribution of the internal photoeffect in photochemically sensitive semiconductors

PERIODICAL: Fizika tverdogo tela, v. 4, no. 6, 1962, 1549-1558

TEXT: A high-speed apparatus (Fig. 1) was developed to study, in the region of 350-1000 mμ, the change in the spectra of photoconductivity and photo-emf of microcrystalline powder of silver halides uncolored as well as colored with cyanogen pigments. The semiconductors are irradiated with about 10^{-6} w/cm^2 using an incandescent or xenon lamp, the light of which is modulated by a frequency of 600 cps. The spectral curve of the photo-emf in the capacitor is obtained on an oscilloscope. Measurements were made on uncolored silver halides and also on powder which had adsorbed organic sensitizers. The change of the photoeffect in the spectral region of the absorption edge is attributed to the formation of electron adhesion levels by the products of photochemical decomposition of the

Card 1/2

Investigation of the spectral...

silver halide. The experiments with colored layers demonstrate the energy transfer from the pigments to the semiconductor and reveal the important role of the acceptor levels of the semiconductor in optical sensitization. Academician A. N. Terenin is thanked for his interest and advice. There are 7 figures.

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

SUBMITTED: January 27, 1962

Fig. 1. Experimental arrangement.

Legend: (1) monochromator; (2) vacuum; (3) amplifier; (4) synchronous detector; (5) ЭНО-1 (ENO-1) oscilloscope; (6) amplifier for reference voltage.

KHOLMOGOROV, V.Ye.; AKIMOV, I.A.

Nature of a photoinduced electron paramagnetic resonance signal in silver bromide sensitized by cyanine dyes. Dokl.AN SSSR 144 no.2:402-405 My '62. (MIRA 15:5)

1. Predstavleno akademikom A.N.Tereninym.
(Silver bromide--Spectra) (Cyanine dyes)

L 12654-63 EWT(d)/EWT(l)/EWP(q)/EWT(m)/BDS/EEC(b)-2 AFFTC/ASD/ESD-3 JD/IJP(C

ACCESSION NR: AP3003550 S/0020/63/151/002/0310/0313

AUTHOR: Akimov, I. A.

TITLE: Photoconductivity of dye-sensitized thallium iodide as a function of temperature

SOURCE: AN SSSR. Doklady, v. 151, no. 2, 310-313

TOPIC TAGS: temperature dependence, photoconductivity, semiconductor, thallium, thallium iodide

ABSTRACT: It is known that, when the temperature is lowered, photosensity drops faster in the region of spectral sensitivization, than in the blue region. However, the available data are not sufficient to permit conclusions as to the activation energy of spectral sensitivization. In the present work, a study was made of the temperature dependence of the dark conductivity and of photoconductivity of thallium iodide films in the blue and red spectral regions, before and after dye sensitivization. Among the findings, the similar temperature dependence of blue photocurrent in the red region before and after dying is of particular interest. This is interpreted as evi-

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L 12654-63
ACCESSION NR: AP3003550

dence that the energy of the absorbed photon is transferred from the dye to the semiconductor thus liberating the electron from its local levels. "In conclusion, I express by sincere gratitude to Acad. A.N. Terenin for his constant interest in the work and valuable suggestions." This report was presented by Academician A.N. Terenin 16 Feb 63. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 01Feb63 DATE ACQ: 30Jul63 ENCL: 00

SUB CODE: PH NO REF SOV: 010 OTHER: 018

Card 2/2

BARANOV, E.V.; AKIMOV, I.A.

Photoconductivity of photographic layers at 10^{10} cycle frequency. Dokl. AN SSSR. 154 no.1:184-187 Ja'64. (MIRA 17:2)

1. Predstavleno akademikom A.N. Tereninym.

ACCESSION NR: AP4041048 S/0120/64/000/003/0181/0185

AUTHOR: Meshkov, A. M.; Akimov, I. A.

