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AA0046443

On the lifting of hook 7, cables 2 and 4 are pulled taut and act on arms 5 the tetrapod has been put in place; hook 7 is lowered, cables 2 and 4 are slackened, and on raising the grip by hook 14, cables 11 are made taut, and acting on arms 5, open them. The grip is then removed from the tetrapod.

18.4.67. as 1149967/27-11, KRASOV, N.V. (24.6.69) Bul. 8/12.2.69. Class 35b, Int. Cl. B 66c.

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19781673

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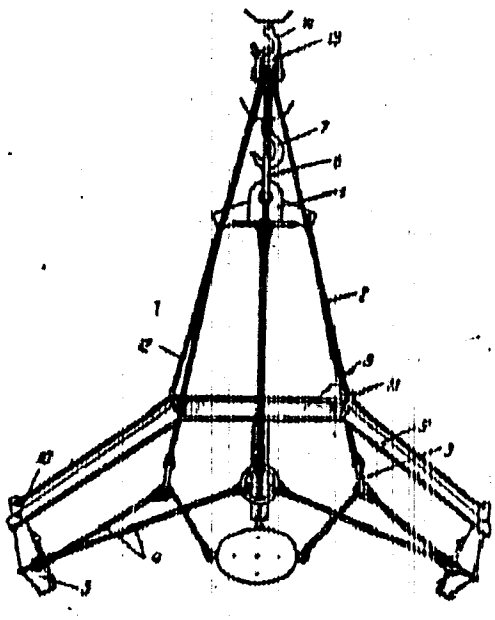
AA0046443



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USSR UDC 632.95

KRASOV, V. M., and VOROZHISHCHEVA, L. M.

"The Determination of Residues of Organochlorine Pesticides in Balanced Fodders"

Tr. 2-go Vses. Soveshch. po issled. ostatkov pestitsidov i profilakt. zagryazneniya imi produktov pitaniya, kormov i vnesh. sredy (Work of the Second All-Union Conference on the Study of Pesticide Residues and the Prevention of the Contamination by them of Food Products, Fodders, and the Environment), Tallinn, 1971, pp 167-168 (from Referativnyy Zhurnal -- Khimiya, No 10 (II), 1972, Abstract No 10N467 by T. A. Belyayeva)

Translation: For determining residues of organo-chlorine pesticides in balanced fodders and other products containing a large quantity of coextractive substances thin-layer chromatography on Al_2O_3 with gypsum is used. The chromatogramis developed with a 2% solution of diphenylamine in acetone, and kept for 15-20 minutes under ultraviolet light. n-Hexane is used to extract the pesticides from the samples.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

Luminescence

USSR UDC 661.143.(088.8)

MALKES, L. YA., KUZ'MINA, N. V., KRASOVITSKIY, B. M., et al.

"Luminescent Liquid for Defectoscopy"

USSR Author's Certificate No 362860, filed 15 Mar 71, published 1 Feb 73 (from RZh-Khimiya, No 21, Nov 73, Abstract No 21 L 162 P)

Translation: In order to lower the toxicity and fire hazard, the luminescent liquid used in luminescent defectoscopy in aviation, in automobile and shipbuilding industries contains an organic solvent consisting of 95-99% of dicumylmethane and 1-5% of dimethylformamide (their ratio 40:1). The organic luminescent component of this mixture is 1,8-naphtoylene-1',2'-benzimidazole. The wetting agent OP-7 is added to impart wetting property. The components are mixed at 85-90° and a yellowish-green transparent liquid is obtained with intensive luminescence under UV light. Example. Luminescent liquid composition (in g): dicumylmethane 970, dimethylformamide 24, wetting agent OP-7 1, 1,8-naphtoylene-1',2'-benzimidazole 5. The wetting agent and the organic luminescent component may be replaced by other reagents with similar properties.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

Luminescence

USSR UDC 661.143:620.179.05(088.8)

MALKES, L. YA., OL'GINSKIY, A. G., KRASOVITSKIY, B. M., MCHEDLOV-PETROSYAN, O. P., STAROSEL'SKIY, A. A., and MEL'NICHENKO, P. A.

