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(Electronic calculating machines)
(Automatic control)

L 21713-65 EWT(d)/EPF(n)-2 Po-4/Pq-4/Pg-4/Pu-4/Pk-4/Pl-4 IJP(c)/AFWL/
SSD/ASD(a)-5/BSD/AFMD(c)/AFM(dp)/AFETR/AFTC(p)/AFTC(b)/RAEM(d)/ESD(dp)
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ACCESSION NR: AP4042059 S/0055/64/000/004/0054/0058

AUTHOR: Aleksandrov, V. V.

TITLE: On the application of analog computers to an iterative method of determining control in an optimal system

SOURCE: Moscow. Universitet. Vestnik. Seriya 1. Matematika, mekhanika, no. 4, 1964, 54-58

TOPIC TAGS: automatic control theory, analog computer, optimal system

ABSTRACT: On the application of analog computers to an iterative method of determining control in an optimal system. The first problem discussed is to find the function u such that the controlled system defined by the linear equations

$$\frac{dx_1}{dt} = x_2, \quad \frac{dx_2}{dt} = -k^2 x_1 + u, \quad |u| \leqslant 1. \qquad (1)$$

starting with any set of initial conditions, reaches the origin of phase space in minimum time. By Pontryagin's maximum principle, the solution is

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2

$$u = \operatorname{sign} \psi_{x_2} \qquad (2)$$

where x_2 is determined by the system (adjoint to (1)):

$$\frac{d\psi_1}{dt} = k^2\psi_2, \quad \frac{d\psi_2}{dt} = -\psi_1. \qquad (3)$$

This system may be solved by the iterative method suggested by J. H. Eaton (J. Math. Analysis and Applic., 5, no. 2, 329-344, 1962), which can be realized on an analog computer. Details are given on how this was done (on the MPT-9 computer), both with and without forcing the system to remain at the zero state once it is reached. Block diagrams and phase diagrams are reproduced for both cases (the dots in the phase diagrams are spaced at 0.5 sec. intervals). A third order system which was solved by the same method, on the same computer, is also discussed. "The author is grateful to his colleague B. M. Balakin, of the automatic control laboratory for the help he was given in conducting the experiment." Orig. art. has: 6 equations

ASSOCIATION: Moskovskiy gosudarstvenny*y universitet im. M. V. Lomonosova (Moscow State University)

L 21713-65
ACCESSION NR: AP4042059

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Card 3/3

POSTNOV, Anatoliy Vasil'yevich, kand. tekhn. nauk; ATLAS, Boris Aleksandrovich, kand. ekon. nauk. Prinimali uchastiye: SHAPOSHNIKOV, Ye.M., kand. tekhn. nauk; MATSVEYKO, A.N., inzh.; STOLBOV, A.G., inzh.; GDAIZVICH, S.S.; ALEKSANDROV, V.V., inzh.; NEVOLIN, V.V., inzh. retsenzent; KUZNETSOVA, L.[illegible] retsenzent; DROZDOV, B.M., nauchn. red.; MAKRUSHINA, A.N., red.

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1. Kafedra ekspluatatsii Novosibirskogo instituta inzhenerov vodnogo transporta (for Drozdov).

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Electrochemical measurements in a methanol - benzene - water mixture. Zhur.fiz.khim. 39 no.7:1585-1589 Jl '65. (MIRA 18:8)

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Temperature relationships of entropies, energies, and geats of hydration of hydrogen chloride, hydrogen bromide, and hydrogen iodide. Zhur. fiz. khim. 39 no.4:942-946 Ap '65.

(MIRA 19:1)

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Submitted Dec. 14, 1963.

L 33437-66 EWT(m)/EWP(j)/T IJP(c) DS/WW/JW/JWD/RM

ACC NR: AP6020553 SOURCE CODE: UR/0414/66/000/001/0068/0073

AUTHOR: Aleksandrov, V. V. (Novosibirsk); Konev, E. V. (Novosibirsk); Mikheyev, V. F. (Novosibirsk); Khlevnoy, S. S. (Novosibirsk)

ORG: none

60
56
13

TITLE: Surface temperature of burning nitroglycerine powder

SOURCE: Fizika goreniya i vzryva, no. 1, 1966, 68-73

TOPIC TAGS: nitroglycerine, combustion temperature, solid propellant, combustion, combustion research

ABSTRACT: The surface temperature T_s of nitroglycerine powder H burning in air was measured as a function of the initial temperature of the powder T_0 (ranging from -25 to 125C). A thin (~5μ) manganin-constantan thermocouple located between the compressed powder specimen and an ebonite substrate cemented together with acetone was used for the measurements. The tabulated and graphed results show that the surface temperature of the powder is practically independent of the initial powder temperature and varied between 275 ± 21C at T_0 = 20C and 281 ± 11C at T_0 = 116C. The average T_s is about 275C and, apparently, is the boiling temperature of the nitroglycerine and dinitrotoluene

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mixtures in the presence of nitrocellulose and decomposition products. Data on the burning velocity of H powder at T_0 < 20—40C, calculated on the assumption that T_s is equal to the boiling temperature of the mixture, are in good agreement with published experimental data on the dependence of the burning velocity u on the initial powder temperature in the same temperature range. The results indicate that the evaporation of the volatile components plays a great role in the burning of nitroglycerine powders. To explain the $u(T_0)$ dependence, it is suggested that at T_0 < 40C, u is determined by the solid-phase reaction and at T_0 > 40C, u is determined by the reaction in the gaseous or in the aerosol phase. The author is grateful to A. A. Koval'skiy for his advice and also to all his coworkers at the Laboratory of the combustion of condensed systems of the Institute of chemical kinetics and combustion, Siberian branch, AN SSSR for their discussion of the work. Orig. art. has: 4 figures, 1 table, and 2 formulas. [PS]

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ATD PRESS: 5021

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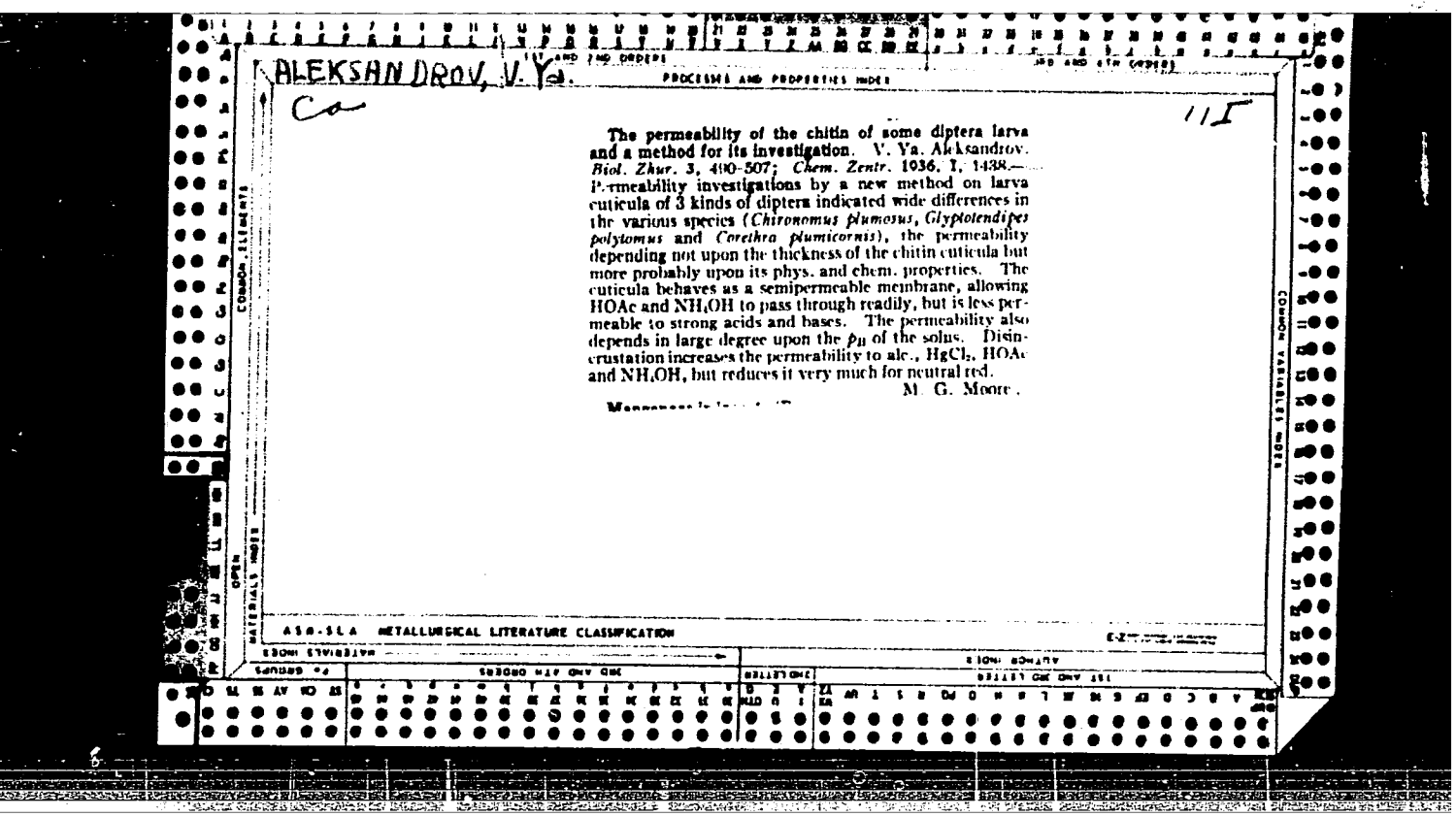