TITLE: System for investigating contact potential difference, capacitive photoelectromotive force, and photoconductivity of high-resistance semiconductors

SOURCE: Pribory* i tekhnika eksperimenta, no. 3, 1964, 181-185

TOPIC TAGS: semiconductor measurement, high resistance semiconductor, contact potential difference, capacitor photoelectromotive force, photoconductivity

ABSTRACT: A system is described by means of which it is possible to measure the photocurrent (up to 10^{-14} amp) and capacitive photoelectromotive force (up to 1 μv) of a high-resistance semiconductor with an effective input resistance of 1 Gohm in a vacuum, as well as the contact potential difference (cpd) under conditions of constant, modulated, and pulsed illumination with an accuracy up to 0.1 mv. An experimental setup for measuring capacitor photoelectromotive force, permitted the recording of all the processes of capacitor photo emf taking place during a light modulation period shorter

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ACCESSION NR: AP4041048

than 0.1 sec. In combination with a synchronous detector, even the sign of the photocurrent charge carrier in the semiconductor can be determined. Two arrangements for measuring the cpd of semiconductors were used, one utilizing continuous and pulsed illumination, and the other modulated illumination. The zero method was used for measuring the stationary cpd under conditions of continuous illumination. In pulsed illumination the signal proportional to the cpd is displayed on an oscillograph or recorded. The modulated illumination method permits the investigation of the initial phase of the cpd variation and eliminates processes longer than a single period of light modulation. A frequency modulation of 10 cps was used. Orig. art. has: 3 figures.

ASSOCIATION: Gosudarstvenny*y opticheskiy institut (State Optical Institute)

SUBMITTED: 06Jul63 / ATD PRESS: 3060 ENCL: 00

SUB CODE: EC, EM NO REF SOV: 017 OTHER: 003

Card 2/2

ACCESSION NR: AP4030790 S/0020/64/155/004/0900/0903

AUTHOR: Terenin, A. N.(Academician); Putseyko, Ye. K.; Akimov, I. A.; Meshkov, A. M.

TITLE: Effect of the state of aggregation of dyes on the photocurrent carrier sign

SOURCE: AN SSSR. Doklady*, v. 155, no. 4, 1964, 900-903

TOPIC TAGS: dye, brilliant green, crystal violet, malachite green, auramine, organic semiconductor

ABSTRACT: The spectral response of photo emf was plotted and the photocurrent and dark current carrier signs were determined for brilliant green, crystal violet, malachite green, and auramine dyes. The spectral response of photo emf and the photocurrent carrier sign was determined by the condenser and contact potential methods, and the dark current carrier sign, from the Seebeck effect. The samples used were in the following states of aggregation: amorphous deposits from ethanol solutions (and in some cases amorphous

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ACCESSION NR: AP4030790

sublimates) having a mirror-like surface (samples I), the above deposits treated with ethanol vapors (II), or microcrystalline precipitates (III) prepared by repeated recrystallization from ethanol. The following results were obtained: in air or in vacuum for I, the photocurrent and dark current carriers were electrons; in air and vacuum for II and III, the carriers were holes. Evidently, contact of the mirror-like films (I) with water or alcohol vapors causes them to undergo rapid recrystallization to a stable form, fine crystals (II), with carriers of opposite sign. Adsorption of polar gases and vapors on the dye can lead not only to a change in the form of aggregation, but to the formation of impurity levels, both in the bulk and on the surface of the dye film. In the case of compact mirror-like films (I), the role of the dye surface, which interacts with the surrounding atmosphere, is negligible in comparison with the role of the bulk of the sample. Therefore, the negative photocurrent carrier sign which is inherent to the dye is also preserved in air. In the case of minute crystals (II and III) in which the molecules of the dye are apparently less closely packed and whose specific surface is greater, molecules capable of trapping electrons can penetrate into the lattice.

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ACCESSION NR: AP4030790

As a result, microcrystalline layers exhibit hole conduction even in high vacuum. Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 06Dec63 DATE ACQ: 30Apr64 ENCL: 00

SUB CODE: CH,PH NO REF SOV: 009 OTHER: 008

Card 3/3

L 6508-66 EWT(1)/T/EWA(h) IJP(c) AT

ACCESSION NR: AP5013750 UR/0020/65/162/002/0306/0309

AUTHOR: Akimov, I. A.; Meshkov, A. M.