" A Luminescent Paste for Flaw Detection on Porous Materials"

USSR Author's Certificate No 329191, filed 24 Jul 70, published 20 Mar 72 (from RZh-Khimiya, No 22, Nov 72, Abstract No 22L152P)

Translation: A luminescent paste for flaw detection on porous materials has been developed which reveals flaws over a wide range of dimensions. Example. Preparation of the luminescent past, and technique for using it: 0.075 g 1,8-napthoylene-1',2'-benzimidazole is dissolved with heating to 80°C in 100 g of mineral oil, the solution is cooled and thoroughly mixed in a mortar with 100 g of MgO. The resultant paste is applied to the surface of the material (refractories, porous glass, artificial stone) and thoroughly rubbed in. The excess is removed and the material is observed in ultraviolet light; glowing defects are clearly visible on the surface. When detecting flaws in concrete and ceramics, the materials to be tested are soaked in water before application of the paste; this prevents penetration of the luminescent paste into the fine pores (less than one micron) inherent in the nature of the material, and as a consequence prevents fluorescence of the

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USSR

MALKES, L. YA., et al., USSR Author's Certificate No 329191, filed 24 Jul 70, published 20 Mar 72

entire surface under ultraviolet light which would make it impossible to pick out the flaws against the overall glow of the background. MgO adsorbs the luminescent oil, which then gradually flows into the defects, enables thorough washing of the luminescent paste from the surface of large defects (bigger than 1000 microns). The proposed paste can be used for quality control of raw material and finished goods on various stages of the technological process and in use, and does not require complicated special equipment. The composition of the proposed paste (in wt.%): 1,8-naphthoylene-1',2'-benzimidazole 0.04, mineral oil 49.98, mercuric oxide 49.98. N. Sh.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

Luminescence

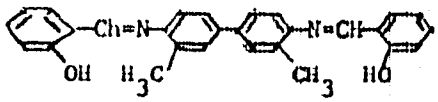
USSR, UDC 535.37+541.14

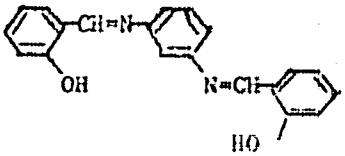
KIYAZHANSKIY, M. I., ASMAYEV, O. T., OSIPOV, O. A., KRASOVITSKIY, B. M.

"Luminescence and Photochemistry of Azomethyne Compounds. VII. Multinuclear Mono and Bis-azomethynes in the Crystal State"

Moscow, Zhurnal Fizicheskoy Khimii, Vol XLVI, No 1, 1972, pp 178-180

Abstract: In order to discover the effect of the length of the chain of conjugate bonds on the thermophotochromy of azomethynes, a study was made of some multinuclear mono and bis-azomethynes in the crystal state studied in detail in solutions previously [B. M. Krasovitskiy, et al., Zh. fiz. khimii, 45, 1467, 1971; O. T. Asmayev, et al., Zh. fiz. khimii, in printing]. The following compounds were selected for more detailed study:

I. 

II. 

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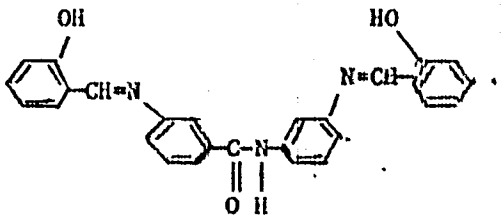
"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

KIYAZHANSKIY, M. I., et al., Zhurnal Fizicheskoy Khimii, Vol XLVI, No 1, 1972, pp 178-180

III. 