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The permeability of the chitin of some diptera larva and a method for its investigation. V. Ya. Aleksandrov. *Biol. Zhur.* 3, 490–507; *Chem. Zentr.* 1936, I, 1438.—Permeability investigations by a new method on larva cuticula of 3 kinds of diptera indicated wide differences in the various species (*Chironomus plumosus, Glyptotendipes polytomus* and *Corethra plumicornis*), the permeability depending not upon the thickness of the chitin cuticula but more probably upon its phys. and chem. properties. The cuticula behaves as a semipermeable membrane, allowing HOAc and NH_4OH to pass through readily, but is less permeable to strong acids and bases. The permeability also depends in large degree upon the p_H of the solus. Disincrustation increases the permeability to alc., $HgCl_2$, HOAc and NH_4OH, but reduces it very much for neutral red.

M. G. Moore.

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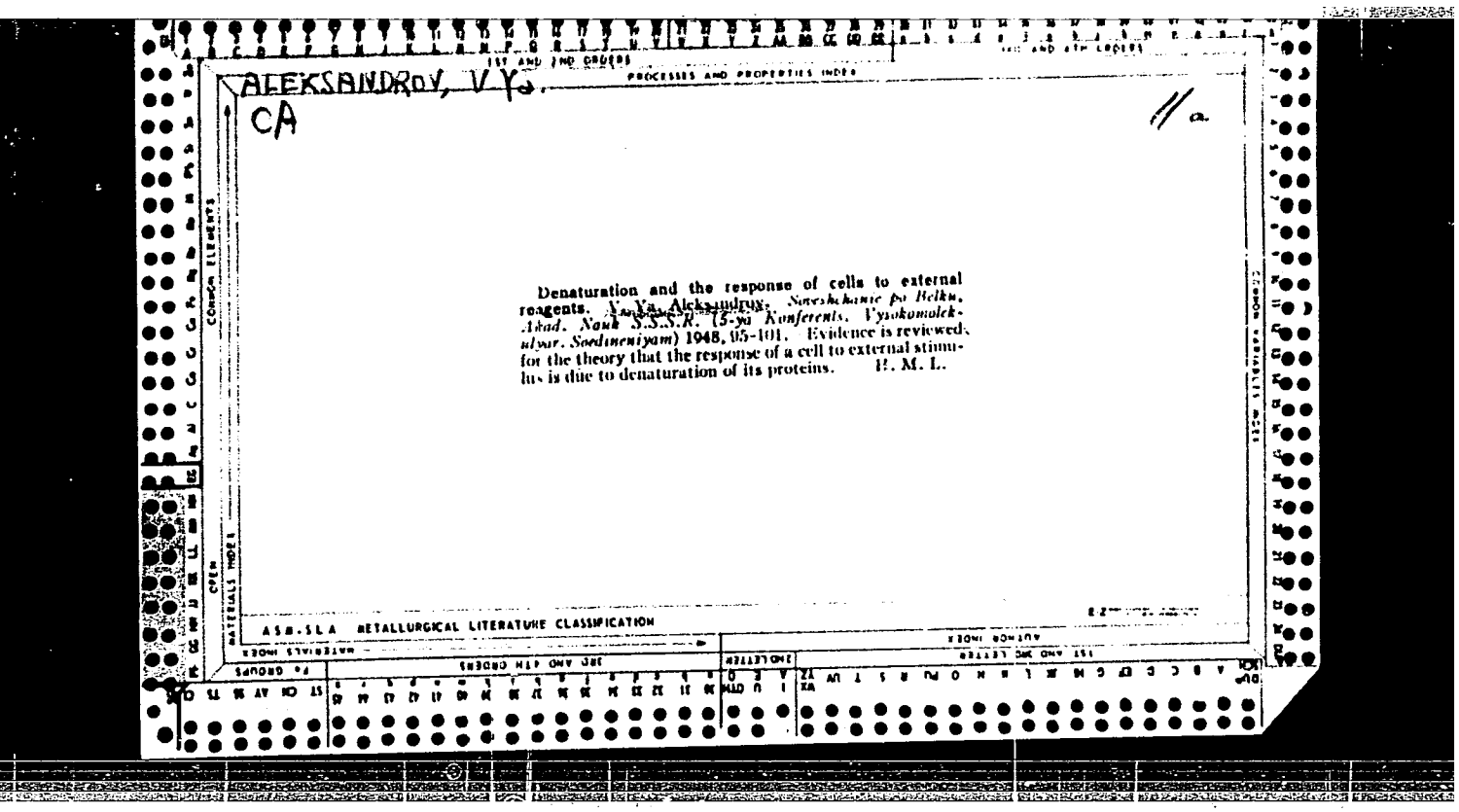

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Denaturation and the response of cells to external reagents. V. Ya. Aleksandrov. *Sovershchanie po Belku. Akad. Nauk S.S.S.R. 13-ya Konferentsiya Vysokomolek. ulyar. Soedinenityam*) 1948, 95-101. Evidence is reviewed for the theory that the response of a cell to external stimulus is due to denaturation of its proteins. R. M. L.