TITLE: Determination of the sign of the photocurrent carrier charge by the capacitor method

SOURCE: AN SSSR. Doklady, v. 162, no. 2, 1965, 306-309

TOPIC TAGS: photoconductivity, current carrier, electric polarization, charge density, conduction band, photo emf

ABSTRACT: The authors refute some of the earlier arguments, in which it was claimed that the capacitor method, widely used for the investigation of photoelectric properties of semiconductors, cannot be used to determine the sign of the photocurrent carrier charge. They cite, in particular, the frequently observed "repolarization" phenomenon, wherein an additional longer-wavelength band appears in the photo-emf spectrum, with a photo-emf of opposite sign, and show that allowance for this phenomenon explains the anomalies on the basis of which the capacitor method was deemed unsuitable. Two hypotheses are advanced to explain the "repolarization," and an experiment is described by which it has been demonstrated that this phenomenon is the result of the interaction taking place in the semiconductor between the carrier diffusion (Dember effect) and carrier drift in the field of the near-surface charge, producing anti-barrier bending of the bands at the illuminated surface. The photoeffect produced in the capacitor can be explained therefore by

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L 6508-66
ACCESSION NR: AP5013750

assuming the photoconductivity to be monopolar (and not due to rectifier action, as hitherto believed), and can therefore be used to determine the photocurrent carrier charge provided an additional investigation of the photo-emf is made to determine the relative contributions of the two types of carrier motion. The conclusions are corroborated by experimental data on the photo-emf of AgBr, AgCl, TlI, and ZnO. It is also pointed out that the capacitor method can also be used to investigate surface states of semiconductors in which the surface charge can be varied. "We are grateful to Academician A. N. Terenin for continuous interest in the work and valuable advice." This report was presented by A. N. Terenin. Orig. art. has: 3 figures.

ASSOCIATION: None

SUBMITTED: 27Oct64 ENCL: 00 SUB CODE: EM, EE
NR REF SOV: 015 OTHER: 005

nw
Card 2/2

L 2128-66
ACCESSION NR: AP5024208

UR/0020/65/164/003/0533/0536
535.215.5

AUTHOR: Akimov, I. A.

TITLE: The influence of the electrical field, illumination, and molecule adsorption on the capacitive photo emf of TlI, AgBr, and ZnO

SOURCE: AN SSSR. Doklady, v. 164, no. 3, 1965, 533-536

TOPIC TAGS: photoelectromotive force, polarity reversal, space charge, diffusion, drift

ABSTRACT: The capacitor method was used to determine the spectral distribution of the photoeffect and the signs of photocurrent carriers in TlI, AgBr, and ZnO. The 0.001—0.01-cm-thick sublimated or powdered layers of the semiconductors were placed in the capacitor's cell between mica spacers, with two transparent electrodes. The spectra were measured with a double quartz prism monochromator. The negative sign over the entire spectral range of the basic layer of TlI conformed to hole diffusion. However, when a negative potential was applied to the frontal capacitor cover, a marked polarity reverse was observed. The application of positive potential increased the photo emf in the entire range of the spectrum, showing no

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ACCESSION NR: AP5024208

inverse effect. Similar results were obtained with AgBr. A shortwave continuous illumination of the frontal side brought the same polarity reversal effect in TlI as the application of a negative potential. With backside illumination, the increase of the photo emf corresponded to that observed when the positive potential was applied. These changes are explained by the formation of a negative charge due to the diffusion of holes into the layer when the frontal or back side of the capacitor is irradiated by a strongly absorbed light. Simultaneous action of the field and illumination showed a strictly additive effect on the capacitance photo emf. Similar experiments were made with dye-colored TlI, AgBr, and ZnO layers and with a space-charge layer produced near the surface by photochemical means. Orig. art. has: 3 figures. [ZL]

ASSOCIATION: none

SUBMITTED: 26Jan65 ENCL: 00 SUB CODE: SS,EM

NO REF SOV: 009 OTHER: 003 ATD PRESS: 4117

Card 2/2

L 12017-66 EWT(1)/T/EWA(h) LJP(c) AT

ACC NR: AP5028275 SOURCE CODE: UR/0020/65/165/002/0309/0312

4/3
4/2

AUTHORS: Meshkov, A. M.; Akimov, I. A.
4/55 79/55

ORG: None

B

TITLE: Influence of near-surface charges on the optical change in the contact potential difference of semiconductors
21,44,55

SOURCE: AN SSSR. Doklady, v. 165, no. 2, 1965, 309-312

TOPIC TAGS: semiconductor surface property, electric potential, drift mobility, photoeffect