The investigated multinuclear mono and bis-azomethynes in the crystal state reveal both photochromy and thermochromy. In contrast to the derivatives of salicylalaniline, the indicated compounds are luminescent, and the thermochromy and photochromy do not mutually exclude each other. Absorption spectra are presented. An explanation for the experimental data is offered by which on excitation in the benzoid form, phototransfer of a proton takes place with the formation of the quinoid form and subsequent emission either in the trans and cis-quinoid or only in the cis-quinoid. The latter is a specific characteristic of the crystalline state.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--USE OF POLAROGRAPHY FOR CONTROLLING THE PRODUCTION OF 4,ACETYLNAPHTHALIC ANHYDRIDE -U-

AUTHOR-(05)-KOTOK, L.A., SHEVCHENKO, E.A., BEZUGLYY, V.D., KRASOVITSKIY, B.M., SLEZKO, G.F.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. UKR. 1970, (1), 46-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--REACTION KINETICS, NAPHTHENE, OXIDATION, POLAROGRAPHIC ANALYSIS, ANPHTHALENE, CARBOXYLIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0739 STEP NO--UR/0436/70/000/001/0046/0048

CIRC ACCESSION NO--AP0119646

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

2/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119646

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF 4,ACETYLACENAPHTHENE (I) FORMATION AND OF ITS OXIDN. WITH NA SUB2 CR SUB2 OR SUB7 WERE STUDIED. I WAS DETD. IN THE SYNTHESIS PROCESS BY POLAROGRAPHIC ANAL. OF A SAMPLE IN A SUPPORTING ELECTROLYTE OF 0.02 N ET SUB4 NI SOLN. IN 92PERCENT MEOH. THE YIELD OF I DURING ACETYLATION OF ACENAPHTHENE IN THE PRESENCE OF SNCL SUB2 AT 100 AND 120DEGREES IS GIVEN AS A FUNCTION OF TIME. TO ANALYZE THE MIST. OF 4,ACETYLNAPHTHALIC AND 1,4,5,NAPHTHALENETRICARBOXYLIC ACIDS RESULTING FROM OXIDN. OF I, THE H SUB2 O LAYER CONTG. THEIR NA SALTS WAS ACIDIFIED WITH HCL AND EXTD. WITH C SUB6 H SUB6 AND ANALYZED POLAROGRAPHICALLY IN A SUPPORTING ELECTROLYTE OF 0.1 N CACL SUB2-ALC. SOLN. CONTG. 0.01 N LIOH. FACILITY: RUBEZHAN. KHIM. KOMB., RUBEZHNOE, USSR.

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USSR

UDC 547.558.1

SHUBINA, L. V., and KRASOVSKAYA, L. I., Belorussian State University imeni V. I. Lenin

"Stereospecificity of the Reaction of 1,3-Xylylene-Bis-Phosphonium Ylid With Benzaldehyde"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 5, May 72, pp 969-971

Abstract: The present article is a continuation of earlier studies by the same authors in which they showed that the reaction of 1,4-xylylene-bis-triphenylphosphoran with benzaldehyde, depending on the experimental conditions, led to the formation of a mixture of geometric isomers of 1,4-distyrylbenzene in various ratios.

This is a further study of stereospecificity of the reaction of bis-phosphonium ylids with aromatic aldehydes. The authors showed that the reaction of 1,3-xylylene-bis-phosphonium ylid with benzaldehyde in aprotic and nonpolar solvents is a stereospecific process leading to trans-trans-1,3-distyrylbenzene. Geometrical isomers of 1,3-distyrylbenzene were synthesized and characterized by infrared spectra.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

1/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--PREPARATION OF FIBERS FROM A MIXTURE OF POLYACRYLONITRILE WITH POLYMETHYL METHACRYLATE -U-

AUTHOR-(03)-KRASOVSKAYA, S.B., ZAZULINE, Z.A., KNOXIN, A.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VOLOKNA 1970, (2), 19-22

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POLYACRYLONITRILE FIBER, POLYMETHYLMETHACRYLATE, WEAR RESISTANCE, TENSILE STRENGTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0045 STEP NO--UR/0183/70/000/002/0019/0022