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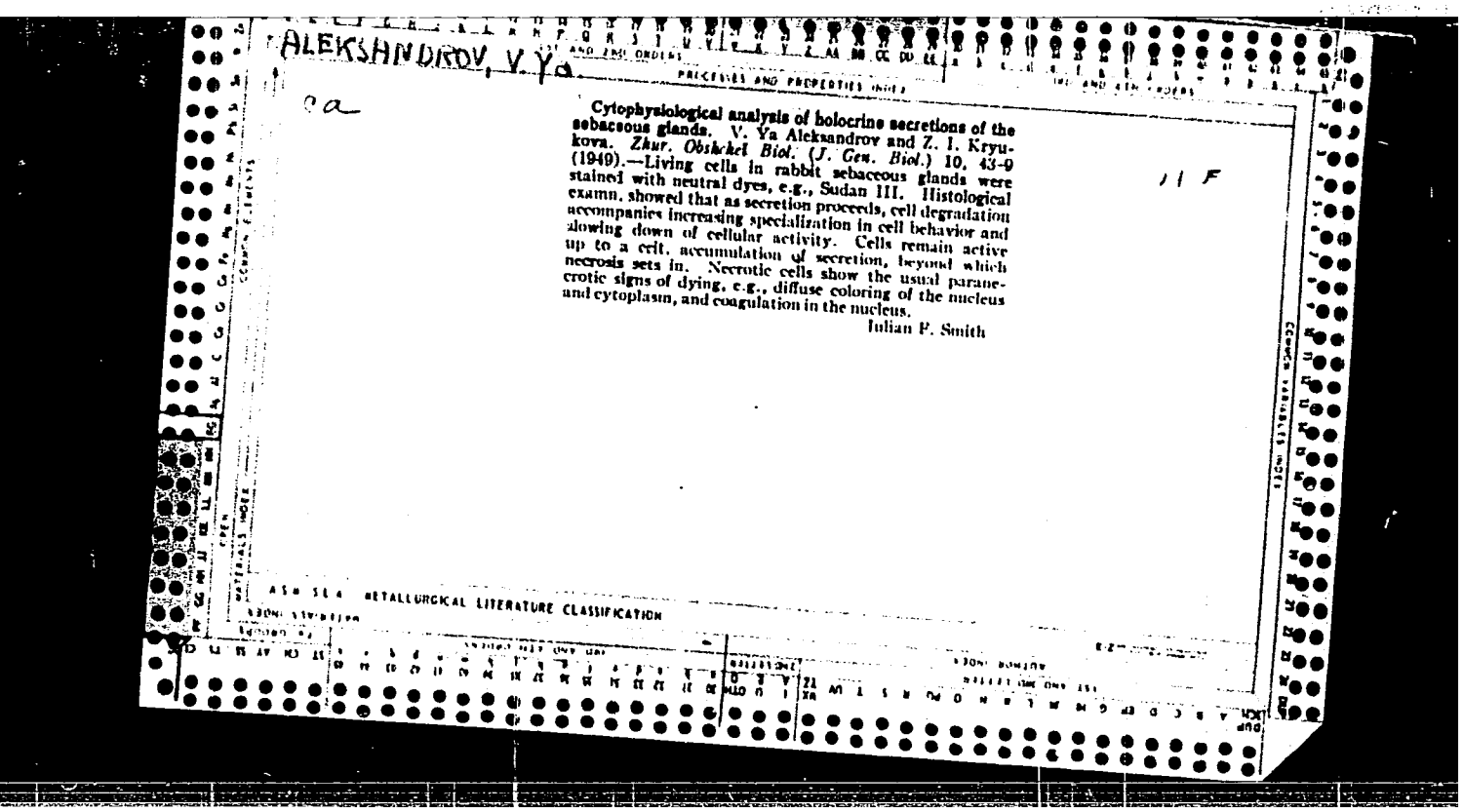

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Julian P. Smith

II F

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Card 1/1 : Pub 33-12/25

FD-1334

Author : Aleksandrov, V. Ya. and Paribok, V. P. (Leningrad)

Title : Effects of alcohol narcosis on absorption of dyestuff from intestines

Periodical : Fiziol. zhur. 4, 466-471, Jul/Aug 1954

Abstract : Experiments were conducted on white mice to determine the effects of ethyl alcohol on the capacity of the walls of intestines to absorb dyestuffs. It was discovered that cellular elements in the walls of intestines impede discharge of these dyestuffs into the blood stream when alcohol is injected through the rectum. This is due to the fact that cells of the mucous membrane of the intestines of expermental mice are washed by greater concentration of neutral red solution than can be observed in the control group of mice. The effects produced after subcutaneous injection of alcohol are due to great extent to resorption action of alcohol and not to its local deposition in the cells of intestines. Chart. Table. Graphs. Four Soviet references.

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Submitted : July 7, 1953

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Cytophysiological evaluation of various methods for determining the viability of plant cells. Trudy Bot.inst.Ser.4 no.10:309-355 '55.
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(FLUORESCENCE MICROSCOPY) (PALEOBOTANY)

ALEKSANDROV, V. YA.

USSR/Optics - Optical Engineering.

Abs Jour : Referat Zhur - Fizika, No 3, 1957, 7646 K-4

Author : Aleksandrov, V.Ya., Sveshnikova, I.N.
Inst :
Title : Use of Fluorescent Microscopy in Paleobotanics.

Orig Pub : Botan. zh., 1956, 41, No 2, 206-212

Abstract : No abstract.

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Cytophysiological analysis of the heat resistance of plant cells and some tasks in the field of cytoecology. Bot.zhur.41 no.7: 939-961 Jl '56. (MLRA 9:10)

1.Botanicheskiy institut imeni V.L.Komarova Akademii nauk SSSR.
(Plants, Effect of temperature on)

USSR/General Biology. Cytology B

Abs Jour : Ref Zhur-Biol., No 13, 1958, 57056

Author : Aleksandrov V. Ya., Arronet N. I
Inst : Not given
Title : Adenosine Triphosphate Causes Movement of Cilia of the Scintillating Epithelium Killed by Glycerine Extraction ("cell model")

Orig Pub : Dokl. AN SSSR., 1956, 110, No 3, 457-460

Abstract : Sections of the palate mucus of a frog and a toad, as well as the trachea of a rabbit and rat were placed while chilled in an extracting solution (45% glycerine, 0.12 M KCl on a phosphate buffer at a pH 7.2). Several days later the sections were gradually transferred into a working solution (0.12 M KCl 0.005 M $MgCl_2$

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(PLANT CELLS AND TISSUES) (PLANTS--HARDINESS)

POLYANSKIY, Yu.I., otv.red.; ALEKSANDROV, V.Ya., red.; GINETSINSKIY, A.G., red.; ZHUKOV, Ye.K., red.; ZHIRMUNSKIY, A.V., red.; KARASIK, V.M., red.; KIRO, M.B., red.; LOZINA-LOZINSKIY, L.K., red.; NIKOL'SKIY, N.N., red.; PARIBOK, V.P., red.; ROMANOV, S.N., red.; SVETLOV, P.G., red.; SOKOLOV, I.I., red.; TROSHIN, A.S., red.; USHAKOV, B.P., red.; SHERSTOBITOV, O.Ye., red.izd-va; PEVZNER, R.S., tekhn.red.

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1. Akademiya nauk SSSR. Institut tsitologii. 2. Institut evolyutsionnoy fiziologii im. I.M.Sechenova AN SSSR, Leningrad (for Ginetsinskiy). 3. Fiziologicheskiy institut im. A.A.Ukhtomskogo pri Leningradskom universitete im. A.A.Zhdanova (for Zhukov). 4. Institut eksperimental'noy meditsiny Akademii meditsinskikh nauk SSSR, Leningrad (for Karasik). 5. Institut tsitologii AN SSSR, Leningrad (for Kiro, Paribok, Sokolov). 6. Institut fiziologii im. I.P.Pavlova AN SSSR, Leningrad (for Romanov). 7. Laboratoriya embriologii Instituta eksperimental'noy meditsiny AMN SSSR, Leningrad (for Svetlov). 8. Laboratoriya fiziologii kletki Instituta tsitologii AN SSSR, Leningrad (for Troshin). 9. Laboratoriya sravnitel'noy tsitologii Instituta tsitologii AN SSSR, Leningrad (for Ushakov).

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ALEKSANDROV, V.Ya.; GRUZOVA, M.N.