ABSTRACT: This is a continuation of earlier work by the authors (DAN 162, No. 2, 1965) dealing with the change in the contact potential difference of a semiconductor induced by application of light. The earlier investigation showed that the capacitor photoemf and the potential difference observed in semiconductors under the influence of illumination is due to the presence of two components, one due to diffusion of the carriers which are unevenly generated by the light, and the second is due to the drift of these carriers in the field of the surface charge. In the present investigation the authors study the influence of the surface charges on the formation of this potential difference, and also

Card 1/3 UDC: 535.215.5

on methods of eliminating this phenomenon. The potential difference was measured with apparatus described elsewhere (Pribory i tekhn. eksp. No. 3, 181, 1964), and the photoconductivity was measured at constant illumination with a dc amplifier (EMU-4). The objects of the investigation were the polycrystalline semiconductors ZnS, CdS, TlI, and Se deposited in the form of a paste on the stationary electrode of the dynamic capacitor. The magnitude and sign of the surface charge was measured by applying constant illumination with monochromatic light or by adsorption of gas. The tests showed that the surface charges changed the spectral distribution of the potential difference. Owing to the presence of a shift of the spectrum of the drift component relative to the spectrum of the diffusion component towards the long-wave side, these changes are more appreciable in the region where the absorption of the semiconductor decreases. The drift term has a slower rate of establishment and vanishing of the potential difference than the diffusion term. The various effects produced by the drift are discussed and ways of eliminating the drift component are described. If the drift component is eliminated, then the method proposed by I. K. Vitol (Tr. Inst. fiz. i astr. AN ESSR, No. 8, 175, 1958 and elsewhere) for determining the ratio of the whole and electronic conductivities of crystal phosphors excited by light becomes applicable. This report was presented by A. N. Terenin. The authors are grateful to Academician A. N.

L 12017-66
ACC NR: AP5028276

3

4/55

Terenin for continuous interest in the work. Orig. art. has: 3 figures and 1 table.

SUB CODE: 20/ SUBM DATE: 19Mar65/ NR REF SOV: 005/ OTH REF: 001

Card 3/3

L 16108-66 EWT(1)/EWT(m)/EWP(j)/EWA(h)/T IJP(c) AT/RM

ACC NR: AP6003252 SOURCE CODE: UR/0020/65/165/006/1332/1335

AUTHOR: Akimov, I A.; Terenin, A. N. (Academician)

ORG: None

TITLE: Experimental check of the hypothesis on the p-n mechanism of spectral sensitization

SOURCE: AN SSSR. Doklady, v. 165, no. 6, 1965, 1332-1335

TOPIC TAGS: photoelectric effect, photoelectromotive force, zinc oxide, thallium compound, photoconductivity, dye chemical, pn junction, absorption spectrum, semiconducting material

ABSTRACT: In order to check the mechanism of p-n sensitization, the effectiveness of the sensitization of the photoelectric effect in electron- and hole-type semiconductors (ZnO and TlI) by dyes having n- and p-type photoconductivity was compared. The spectral distribution of the photo-emf and photoconductivity of ZnO and TlI powders to which brilliant green oxalate and sulfate had been added was measured. The sulfate was more effective in sensitizing the photoelectric effect in both n-ZnO and p-TlI. The spectral curves of the sensitized photoelectric effect were similar to the absorption spectra of the dyes adsorbed on these semiconductors and different from the spectra of solid layers of the dyes. The data in-

Card 1/2 UDC: 535.215

L 05700-67 EWT(1)/T IJP(c) AT

ACC NR: AP6026353 SOURCE CODE: UR/0237/66/000/005/0004/0013

AUTHOR: Akimov, I. A.

53

8

ORG: none

TITLE: Study of the photoconductive effect in semiconductors by the condenser method

SOURCE: Optiko-mekhanicheskaya promyshlennost', no. 5, 1966, 4-13

TOPIC TAGS: photoconductivity, semiconductor conductivity, internal photoeffect

ABSTRACT: The article reviews studies carried out thus far on the photoelectric properties of semiconductors by the condenser method, which records the appearance of potentials between the illuminated and dark surface of a semiconductor. The following three condenser methods are considered: (1) method of the static condenser (L. Bergmann's method), (2) method of the static condenser with integration of charge, and (3) method of the dynamic condenser (Kelvin's method). The cases discussed indicate some possibilities of accounting for changes in the photo-emf in the presence of external effects resulting from either changes in the photoelectric sensitivity of the semiconductor or the formation of a surface charge. It is concluded that the condenser methods can be used very successfully for observing the photoconductive effect in semiconductors, determining the sign of the charge of photocurrent carriers and the spectral distribution of the photoconductive effect, and also for studying surface

Card 1/2 UDC: 535.215.5

L 05700-67

ACC NR: AP6026353

phenomena in semiconductors. Orig. art. has: 11 figures and 2 formulas.