CIRC ACCESSION NO--AP0132340

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

2/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132340

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYACRYLONITRILE FIBERS WERE MODIFIED WITH POLY(ME METHACRYLATE) OF MOL. WT. 7 TIMES 10 PRIMES (IN 90:10 RATIO) TO GIVE FIBER BLENDS HAVING SUPERIOR WEAR RESISTANCE AND FLEXURAL STRENGTH, GOOD TENSILE STRENGTH, AND SLIGHTLY LOWER LIGHTFASTNESS. FACILITY: MTI, MOSCOW, USSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR UDC 546.791.4-386

ELLERT, G. V., BOLOTOVA, G. T., and KRASOVSKAYA, T. I., Institute of General and Inorganic Chemistry imeni N. S. Kurnakov, Academy of Sciences USSR

"Formation of Uranium (IV) Sulphate Complexes With Tributylphosphine Oxide"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 16, No 3, Mar 71, pp 789-792

Abstract: Employing the extraction method it was determined that neutral and acid complexes of uranium (IV) are extracted from sulphate media into benzene solution of tributylphosphine oxide (TBPO) with following TBPO:U ratios: 3:1 in case of neutral complexes, and 2:1 and 1:1 in acid complexes. When complexing with uranium sulphate, TBPO may bind directly to uranium -- in neutral complexes --, or through the protons -- in acid complexes. The U-TBPO bond is comparable strengthwise with the U-SO_4 and TBPO-H bonds. It may be assumed that even in acid complexes the TBPO molecules are located close to the uranium atoms, since on standing they convert easily to the insoluble neutral complex $U(SO_4)_2 \cdot TBPO$, in which the TBPO molecules are bound directly to uranium.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

1/2 017 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--CLINICO CYTOLOGIC DIAGNOSIS OF SOFT TISSUE SARCOMAS IN CHILDREN -U-

AUTHOR--KRASOVSKAYA, V.P.

K

COUNTRY OF INFO--USSR

SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 4, PP 113-118

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PEDIATRICS, SARCOMA, BIOPSY, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0046 STEP NO--UR/0589/70/104/004/0113/0118

CIRC ACCESSION NO--AP0105145

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

2/2 017 UNCLASSIFIED PROCESSING DATE--16DC170

CIRC ACCESSION NO--AP0105145

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR HAS OBSERVED 140 CHILDREN WITH TUMOR LIKE NEOPLASMS OF SOFT TISSUES IN WHOM MALIGNANCY WAS SUSPECTED. THE ANALYSIS OF THE OBTAINED MATERIAL HAS EVIDENCED CONSIDERABLE DIFFICULTIES IN THE FIRST STAGES OF DIAGNOSIS. SARCOMAS ARE ERRONEOUSLY DIAGNOSED AS INFLAMMATORY PROCESSES AND TREATED CONSERVATIVELY, AND THEY ARE EVEN INCISED SOMETIMES. TO THE END OF IMPROVING THE DIAGNOSIS IN 119 CHILDREN CYTOLOGIC STUDIES OF NEEDLE BIOPSY SPECIMENTS, OBTAINED IN PUNCTURING WITH A FINE NEEDLE, WERE MADE. THE ANALYSIS OF THE GIVEN MATERIAL HAS DEMONSTRATED THAT CYTOLOGIC INVESTIGATION IS A VALUABLE ADJUNCT PERMITTING TO ESTABLISH PROPER DIAGNOSIS OF SARCOMA OR INFLAMMATORY PROCESS IN 93 PER CENT OF CASES.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

Automatic Control: Systems

USSR

KRASOVSKIY, A. A., (Moscow)

"Maximum Accuracy of Microcontrol"

Avtomatika i Telemekhanika; Dec 73, pp 27-39

Abstract: The maximum possible accuracy of control of processes in which thermal noise is the dominating influence is studied. These are primarily processes of microscopic dimensions. It is shown that with classical interaction of a process with a monitoring system the maximum errors in the evaluation and control can not be much below the level of natural thermal fluctuations of the process if the noise temperature of the amplifiers is greater than or equal to the temperature of the process. For the case of monitoring the coordinates of the process by means of quantum radiation it is shown to be possible to assure that the errors in monitoring and control will be substantially below the level of thermal fluctuations.