Microscopic structure of the nuclei of the epidermis cells of the bulbs of Allium cepa L. TSitologiia 2 no.4:389-395 Jl-Ag '60. (MIRA 13:9)

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Cellular adaptations. Biul.MOIP. Otd.biol. 65 no.3:142-143 My-Je '60. (MIRA 13:7)
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1. Laboratoriya tsitofiziologii i tsitoekologii Botanicheskogo instituta AN SSSR, Leningrad.
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JPRS 20,634

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Excitation of living cells as a displacement of the steady state of open systems. Izv. AN SSSR Ser. biol. 28 no.4: 621-629 Jl-Ag'63 (MIRA 16:11)

TROSHIN,A.S., otv. red.; ARRONET,N.I., red.; BEYYER,T.V., red.; ZHIRMUNSKIY,A.V., red.; KUSAKINA,A.A., red.; PROSSER, K.L., red.; LOZINA-LOZINSKIY,L.K., red.; POLYANSKIY, Yu.I., red.; SUKHANOVA,K.M., red.; USHAKOV,B.P., red.; FEL'DMAN,N.L., red.; ALEKSANDROV, V.Ya., red.

[Cell and the temperature of the medium; transactions] Kletka i temperatura sredy; trudy. Moskva, Nauka, 1964. 303 p. (MIRA 18:1)

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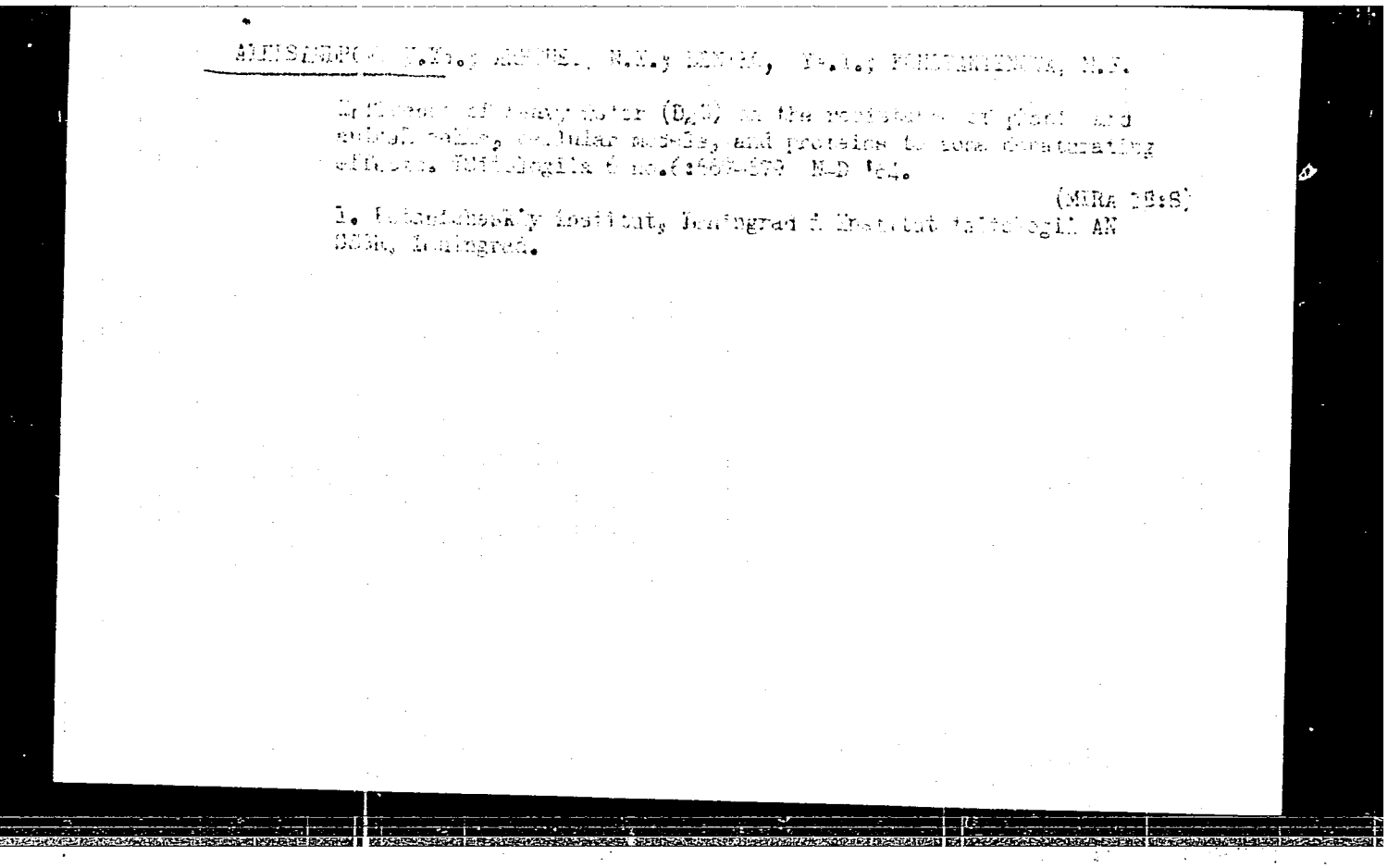

ALEKSANDROV, V.Ya. (Leningrad)

Biological sense of the correspondence of the thermostability level of proteins to the temperature conditions of living species. Usp. sovr. biol. 60 no.1:28-44 Jl-Ag '65.

(MIRA 18:8)

1. Botanicheskiy institut im. V.L. Komarova AN SSSR.

L 34881-65 EWT(l)/EPA(s)-2/EWT(m)/EPA(sp)-2/EPA(w)-2/EEC(t)/T/EWP(t)/EWP(b)/
EWA(m)-2 Pz-6/Pb-4/Pab-10/Pt-10/Pi-4 IJP(c) JD/JG/AT
ACCESSION NR: AP5005032 S/0051/65/018/002/0190/0197

AUTHOR: Aleksandrov, V. Ya.; Gurevich, D. B.; Podmoshenskiy, I. V. 66 67 B

TITLE: Investigation of the mechanism of excitation and energy exchange from the spectra of nonequilibrium radiation, produced by a pulsed electric field in a thermal plasma. I. Mercury arc 21

SOURCE: Optika i spektroskopiya, v. 18, no. 2, 1965, 190-197

TOPIC TAGS: mercury arc, arch discharge plasma, plasma radiation, plasma excitation, plasma temperature

ABSTRACT: This is a continuation of earlier work by two of the authors (Gurevich and Podmoshenskiy, Opt. i spektr., v. 15, 587, 1963), in which a relaxation method was proposed for determining the difference between the excitation temperature and a gas temperature, based on comparison of the cooling time of electrons and heavy particles. It was found that in the positive column of a mercury arc it is impossible to observe the defference between the excitation temperature and the gas temperature at atmospheric pressure, but when an electric field many times stronger than the initial stationary field is produced in the positive column, the temper-

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L 34881-65
ACCESSION NR: AP5005032

ature difference becomes observable. The investigations were therefore made using 3--6 keV pulses of short duration (10^{-8} sec), using the set-up shown in Fig. 1 of the Enclosure. By taking oscillographs of the spectral lines it was found that the additional radiation due to the high-voltage pulse has two phases -- nonequilibrium, and equilibrium. The amplitude of the first phase decreases with increasing excitation potential and depends on the multiplicity of the level. A study of the nonequilibrium radiation has shown that in a mercury-arc lamp at atmospheric pressure the transfer of kinetic energy from the electrons to the atoms occurs in the case of inelastic collisions via electronic excitation and stepwise extinction by the atoms, at a low energy difference between levels. It was also found that in the nonequilibrium phase the excitation temperature of sufficiently isolated levels is close to the electron temperature, while that of the higher levels, which have a multiplet structure, is closer to the temperature of the atoms. The ionization temperature is also close to the atom temperature. The luminescence of 14 mercury lines and the radiation of the continuous spectrum was investigated in different wavelength regions. Several factors that influence the performance of the experiment are discussed, such as the occurrence of relaxation, magnetic compression, skin effect, and others. "The authors thank M. I. Demidov, for modifying the DISO-1 oscilloscope to make possible registration of single

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L 34881-65
ACCESSION NR: AP5005032

flashes with time resolution to 10^{-8} sec." Orig. art. has: 2 figures, 3 formulas, and 1 table.