SUB CODE: 20/ SUBM DATE: 09Nov65/ ORIG REF: 051/ OTH REF: 023

Card 2/2

ACC NR: AP7008877 SOURCE CODE: UR/0020/66/169/003/0550/0553

AUTHOR: Ionov, L. N.; Akimov, I. A.; Terenin, A. N. (Academician)

ORG: none

TITLE: Photoconductivity of organic dyes at a frequency of 10 sup 10 c

SOURCE: AN SSSR. Doklady, v. 169, no. 3, 1966, 550-553

TOPIC TAGS: dye chemical, photoconductivity, EPR, klystron

SUB CODE: 20

ABSTRACT: The photoconductivity of 11 organic dyes has been studied at ultra-high frequencies by means of an electron paramagnetic resonan radiospectrograph with a transient resonator, described earlier (E. V. Baranov, I. A. Akimov, DAN, 1954, 184, 1964). No use was made of magnetic fields; the dye sample in the form of a 10^{-4}-10^{-3} cm layer was held by a mica disc 5.3 cm in diameter and placed in the region of the maximum electric field within the H_{012}-type cylindrical resonator (Q factor with the sample = 10^4). The UHF power generated by a klystron (ν = 9600 Mc, P = 5 mW) passed through the resonator and was registered by a bolometer. The article presents data about the various samples used, the spectral distribution of photoconductivity at UHF of copper polyphenylacetylenide, and curves of temperature dependence of photoconductivity at UHF of a crystalline and amorphous layer of dyes for all 11 dyes used. Ye. K. Putseyko and I. A. Popova supplied the pigment samples, while A. M. Sladkov supplied the polymer. The authors thank V. Ye. Kholmogorov for discussions during the work. Orig. art. has: 2 figures and 1 table. [JPRS: 38,417]

Card 1/1 UDC: 535.215

ACC NR: AP7005587 SOURCE CODE: UR/0020/67/172/002/0371/0374

AUTHOR: Akimov, I. A.; Bentsa, V. M.; Vilesov, F. I.; Terenin, A. N. (Academician)

ORG: none

TITLE: Photoemissive effect from dyes adsorbed on ZnO and mechanism of spectral sensitization

SOURCE: AN SSSR. Doklady, v. 172, no. 2, 1967, 371-374

TOPIC TAGS: photoconductivity, zinc oxide

ABSTRACT: A study of the cyanine dyes 3,3'-diethyl-9,11,15,17-bis(β,β'-dimethyltrimethylene)thiapentacarbocyanine iodide (I) and 3,3'-diethylthiapentacarbocyanine iodide (II), used as spectral sensitizers of silver halide photographic emulsions, was carried out by determining the spectral distribution of the photoconductivity of ZnO containing the dyes and the spectral distribution of the quantum yield of photoelectron emission from ZnO layers before and after introduction of the dyes. The dyes were found to sensitize the photoconductivity of ZnO with a high degree of effectiveness. The results obtained permit one for the first time to compare the position of the electronic energy levels of a semiconductor and a dye in an attempt to provide an explanation for the mechanism of spectral sensitization (Fig. 1). Orig. art. has: 4 figures.

SUB CODE: 07/ SUBM DATE: 21Jun66/ ORIG REF: 004/ OTH REF: 007

Card 1/2 UDC: 535.215

ACC NR: AP7005587

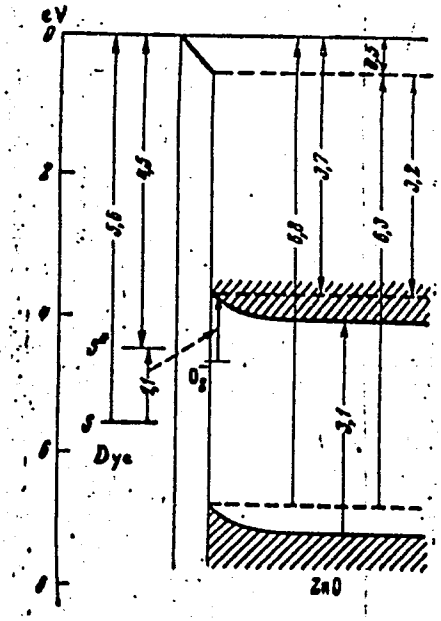

Fig. 1. Diagram of electronic energy levels of zinc oxide and a sensitising dye adsorbed on it

Card 2/2

FRANTSEVICH, L.I.; KORDYUM, V.A.; AKIMOV, I.A.