The article includes 62 equations and two figures. There are ten references.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR UDC 62-50 : 519.25

KRASOVSKIY, A. A., Corresponding Member of the Academy of Sciences USSR

"Solution of Fokker-Planck-Kolmogorov Equation by the Series Method"

Moscow, Doklady Akademii Nauk SSSR, Vol 205, No 3, 1972, pp 550-552

Abstract: The article considers a dynamic system described by the equations

$$\dot{x}_i + f_i(x_1, \ldots, x_n, t) = \xi_i, \quad i = 1, 2, \ldots, n,$$

where $\xi_i = \xi_i(t)$ are white noise with the spectral density matrix $S = \| S_{ij} \|$. The functions f_i are considered analytic:

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

KRASOVSKIY, A. A., Doklady Akademii Nauk SSSR, Vol 205, No 3, 1972, pp 550-552

$$f_i = \sum_{k=1}^{n} a_{ik} x_k + \sum_{k,l=1}^{n} a_{ikl} x_k x_l + \sum_{k,l,m=1}^{n} a_{iklm} x_k x_l x_m + \ldots$$

The initial values of the phase coordinates $x_1, \ldots, x_n$ are random, their density function $p(x_1, \ldots, x_n, 0) = p^0(x_1, \ldots, x_n)$ and its logarithms are expressed by the analytic functions:

$$\ln p^0(x_1, \ldots, x_n) = -A_0^0 + \sum_{i=1}^{n} A_i^0 x_i + \frac{1}{2} \sum_{i,k=1}^{n} A_{ik}^0 x_i x_k + \frac{1}{3} \sum_{i,k,l=1}^{n} A_{ikl}^0 x_i x_k x_l + \ldots,$$

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

KRASOVSKIY, A. A., Doklady Akademii Nauk SSSR, Vol 205, No 3, 1972, pp 550-552

where A_0^0, A_i^0, A_{ik}^0, A_{ikl}^0 are given quantities.

The current probability density $p(x_1, \ldots, x_n, t)$ in the phase space of system (1) is subject to the Fokker-Planck-Kolmogorov equation

$$\frac{\partial p}{\partial t} - \sum_{i=1}^{n} \frac{\partial}{\partial x_i}(pf_i) - \frac{1}{2} \sum_{i,k=1}^{n} S_{ik} \frac{\partial^2 p}{\partial x_i \partial x_k} = 0,$$

which in the transition to logarithmic probability density is transformed to

$$\frac{\partial \ln p}{\partial t} - \sum_{i=1}^{n} f_i \frac{\partial \ln p}{\partial x_i} - \frac{1}{2} \sum_{i,k=1}^{n} S_{ik} \left(\frac{\partial^2 \ln p}{\partial x_i \partial x_k} + \frac{\partial \ln p}{\partial x_i} \frac{\partial \ln p}{\partial x_k} \right) = \sum_{i=1}^{n} \frac{\partial f_i}{\partial x_i}.$$

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

KRASOVSKIY, A. A., Doklady Akademii Nauk SSSR, Vol 205, No 3, 1972, pp 550-552

The solution of this equation is sought in the form of the series

$$\ln p = A_0 + \sum_{i=1}^{n} A_i x_i + \frac{1}{2} \sum_{i,k=1}^{n} A_{ik} x_i x_k + \frac{1}{3!} \sum_{i,k,l=1}^{n} A_{ikl} x_i x_k x_l + \ldots,$$

where A_0, A_i, A_{ik}, A_{ikl}, ... are the unknown time functions t. These functions, as well as their given values

$$A_0(0) = A_0^0, \quad A_i(0) = A_i^0, \quad A_{ik}(0) = A_{ik}^0, \ldots,$$

are symmetric in the indexes: i.e., they do not change during permutations of the indexes:

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USSR

KRASOVSKIY, A. A., Doklady Akademii Nauk SSSR, Vol 205, No 3, 1972, pp 550-552

$$A_{ik} = A_{ki}, \quad A_{ikl} = A_{kil} = \dots = A_{lki} \dots$$

The coefficients of series (2) are symmetric in the indexes, beginning with the second: $a_{ikl} = a_{ilk}, \dots$