ASSOCIATION: None

SUBMITTED: 20Dec63 ENCL: 01 SUB CODE: ME, EM

NR REF SOV: 003 OTHER: 002

Card 3/4

L 34881-65
ACCESSION NR: AP5005032

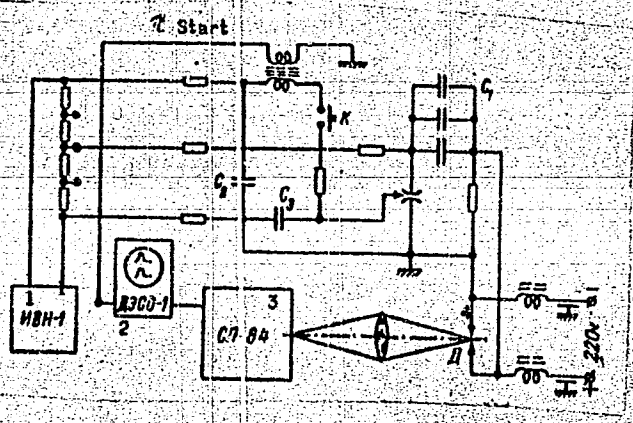

Fig. 1. Diagram of experimental set-up.

1 - Power supply
2 - oscilloscope
3 - multichannel spectrometer
4 - arc

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L 46151-66

ACC NR: AP6034077 SOURCE CODE: UR/0221/65/060/001/0028/0044

AUTHOR: Aleksandrov, V. Ya. (Leningrad)

ORG: Botanical Institute im. V. L. Komarov AN SSSR (Botanicheskiy institut AN SSSR)

TITLE: Biological meaning of the correspondence of the level of thermal stability of proteins to the temperature conditions of existence of the species

SOURCE: Uspekhi sovremennoy biologii, v. 60, no. 1, 1965, 28-44

TOPIC TAGS: protein, macromolecule, biologic metabolism, biochemistry

ABSTRACT: In closely related species, differing in temperature conditions of existence, correspondence is detected between the thermal stability of analogous cells and the thermophilic characteristics of the species. The difference in the thermophilic characteristics of species may be manifested in different latitude or altitude of the habitat, the selection of ecological niches, and a difference in the calendar periods of the life cycles, and in different anatomical, physiological, and behavior characteristics, influencing the temperature of the tissues of the organism. During the process of evolution, species divergently arise with fixed different levels of thermal stability of the cells, which very accurately reflect the difference in the mean temperature of the environment. Species differences in the thermal stability of plant and animal cells are detected especially distinctly under the action of strong rapid heating. The theory that the death of cells during intense heating is caused by thermal denaturing of the protoplasmic proteins is discussed. The authors believe that the thermal stability of proteins is correlated with a definite level of flexibility of the protein molecules, upon which the possibility of accomplishing conformational rearrangements, accompanying their biochemical activity, depends. It is hypothesized that in

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ACC NR: AP6034077

the development of a new species adapted to different temperature conditions of existence, genetically determined changes in the primary structure of the proteins result in a restoration of the disturbed relationship between flexibility and rigidity of the macromolecules. This change can be diagnosed according to the change in the stability of the proteins to thermal denaturing. To the extent that the sensitivity of the protoplasmic proteins determines the primary stability of the cells to heating, the change in the flexibility of the protein molecules is reflected in the corresponding change in the stability of the cells to intense heating. The thermal stability of cells and proteins may vary regularly, despite the absence of a corresponding change in the temperature in the environment. High sensitivity to temperature influence is found to be correlated with intensive metabolism. In discussing Ushakov's theories concerning the correlation of the thermal stability of cells and of the organism as a whole, the author concludes that the observed facts are explained in the light of the theory of correspondence of the flexibility of protein molecules to the temperature of existence. Any functioning protein, independent of the level of its thermal stability, should possess a degree of flexibility of the macromolecules correlated with the mean temperature conditions of life, only if its function involves conformational changes. The differences in the stability of analogous proteins of close species to thermal denaturing reflect the differences in the ease of their conformational transformations. Orig. art. has: 1 figure and 2 tables. [JPRS: 34,186]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 029 / OTH REF: 034

Card 2/2

SOLOV'YEVA, Z.M.; ALEKSANDROV, V.V.

Technological process of the manufacture of diaphragms for shaper-vulcanizers used by the Dnepropetrovsk Tire Plant. Kauch. i rez. 24 no.8:35-41 '65. (MIRA 18:10)

1. Dnepropetrovskiy shinnyy zavod.

ALEKSANDROV, V.Ya.

Problem of autoregulation in cytology. Report No.3. Reactive increase in cell resistance to the action of injurious agents (adaptation). Tsitologiia 7 no.4:447-466 Jl-Ag '65.
(MIRA 18:9)

1. Laboratoriya tsitofiziologii i tsitoekologii Botanicheskogo instituta AN SSSR, Leningrad.

ALEKSANDROV, Viktor Yevgen'yevich, podpolkovnik; SVIRIDOCHKIN, I.I., podpolkovnik, red.; SLEPTSOVA, Ye.N., tekhn. red.

[Incident in the air] Sluchai v vozdukhe. Moskva, Voen. izd-vo M-va oborony SSSR, 1961. 31 p. (MIRA 15:2)

1. Chlen Soyuza sovetskikh pisateley (for Aleksandrov).
(Parachute troops)

ALEKSANDROV, V.Ye., inzh.; SEVRIKOV, V.V., inzh.

Reasons for the increase in the use of bore bits. Ugol'. Ukr. 7 no.11:25-27 N '63. (MIRA 17:4)

1. Upravleniye po burovzryvnym rabotam Donetskogo soveta narodnogo khozyaystva.

ALEKSANDROV, V.Ye.; ARTSIMOVICH, G.V., kand.tekhn.nauk; GINZBURG, B.I., gornyy inzhener

Complete use of mining bore bits. Ugol' Ukr. 7 no.10:27-28 O '63. (MIRA 17:4)

1. Nachal'nik upravleniya byuro vzaimnykh raschetov Donetskogo soveta narodnogo khozyaystva (for Aleksandrov). 2. Institut sverkhtverdykh materialov Gosplana UkrSSR (for Artsimovich, Ginzburg).

ALEKSANDROV, V.Ye., gornyy inzh.; SEVRIKOV, V.V., gornyy inzh.; PIDGORA, V.V., gornyy inzh.

Using a new type of a borehole charge. Vzryv. delo no.54/11: 367-374 '64. (MIRA 17:9)

1. Luganskoye upravleniye burovzryvnykh rabot.

KOLESNICHENKO, I.T.; BAKHAREVICH, N.S.; ALEKSANDROV, V.Ye.; SEVRIKOV, V.V.

Using the E-6 explosive in Donets Basin mines. Vzryv. delo no.55/12:126-131 '64. (MIRA 17:10)

1. Mezhduvedomstvennaya komissiya po vzryvnomu delu.

MINDELI, E.O., doktor tekhn. nauk; ALEKSANDROV, V.Ye., inzh.; SEVRIKOV, V.V., inzh.

Efficiency of a wedge cut in development faces of coal mines. Vzryv. delo no.55/12:254-266 '64. (MIRA 17:10)

1. Institut gornogo dela im. A.A. Skochinskogo (for Mindeli). 2. Proizvodstvenno-eksperimental'noye upravleniye Donetskogo soveta narodnogo khozyaystva (for Aleksandrov, Sevrikov).

ALEKSANDROV, Ya.A.

SHREYBER, V.P.; ALEKSANDROV, Ya.A.