A simple adaptation of the ordinary microscope for use as a polarizing microscope. Lab. delo 5 no.3:56-57 My-Je '59. (MIRA 12:6)

1. Iz Kiyevskogo gosudarstvennogo universiteta.
(MICROSCOPY)

AKIMOV, I.A.; KUBAYCHUK, V.P.

A new species of gamasid mites Hirstionyssus pauli Willmann, 1952 of the Ukraine. Visnyk Kyiv.un. no.5. Ser.biol. no.2: 143-144 '62. (MIRA 16:5)

(UKRAINE--MITES)

AKIMOV, I.A.

Reproduction in great numbers of the common spider mite Tetranychus turkestani Ugarov et Nikolski in the Ukraine. Vop. ekol. 7:3-4 '62. (MIRA 16:5)

1. Kiyevskiy gosudarstvennyy universitet.
(Ukraine—Red spider) (Ukraine--Corn (Maize)--Diseases and pests)

AKIMOV, I.A.

Analysis of the fauna of harmful Tetranychidae (Acariformes, Tetranychoidea) in the steppe zone of the Ukraine. Dop. AN URSR no.2: 271-274 '64. (MIRA 17:5)

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USSR/Medicine - Typhus Jul 1947
Medicine - Bacteria, Proteus Group

"The Sanitary - Epidemiological Significance of Coli-Typhus Phage Detection," I. G. Akimov, ½p

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17T47

AKIMOV, I.G.; KRASNOVA, I.N.

Use of skim milk hydrolysate as a nutrient medium for streptococcus. Lab.delo 6 no.2:47-50 Mr-Ap '60. (MIRA 13:6)

1. Kafedra mikrobiologii (zav. - dotsent I.G. Akimov) Ivanovskogo meditsinskogo instituta (dir. - dotsent Ya.M. Romanov).
(BACTERIOLOGY--CULTURES AND CULTURE MEDIA)
(STREPTOCOCCUS) (MILK AS FEEDING STUFF)

AKIMOV, I. I. Eng.

"Mechanization of Burr Removal," Stanki i Instrument, 15, No.6, 1944.

AKIMOV, I.K.; MARISH, C.S.; SAVCHENKO, O.V.; SOROKO, L.M.

Measurement of the deuteron polarization in the p+p→d π^+ reaction in the proton energy of 670 MeV. Studii cerc fiz 11 no.3:489-500 '60. (EEAI 10:2)

(Deuterons) (Protons) (Polarization)
(Nuclear reactions)

AKIMOV, I.N.

In the cotton and flax enterprises of Moscow Province. Tekst.prom. 20 no.3:11-13 Mr '60. (MIRA 14:5)

1. Nachal'nik Upravleniya khlopchatobumazhnoy promyshlennosti Mosoblsovnarkhoz.
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SO: Knizhnaya Letopis' No. 26, June 1955

ANDREYEV, Nikolay Petrovich, inzh.; DUBROVSKIY, Aleksandr Ivanovich, inzh.; FAYNSHTEYN, Iosif Samuilovich, inzh.; AKIMOV, I.S., inzh., retsenzent; MITROFANOV, Yu.M., inzh., retsenzent; DONSKOY, V.P., inzh., retsenzent; KARAMYSHEV, I.A., inzh., red.; KHITROVA, N.A., tekhn. red.

[Handbook on the construction of engineering structures] Spravochnik po postroike iskusstvennykh sooruzhenii. Izd.2., dop. i perer. Moskva, Transzheldorizdat, 1962. 511 p. (MIRA 15:12)

(Railroad bridges) (Culverts)

AKIMOV, I.S.; GRISHANIN, Ye.I.

Analytic method for the calculation of irregular burn-out of fuel in nuclear reactors. Atom. energ. 16 no.6:500-504 Je '64. (MIRA 17:7)

ACCESSION NR: AP4041448 S/0089/64/016/006/0500/0504

AUTHOR: Akimov, I. S.