Substituting expressions (5), (2) into equation (4), and collecting and equating to zero the coefficients, given identical products of the phase coordinates and with allowance for the above-mentioned symmetry, yields the following:

$$A_0 - \frac{1}{2} \sum_{p,q=1}^{n} S_{pq} (A_{pq} + A_p A_q) = \sum_{p=1}^{n} a_{pp},$$

$$A_i - \sum_{p=1}^{n} a_{pi} A_i - \sum_{p,q=1}^{n} S_{pq} (A_{pqi} + A_{pi} A_q) = 2 \sum_{p=1}^{n} a_{ppi}$$

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

KRASOVSKIY, A. A., Doklady Akademii Nauk SSSR, Vol 205, No 3, 1972, pp 550-552

$$\dot{A}_{ik} - \sum_{p=1}^{n} (a_{pi}A_{pk} + a_{pk}A_{pi}) - 2\sum_{p=1}^{n} a_{pik}A_{p} -$$

$$- \sum_{p,q=1}^{n} S_{pq}(3A_{pqik} + 2A_{pik}A_{q} + A_{pi}A_{qk} + A_{pk}A_{qi}) = 5\sum_{p=1}^{n} a_{p,ik}$$

. . . . . .

$$\dot{A}_{\underbrace{ikl\ldots s}_{N}} - \sum_{p=1}^{n} (a_{pi}A_{\underbrace{pkl\ldots s}_{N}} + \ldots + a_{ps}A_{\underbrace{pkl\ldots i}_{N}}) -$$

$$- \frac{2!}{N-1}\sum_{p=1}^{n} (a_{pik}A_{\underbrace{plm\ldots s}_{N-1}} + \ldots + a_{prs}A_{\underbrace{pik\ldots m}_{N-1}}) -$$

$$- \frac{3!}{(N-1)(N-2)}\sum_{p=1}^{n} (a_{pikl}A_{\underbrace{plr\ldots s}_{N-2}} + \ldots + a_{prrs}A_{\underbrace{pik\ldots m}_{N-2}}) -$$

. . . . . .

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

KRASOVSKIY, A. A., Doklady Akademii Nauk SSSR, Vol 205, No 3, 1972, pp 550-552

$$-\frac{2!}{N-1}\sum_{p=1}^{n}\left(a_{\underbrace{pik\ldots l}_{N-1}}A_{pr}+\ldots+a_{\underbrace{plr\ldots s}_{N-1}}A_{pik}\right)-$$

$$-\sum_{p=1}^{n}\left(a_{\underbrace{pik\ldots r}_{N}}A_{ps}+\ldots+a_{\underbrace{psk\ldots r}_{N}}A_{pl}\right)-N\sum_{p=1}^{n}a_{\underbrace{pik\ldots s}_{N+1}}A_{p}-$$

$$-\sum_{p,q=1}^{n}S_{pq}\left[\frac{1}{2}N(N+1)A_{\underbrace{pqik\ldots s}_{N+2}}+NA_{p}A_{\underbrace{qik\ldots s}_{N+1}}+A_{pi}A_{\underbrace{qrt\ldots s}_{N}}+\ldots\right.$$

$$\left.\ldots+A_{ps}A_{\underbrace{qik\ldots r}_{N}}+\frac{2!}{N-1}\left(A_{pik}A_{\underbrace{qrm\ldots s}_{N-1}}+\ldots+A_{pr\ldots l}A_{\underbrace{qik\ldots p}_{N-1}}\right)\right]=$$

$$=N(N+1)\sum_{p=1}^{n}a_{\underbrace{ppik\ldots s}_{N+2}},$$

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USSR

KRASOVSKIY, A. A. Doklady Akademii Nauk SSSR, Vol 205, No 3, 1972, pp 550-552

The solution of this infinite system of ordinary differential equations subject to initial conditions (6) defines the required coefficients of series (5) of the current logarithmic probability density.