Some excesses in the construction of power systems in towns.
Prom.energ. 13 no.1:27-29 Ja '58. (MIRA 11:1)
(Electric lines--Poles)
(Electric substations)

ALEKSANDROV, Ya. I., Cand. Chem. Sci. (diss) "Some Regularities of the Process of Anode Oxidation of Aluminum in Carbonate Electrolysis." Kazan', 1961, 12 pp (Kazan' Chem-Eng. Instit. im S. M. Kirov) 150 copies (KL Supp 12-61, 255).

S/153/60/003/006/005/009
B103/B206

AUTHORS: Bogoyavlenskiy, A. F., Aleksandrov, Ya. I.

TITLE: Problem of the ultramicroscopic study of the layer of the electrolyte close to the anode in the electrochemical oxidation of aluminum

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, v. 3, no. 6, 1960, 1062-1066

TEXT: The authors report on the study of the layer of the electrolyte close to the anode by means of ultramicroscope in the electrochemical formation of the protective oxide film on the aluminum anode. Such studies are complicated by the abundant gas separation at the anode. For this reason the authors elaborated the carbonate method of the anodic passivation of aluminum (elaborated by A. F. Bogoyavlenskiy, Ref. 17) and used pyrogallol as oxygen absorbent. The working solutions were prepared from reagents of the "Goslaborsnabzheniye" (Gosudarstvennyy trest po proizvodstvu i sbytu laboratornogo snabzheniya, State Trust for the Manufacture and Marketing

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of Laboratory Equipment). Clean aluminum sheets of the type АД1М(AD1M) were oxidized in a 5% Na_2CO_3 solution according to the methods described (Ref. 17). The composition of the gas separated at the anode was determined by means of the instrument by R. K. Gol'ts (Ref. 18) and amounted to 96.5% O_2 as well as 3.5% H_2. 1% pyrogallol concentration stopped the gas separation entirely. The formation of the oxide film was not impaired thereby in any way. The amount of separated gas was determined as being 6.88 ml per 1 dm^2 anode surface. For ultramicroscopic studies the authors used an electrolyzer with a capacity of 7 ml made from plexiglass with a glass wall. Iron served as the cathode. The authors established in the currentless state a layer of ultramicrons with clear contours uniformly distributed on both sides of the electrodes. The colloidal micelles of the lead hydroxide are in a state of energetic Brownian motion. When current is applied, the ultramicron layer is enriched through colloidal micelles, torn, and forms a peculiar torch, which is directed with its point towards the cathode (G. S. Vozdvizhenskiy, Ref. 14). No colloidal particles could be seen in the vicinity of the anode at a 1% pyrogallol

content in the electrolyte. The authors explain the presence of the hydrogen in the anode gas by the process: $2Al + 2OH^- + 2H_2O \rightarrow 2AlO_2^- + 3H_2\uparrow$, this process playing a very modest role in the total mechanism of anodic oxidation of the aluminum. The oxygen separation (96 to 97%) is explained on the basis of the scheme by A. I. Krasil'shchikov (Ref. 19): $OH^- - e \rightarrow OH$, $OH + OH^- \rightarrow H_2O + O^-$, $O^- - e \rightarrow O$, $O + O \rightarrow O_2$. On the basis of this scheme the authors assume that the O^- ions penetrate the anode film at the same places where it originates and there cause its further formation (in agreement with Ref. 6). The excess O^- ions are discharged at the anode and escape. The pores in the film are apparently formed according to the mechanism of the actual dissolution of the film substance in the electrolyte due to chemical interaction. There are 4 figures and 19 references: 16 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATON: Kazanskiy aviatsionnyy institut; Kafedra obshchey khimii (Kazan' Aviation Institute; Department of General Chemistry)

SUBMITTED: January 5, 1959

ACCESSION NR: AT4043069 S/0000/64/000/000/0089/0097

AUTHOR: Aleksandrov, Ya. I. (Doctor of chemical sciences, Professor); Bogoyavlenskiy, A. F.

TITLE: Some theoretical bases for the anodic oxidation of aluminum and ultramicroscopy of the circumanodic space

SOURCE: Mezhvuzovskaya konferentsiya po anodnoy zashchite metallov ot korrozii. 1st, Kazan, 1961. Anodnaya zashchita metallov (Anodic protection of metals); doklady* konferentsii. Moscow, Izd-vo Mashinostroyeniye, 1964, 89-97

TOPIC TAGS: aluminum, anodized aluminum, organic anodization additive, pyrogallol, hydroquinone, anodic gas evolution, sodium carbonate electrolyte, barrier layer formation, circumanodic space analysis, ultramicroscopy

ABSTRACT: The composition of the gas liberated on a carbonate oxidized Al anode (5% Na_2CO_3, 30C, 30 min.) was found to be 96.5% oxygen and 3.5% hydrogen by volume. Addition of 0.1% hydroquinone or 0.6% pyrogallol to the bath terminated evolution of gas on the anode, but the forming oxide film retained the characteristics normal for a pure sodium carbonate electrolyte (weight 50.5 and 58.0 mg/dm^2, respectively, VIAM corrosion test 18-20 min. at 18-21C, thickness and porosity normal). The authors therefore suggest

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ACCESSION NR: AT4043069

some hypotheses on oxygen evolution during anodization of Al and on the adsorption of evolving hydrogen in the presence of pyrogallol or hydroquinone in the bath. A series of oscillographic charge curves was obtained for sheet aluminum electrodes (working surface 1cm^2) anodized at 18-20C in 2, 5 or 7% Na_2CO_3, at current densities of 0.05-0.18 a/dm^2, without or with addition of up to 0.2% pyrogallol. The results indicate that the barrier layer forms in the first 6 or 7 seconds of oxidation. The overall process of anodization is not affected by the presence of an organic additive. Ultramicroscopy of the circumanodic space during anodization (procedure described) in a bath containing pyrogallol established the absence of colloidal particles. Orig. art. has: 2 tables, 6 figures and 2 equations.

ASSOCIATION: None

SUBMITTED: 13Mar64

ENCL:00

SUB CODE: MM

NO REF SOV: 016

OTHER: 006

2/2

Card

ALEKSANDROV, Ye. I., NOVAKHOVSKAYA, D.

Retarder for gypsum hardening based on casein. Stroitel' 2 no.8:21 Ag '56. (MLRA 9:12)

(Gypsum) (Casein)

ALEKSANDROV, Ye., inzh.-podpolkovnik.

The GAZ-51 electric equipment. Za rul. 17 no.2:16-16a F '59.
(Automobiles--Electric equipment) (MIRA 12:3)

ALEKSANDROV, Ye., inzh.-podpolkovnik

In the insert. Za rul. 17 no.3:16-16a Mr '59.

(Automobiles--Batteries) (MIRA 12:5)

ALEKSANDROV, Ye., arkhitektor; CHUTRO, A., inzh.; SOLOV'YEV, F., inzh.

Building an apartment house of vibrated brick panels on settling soil. Zhil. stroi. no. 4:27-29 Ap '61. (MIRA 14:5)
(Kherson—Brick houses) (Foundations)

ALEKSANDROV, Ye., kand. tekhn. nauk

Contrary to the textbooks. Tekh. mol. 31 no.8:16-18 '63.
(MIRA 16:11)

1. Zaveduyushchiy laboratoriyey udara i vibratsii Instituta gornogo dela imeni A. Skochinskogo.

1. ALEKSANDROV, Ye. A.

2. USSR (600)

4. Castor Oil

7. Introducing new technology for deriving high-quality drying oil from castor oil, Masl. zhir. prom., 17, No. 9, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

ALEKSANDROV, Ye.A.; GOLUB, I.V.; KULIKOV, L.Ya.