TITLE: Analytic method of calculating uneven fuel burn up in nuclear reactors

SOURCE: Atomnaya energiya, v. 16, no. 6, 1964, 500-504

TOPIC TAGS: reactor theory, reactor fuel, reactor reactivity, reactor multiplication factor, burnout heat flux, reactor poison

ABSTRACT: Since the earlier methods are either based on many simplifying assumptions or are suitable only for use with computers, the authors propose a general method, wherein the reactor equation is expanded in powers of the time,

$$\sum_{n=0}^{\infty} [\hat{L}\Phi(r, u, t)]_n \cdot t^n = 0;$$

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$$\sum_{n=0}^{\infty} \Phi_n(r_s, u)\, t^n = 0,$$

where Φ is the neutron flux. Since these equations must be satisfied for all values of the time t, the coefficients for all powers of t must vanish; this yields a system of equations for Φ_n

$$[\hat{L}\Phi(r, u, t)]_n = 0, \quad n = 0, 1, 2 \ldots$$

with boundary conditions

$$\Phi_n(r_s, u) = 0, \quad n = 0, 1, 2 \ldots$$

This general method is used to solve the problem of uneven burnup of

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uranium in a reactor in which the reactivity excess is compensated by a poison uniformly distributed over the entire reaction during the entire reactor life. The problem was solved with and without a reflector in the reactor. The method can also be used in the case when the reactivity excess is compensated by burnable poison. "In conclusion, the authors thank Z. S. Novitskaya for carrying out the calculations." Orig. art. has: 2 figures, 34 formulas, and 1 table.

ASSOCIATION: None

SUBMITTED: 08Oct63 ENCL: 02

SUB CODE: NP NR REF SOV: 001 OTHER: 001

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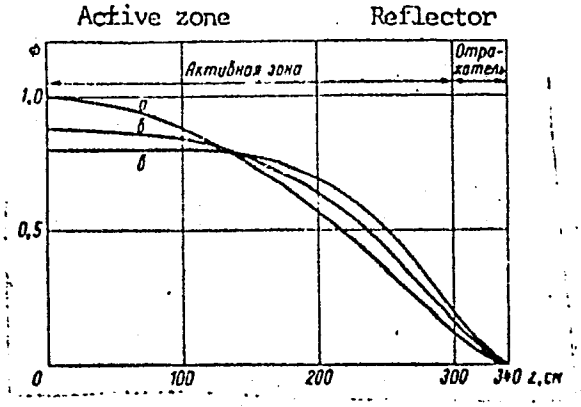
ACCESSION NR: AP4041448

ENCLOSURE: 01



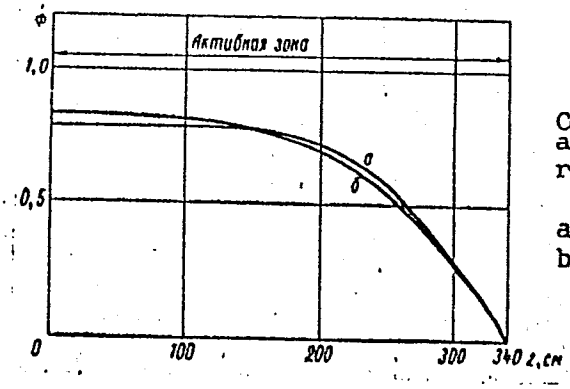
Distribution of neutron flux at the end of reactor life in a plane reactor with reflector.

Initial multiplication factor:

a - 1.009
b - 1.067
c - 1.11

ACCESSION NR: AP4041448

ENCLOSURE: 02



Comparison of neutron-flux distribution at the end of reactor life. Plane reactor without reflector.

a - method described elsewhere
b - method of present article

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ACCESSION NR: AP5020942 UR/0170/65/009/002/0227/0231
536.24

33
32
B

AUTHOR: Akimov, I. S.

TITLE: Calculation of the temperature distribution in an eccentric heat-generating annular layer

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 9, no. 2, 1965, 227-231

TOPIC TAGS: temperature distribution, boundary layer heat transfer, boundary layer temperature, heat insulation 21

ABSTRACT: The author investigates a region confined between eccentric circles with two different radii. In order to illustrate the method, the author finds the temperature distribution in a heat-generating cylinder confined by an eccentric annular heat-insulating layer, the outer boundary of which is maintained at a constant temperature. The solution is obtained in bipolar coordinates by separating variables. It is noted in conclusion that the method presented makes it possible to find a stable temperature field in an eccentric heat-generating annulus at different boundary conditions. This method may not be used for

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eccentricities equal or close to unity, and a variable should be substituted for eccentricities close to zero. Orig. art. has: 1 figure and 22 formulas.