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USSR UDC 669:620.179.2

SHORSHOROV, M. Kh., CHERNYSHOVA, T. A., KRASOVSKIY, A. L.

"Testing of Metals for Weldability"

Ispytaniya Metallov na Svarivayemost' [English Version Above], Metallurgiya Press, Moscow, 1972, 240 pages.

Translation of Annotation: Weldability is one of the most important technological characteristics of a metal, used to evaluate its suitability for the manufacture of structures.

In this book, primary attention is given to methods of evaluating changes in the structure and mechanical properties of welded joints. Problems of the theory of phase and structural conversions, technological strength during welding, and various types of brittle rupture of welded joints are discussed. The criteria formulated for evaluation of weldability can be used to select methods, technologies, and modes of welding.

The book is designed for a broad range of engineers, technical personnel, and researchers involved in the development and production of structural materials and in the welding and heat treatment of metal structures. 125 Figures; 12 Tables; 151 Biblio. Refs.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

SHORSHOROV, M. Kh., CHERNYSHOVA, T. A., KRASOVSKIY, A. I., Ispytaniya Metallov na Svarivayemost', Metallurgiya Press, Moscow, 1972, 240 pages.

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USSR
SHORSHOROV, M. Kh., CHERNYSHOVA, T. A., KRASOVSKIY, A. I., Ispytaniya Metallov na Svarivayemost', Metallurgiya Press, Moscow, 1972, 240 pages.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

SHORSHOROV, M. Kh., CHERNYSHOVA, T. A., KRASOVSKIY, A. I., Ispytaniya Metallov na Svarivayemost', Metallurgiya Press, Moscow, 1972, 240 pages.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

UDC 547.789.6'781

GRIN', N. P., KRASOVSKIY, A. N., KOCHERGIN, P. M., Zaporozh'ye State Medical Institute, All-Union Scientific Research Chemico-Pharmaceutical Institute imeni S. Ordzhonididze, Moscow

"Studies in the Imidazole Series, LXXVIII. Reaction of 2-aminobenzothiazoles with α-haloketones"

Riga, Khimiay, Geterotsiklicheskikh Soyedineniy, No 9, 1972, pp 1271-1274

Abstract: A detailed study was made of the reaction of 2-aminobenzothiazole and its 6-substituted derivatives with α-bromomethyl alkyl(aryl, heteryl) ketones. Under mild conditions (in acetone at 15-20°), 3-acylmethyl-2-iminobenzothiazolines were formed. Their structure was established by qualitative reactions to the carbonyl group and infrared spectra in which there are clear absorption bands of the CO and NH groups in the 1,680-1,707 cm^{-1} and 3,320-3,345 cm^{-1} regions, respectively. The properties of the compounds were investigated, and the conditions of ring formation to obtain derivatives of imidazo[2,1-b]benzothiazole are discussed.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

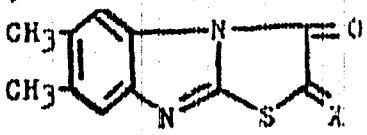
USSR UDC 547.789.6'785.5.07

KRASOVSKIY, A. N., KOCHERGIN, P. M., and ROMAN, A. B., Zaporozhe Medical Institute, All Union Scientific Chemical-Pharmaceutical Research Institute Imeni S. Ordzhonikidze, Moscow

"Studies in the Imidazole Series. LVII. Synthesis of 6,7-Dimethylbenzimidazo [2,1-b]thiazolidone-3 and Its Derivatives at the Methylene Group"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 71, pp 822-825

Abstract: Synthesis of 6,7-dimethylbenzimidazo [2,1-b] thiazolidone-3 (I) was developed. Refluxing 5,6-dimethylbenzimidazolyl-2-mercaptoacetic acid in acetic anhydride leads to the formation of (I); when α-[5,6-dimethylbenzimidazolyl-2]mercaptopropionic acid is used -- the product is 2,6,7-trimethylbenzimidazo[2,1-b]thiazolidone-3, which in spite of the presence of a methylene group does not react with aryldiazonium borofluoride. (I) reacts with aldehydes, isatine, nitro compounds, and with aryldiazonium salts producing derivatives of the methylene group