Processing the hydration precipitate in preliminary settling tanks. Masl.-zhir.prom. 18 no.5:24-25 My '53. (MLRA 6:5)

1. Saratovskiy maslozavod No.1. (Oils and fats)

ALEKSANDROV, Ye.A.

Computers and accounting machines made in Czechoslovakia. Priborostroenie no.1:28-30 Ja '56. (MLRA 9:8)
(Czechoslovakia--Calculating machines)
(Punch card systems)

ALEKSANDROV, Ye.A.; SHTEYNBERG, Ya.I.

Gauges used for checking the shape and location of complex cross-section contours. Stan.i instr. 28 no.4:21 Ap '57. (MLRA 10:5)

(Gauges)

ALEKSANDROV, Ye.A., inzhener; YAKOVLEV, Yu.M., inzhener.

Conveyer system in finishing operations. Der.prom. 6 no.6:18-19 Je '57. (MLRA 10:8)

1.Novgorodskaya mebel'naya fabrika.
(Conveying machinery)
(Wood finishing)

ALEKSANDROV, Ye.A., inzh.

Effect of surface smoothness of plates made of wooddust on their veneering quality. Der.prom. 7 no.9:7-9 S '58. (MIRA 11:11)

1. TSentral'nyy nauchno-issledovatel'skiy institut mekhanicheskoy obrabotki drevesiny.
(Veneers and veneering) (Hardboard)

ALEKSANDROV, Ye.A.

Technological conditions for coating boards made of compressed wood. Der.prom. 8 no.3:6-7 Mr '59. (MIRA 12:4)
(Hardboard)

ALEKSANDROV, Ye.A.; ATABEKOV, G.I.; YABLOKOV, V.D.; OBRAZTSOV, V.A.; KAZAKOVA, V.A.; GAGORINA, N.P.; SUKHOVENKHOV, V.F.

Inventions. Energ. i elektrotekh. prom. no.2:45 Ap-Je '65.
(MIRA 18:8)

ALEKSANDROV, Ye.B.; OKSMAN, Ya.A.

Investigating the photodielectric effect at high frequencies.
Prib. i tekh. eksp. 6 no.2:152-157 Mr-Ap '61. (MIRA 14:9)

1. Gosudarstvennyy opticheskiy institut.
(Dielectrics) (Photoelectricity)

20782

9.4300 (1145, 1147, 1155)
26.2421

S/181/61/003/003/007/030
B102/B214

AUTHORS: Oksman, Ya. A., Burlakov, A. V., and Aleksandrov, Ye. B.

TITLE: Photodielectric properties of polycrystalline CdSe at low temperatures

PERIODICAL: Fizika tverdogo tela, v. 3, no. 3, 1961, 729-735

TEXT: The present paper is the continuation of two previous papers (Oksman, Burlakov, FTT, II, 1960, p. 1818 and p. 1884) in which methods have been discussed for the separation of the photoconductivity from the complex of phenomena causing a photodielectric effect, and where it has been shown that above room temperature and at frequencies $\leq$200 kc/sec, the photoconductivity is responsible for the photodielectric effect (ph. d. e.) in CdSe. The relaxation time which determines the frequency dependence of the Debye dispersion of the complex dielectric constant was determined to be $\theta = Ae^{U/kT}$, where A is a constant and U the height of the barriers separating the equilibrium states of the localized carriers. A study has now been made of the steady and transient frequency dependences of ph. d. e. at the temperature

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S/181/61/003/003/007/030
B102/B214

of liquid nitrogen and for a large range of frequencies, using the results obtained in the two papers mentioned above. First of all, the dependence of the conduction components of a photodielectric capacitor on the wavelength of the exciting light and the excitations intensity was determined. The samples and the apparatus were described in the previous papers. Fig. 1 shows the frequency dependence of the increment of the active conductivity of a photodielectric capacitor filled with a mixture of CdSe powder and polyester resin ПН-1 (PN-1) in the weight ratio 1:5. The figures beside the curves give the excitation intensity in % (100% = 5000 lux). The frequency is that of the applied potential. The curves were taken at room temperature. Fig. 2 shows the dependence of the increment of the active conductivity of the photodielectric capacitor on the wavelength of the exciting light at the temperature of liquid nitrogen; Fig. 3 shows the same dependence for the capacitive conductivity. Fig. 4 compares the dependences of the active and reactive components of the photodielectric capacitor on the excitation intensity at nitrogen temperature. At this temperature and at high frequencies, the ph. d. e. shows the following characteristics: 1) an increase of the excitation intensity at constant frequency lifts the stationary level of

the capacitive component of conductivity (ωC_p) and lowers that of the active component G_p. 2) With increasing frequency the steady increment G_p tends from a negative to a positive value. 3) The rate of growth of ΔG_p and of the decrease of ΔC_p with increasing frequency increases in the first stage of relaxation. 4) At high frequency and low excitation, the oscillogram $\Delta G_p(t)$ shows a smooth increase of the active component up to the steady-state value. The active component of conductivity is given by $G_p = \frac{C_o^2}{(C+C_o)^2}\Sigma$ and the reactive one by $\omega C_p = \omega\frac{CC_o}{C+C_o} + \frac{C_o^2}{(C+C_o)^3}\frac{\Sigma^2}{\omega}$, where C is the capacitance of the semiconductor, C_o the capacitance of the passive dielectric, Σ the electrical conductivity of the semiconductor, and ω the angular frequency. The results of the investigation may be summarized as follows: 1) The ph. d. e. in polycrystalline CdSe at nitrogen temperature is caused by localized carriers. 2) Optical excitation in the region of maximum photoconductivity leads to consecutive filling of the local centers beginning with the lowest. Long or short wave radiation changes the concentration of the low-level carriers. 3) In the course of relaxation (after switching off the excitation),

Photodielectric ...

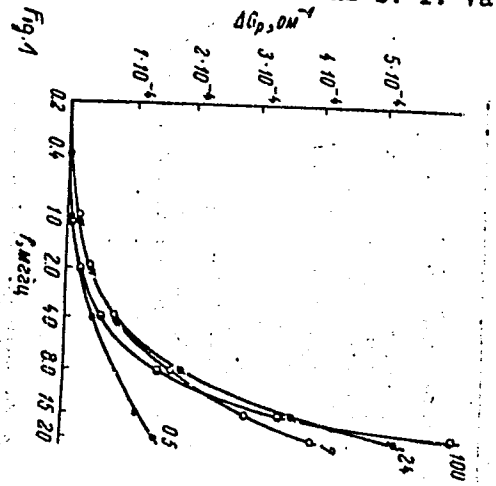
S/181/61/003/003/007/030
B102/B214

the nonequilibrium carriers fill the low-lying recombination centers. There are 6 figures and 6 references: 4 Soviet-bloc and 2 non-Soviet-bloc.

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

SUBMITTED: May 14, 1960

Fig. 1



Card 4/6

Photodielectric ...