ASSOCIATION: Fiziko-energeticheskiy institut, Obninsk (Physics-Power Engineering Institute)

SUBMITTED: 14Nov64 ENCL: 00 SUB CODE: TD, ME

NO REF SOV: 003 OTHER: 000

Card 2/2 lid

AKIMOV, K. I.

Yedinaya spetsifikatsiya metallicheskikh materialov mashinostroyeniya Soyuza SSR. (Unified specifications of metallic materials for machine building in the USSR, by) G. V. Akimov i K. I. Akimov. Moskva, Izd-vo Akademii Nauk SSSR, 1945. v. (v.-p.) diagrs., tables. At head of title: Akademiya Nauk SSSR. Institute mashinovedeniya. Parts 1 and 2 bound together. Lib. has: Parts 1-2.

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662.3
.A32

L 15763-63 BDS

ACCESSION NR: AR3002646 S/0124/63/000/005/A028/A029

SOURCE: Rzh. Mekhanika, Abs. 5A169 47

AUTHOR: Akimov, K.T.

TITLE: On the calculation of free torsional oscillations of a motor system

CITED SOURCE: Tr. Kazakhsk. politekhn. in-ta, sb. 22, 1962, 364-383

TOPIC TAGS: torsional oscillation, motor, crankshaft, inertia, Lobachevskiy method

TRANSLATION: A method is given for calculating the principal free torsional oscillations of motor device systems consisting of a crankshaft of an engine with a flywheel, the moving parts of the crankshaft mechanism, and the other aggregates connected with the crankshaft. Such a shaft reduces to an n-mass system, consisting of n-1 equal motor masses, having moments of inertia equivalent to the moment of inertia of the crank of the engine, with the connecting rods and pistons connected to it, and the masses equivalent to the flywheel with the combined moment of inertia of the parts of the transmission situated

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ACCESSION NR: AR3002646

between the engine and the crankshaft. The n-1 order equations are set up for the free torsional oscillations for an entire series of such systems by means of dimensionless parameters relating to characteristic frequency, moments of inertia, and the flexibility of parts of the shaft.

Only the two lowest roots of the equations are calculated by approximate methods since the most dangerous are only the lower frequencies. For the calculation the N.I. Lobachevskiy method for the solution of algebraic equations was used, and the author confined himself to two transformations with respect to this method of the original equations, which significantly simplified the calculation and made it possible to give sufficiently simple computational formulas for the dimensionless characteristic frequencies of one and two phase forms of oscillation of whole, single mass systems. Examples are given of the calculation of a two engine shaft. A check calculation by the method of residues showed that the error in calculation of the characteristic frequencies is less than 1%. M.D. Perminov.

DATE ACQ: 14Jun63 SUB CODE: PH, MD ENCL: 00

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AKIMOV, K. T.

Some new equations for the calculation of torsional oscillations of the shafts of multicylinder internal combustion engines. Vest. AN Kazakh. SSR. 19 no.5:68-76 My '63. (MIRA 17:7)

L 15764-63 EWT(1)/BDS AFFTC/ASD

ACCESSION NR: AR3002647 S/0124/63/000/005/A029/A029

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SOURCE: Rzh. Mekhanika, Abs. 5A170

AUTHOR: Akimov, K.T.

TITLE: Determination of fundamental frequencies of free torsional oscillations of a joined multi-mass system

CITED SOURCE: Tr. Kazakhsk. politekhn. in-ta, sb. 22, 1962, 383-395

TOPIC TAGS: approximation method, torsional oscillation, multi-mass system, n-mass system, Lobachevskiy transformation, eigenfrequency

TRANSLATION: An approximation method for determination of the fundamental frequency of free torsional oscillations of a chain multi mass system, consisting of (n + 1) masses and n elastic segments between them is presented. For the application of approximation methods it is necessary to write the original equations of free oscillations of the system, which are obtained by the method of successive transitions from the first mass to the succeeding one, and setting equal to zero the expression for the moment of the elastic force of the last

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