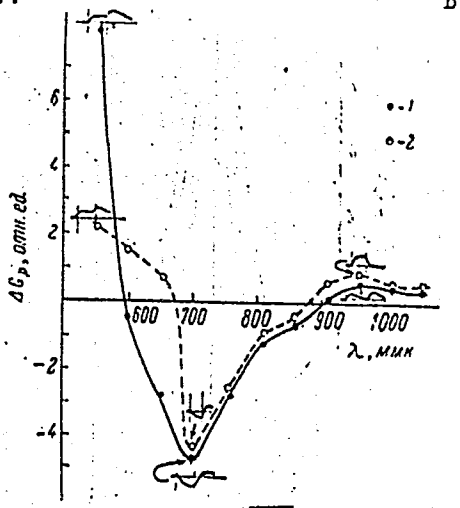


Fig. 2

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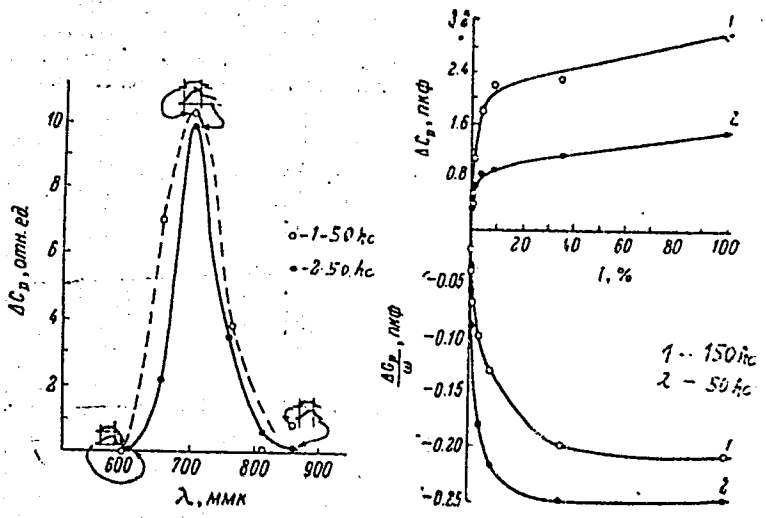
Photodielectric ...

Figs. 3 and 4



Card 6/6

ALEKSANDROV, Ye.B.

Optical orientation of rubidium isotopes. Opt. i spektr. 13 no.3:453-454 S '62. (MIRA 15:9)
(Rubidium--Optical properties)
(Radioisotopes)

43409

S/051/62/013/005/015/017
E039/E420

AUTHORS: Aleksandrov, Ye.B., Khodovoy, V.A.

TITLE: The detection of the K^{40} isotope by means of the optical orientation of atoms

PERIODICAL: Optika i spektroskopiya, v.13, no.5, 1962, 751-752

TEXT: In this method the paramagnetic resonance is detected by a change in optical absorption in the medium. It has been used previously in the case of alkali metals at vapour pressures of $\sim 10^{-6}$ mm Hg and less. The detection of K^{40} in the natural isotopic mixture of potassium by means of paramagnetic resonance between Zeeman components of the hyperfine structure of the basic state in the Earth's field was shown to be impossible. This was because of the signal to noise ratio and the fact that the K^{40} is orientated only by collision with atoms of K^{41} and K^{39}. An increase in the K^{40} content by raising the temperature of the resonance vessel is precluded as the vapour then becomes opaque to resonance radiation. This difficulty is overcome by allowing the K^{40} atoms to make collisions with optically orientated atoms of sodium vapour. In this case the resonance

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vessel contains potassium with a Na admixture and argon as a buffer gas. In order to increase the relaxation time the walls of the resonance vessel are coated with eicosane. At 180°C the optimum pressure of Na vapour is attained ($\sim 10^{-5}$ mm Hg). The potassium vapour pressure is then $\sim 10^{-2}$ mm Hg and hence the K^{40} vapour pressure is $\sim 10^{-6}$ mm Hg. As a result of collisions with the Na atoms the K atoms acquire some orientation and as the number of Na atoms transmitting their orientation to K atoms increases the transmission of the vapour with respect to sodium light decreases. The arrangement of the apparatus is similar to that of H. G. Dehmelt (J. Phys. rad., 19, 1958, 866). In a magnetic field of 0.34 gauss, three resonance signals were observed: the first at 238 Kc/s corresponds to the resonance for Na, K^{41}, K^{39} and probably Rb^{87} with a signal to noise ratio $S = 4 \times 10^3$; the second at 158 Kc/s corresponds to Rb^{85} present as an impurity and the third at 107 Kc/s is the K^{40} resonance with $S \sim 5$. The possibilities of this method for the detection and determination of small concentrations of one alkali metal or an isotope in another are not exhausted.

[Abstractor's note: Abridged translation.]

SUBMITTED: May 14, 1962

ALEKSANDROV, Ye.K., prof.; BRYANTSEV, D. Yu.

Potentiated peridural trimecaine-dicaine anesthesia in gynecology. Sbor. nauch. trud. Ivan. gos. med. inst. no. 28:365-370 '63. (MIRA 19:1)

1. Iz kafedry akusherstva i ginekologii (zav. - prof. Ye.K. Aleksandrov) Yaroslavskogo meditsinskogo instituta (rektor - prof. N. Ye. Yaryzin).

ALEKSANDROV, Ye.B.

Quantum beats of resonance luminescence following excitation by modulated light. . . Opt. i spektr. 14 no.3:436-438 Mr '63. (MIRA 16:4)
(Quantum electrodynamics)

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ACCESSION NR: AP3002794 S/0051/63/014/006/0823/0823

AUTHOR: Aleksandrov, Ye. B.; Khodovoy, V. A.

TITLE: Regarding the Dehmelt experiment 21

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SOURCE: Optika i spektroskopiya, v. 14, no. 6, 1963, 823

TOPIC TAGS: paramagnetic resonance, optical orientation, spin relaxation, optical pumping

ABSTRACT: H. G. Dehmelt (Phys. Rev., 105, 1487, 1957) carried out an experiment on determining the relaxation time of sodium atoms in the process of optical orientation. The present authors question Dehmelt's interpretation and analysis of his experimental results. Dehmelt attributed the appearance of the absorption signal to inversion of the magnetic field; the authors assert that the absorption is determined by the probabilities for optical transitions that do not depend on the energy of the atom in a weak magnetic field. Accordingly, the absorption should not change with field inversion. The authors repeated the Dehmelt experiment with particular attention to the relation between the residual field and the rate of reversal of the main field. Stray fields were thoroughly compensated. The orientation was realized in rubidium vapor. No change in transparency of the

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cell was observed with a pulse rise time of about 10 sup -6 sec which confirms the authors' views and disproves Dehmelt's. "We take this opportunity tc express our gratitude to A. M. Bonch-Bruyevich for discussion of the results and interest in the work."

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ACCESSION NR: AP3007069 S/0056/63/045/003/0503/0510

AUTHOR: Aleksandrov, Ye. B.; Konstantinov, O. V.; Perel', V. I.; Khodovoy, V. A.

TITLE: Modulation of scattered light with the aid of parametric resonance

SOURCE: Zh. eksper. i teoret. fiziki, v. 45, no. 3, 1963, 503-510

TOPIC TAGS: parametric resonance, scattered light modulation, cadmium vapor, cadmium excited state, scattered light intensity modulation, rf cadmium lamp, cadmium luminescence, interference between excited states

ABSTRACT: A theoretical and experimental study of the resonance scattering of light by cadmium vapor in a weak magnetic field has been carried out. The effect examined is caused by the interference of two excited states, occurring during modulation of the energy interval between them. Linearly polarized light from an rf cadmium lamp excited the resonance luminescence of Cd vapor at 200C in a Wood-type horn-shaped vessel. Luminescence with a wavelength of

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3261Å was detected by a photomultiplier. The rf magnetic field (1030 kc) was established by a solenoid surrounding the vessel, with additional modulation produced by a 30-cps high-voltage signal which was used as the base voltage for the synchronous detector. The constant magnetic field was imposed by a system of Helmholtz rings. This field was slowly varied to obtain the resonance curve. The excited state of the Cd vapor was split into a Zeeman triplet, and the intensity of scattered light was modulated by the frequency of the rf field and integral multiples of that frequency. The extent of modulation and the mean intensity of luminescence showed resonant maxima when the difference of the frequencies of σ-components was an integral multiple of the rf modulation frequency. A possible combination of the effects of resonance scattering of modulated light and parametric resonance was indicated. When the modulation frequencies of the field and the light do not coincide, the intensity of scattered light will contain combination harmonics. Orig. art. has: 5 figures and 22 formulas.

ASSOCIATION: Opticheskiy institut im. S. I. Vavilova (Institute of Optics)

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