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USSR

KRASOVSKIY, A. N., et al., Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 71, pp 822-825

X, m.p. reported: C_6H_5CH, 254-255°; p-$CH_3CC_6H_4CH$, 238-239°; p-$(CH_3)_2CHC_6H_4CH$, 225-226°; o-$O_2NC_6H_4CH$, 246-247°; m-$O_2NC_6H_4CH$, 259-260°; p-$O_2NC_6H_4CH$, 318-319°; 2-furfurylidene, 260-261°; 5-nitro-2-furfurylidene, 274-276°; 3-isatinilidene, 344-345°; p-$(CH_3)_2NC_6H_4N$, 300-302°; p-$CH_3OC_6H_4NHN$, 228-229; p-BrC_6H_4NHN, 262-263°.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR UDC 541.62:547.785.5'789.61'854.4:543.422.25.4

ALEKSEYEVA, L. M., PERESLENT, YE. M., SHEYNKER, YU. N., KOCHERKIN, P. M., KRASOVSKIY, A. N., and KURMAZ, B. V., All Union Scientific Chemical-Pharmaceutical Research Institute imeni S. Ordzhonikidze, Moscow

"Ring-Chain Tautomerism of S-Acylalkyl Substituted Imidazoles and Annelated Imidazole Systems"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 8, Aug 72, pp 1125-1131

Abstract: The ring-chain tautomerism of S-acylalkyl substituted 2-mercapto-4,5-diphenylimidazole, 2-mercaptobenzimidazole, 2-mercaptonaphthyl[1,2-d]imidazole, 8-mercaptopurine, 8-mercaptotheophyline, and 2-mercaptoimidazoline has been studied by PMR and IR spectroscopy. Depending on the structure of aldehyde or ketone radical, or on the type of heterocycle condensed with the imidazole nucleus, depending on the state of the aggregate and on the type of solvent used, these compounds can exist as open heterylmercaptoaldehydes (ketones), as cyclic 3-hydroxy derivatives of imidazothiazoline systems or as mixed tautomeric forms. When a substituent exists on position 2 of the thiazoline ring, the cyclic compounds exist as a mixture of two diastereoisomeric forms,

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USSR UDC: 531.66

PISARENKO, G. S., KRASOVSKIY, A. Ya., Kiev

"The Physical Theory of the Dynamic Yield Point of Crystalline Materials"

Kiev, Problemy Prochnosti, No 11, 1970, pp 6-13

Abstract: This work presents an evaluation of the contribution of the movement of dislocations to the dynamic yield point of structurally stable crystalline materials. The model of viscous retardation of high-speed dislocations leads to a realistic description of the microscopic phenomena in the initial stages of plastic flow of crystalline materials at high deformation rates. This indicates that the primary contribution to plastic flow is by superbarrier movement of dislocations. Data on the damping of elastic shock waves in materials can be logically interpreted with quantitative agreement of the retardation constants defined by various methods (including on the basis of attentuation of ultrasonic oscillations). This makes it possible to use data on the attentuation of elastic shock waves as an independent method for estimating the ratio of the viscous retardation constant of dislocations to the density of mobile dislocations B/N.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

UDC 616.981.71-022.395.42-036.21(571.51)

USSR

SHAYMAN, M. S., VOSHCHAKINA, N. V., ROZIK, S. I., [illegible], S. [illegible], and [illegible]SKIY, E. V., Omsk Institute of Infections with Natural Foci and Krasnoyarsk Kray Sanitary Epidemiological Station

"Data Pertaining to the Epidemiology of North Asian Tickborne Rickettsiosis in Krasnoyarsk Kray in 1936-1967"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, Apr 71, p 7 11

Abstract: North Asian tickborne rickettsiosis which was initially identified in Krasnoyarsk Kray in 1936, still occurred there in 1967, with a distribution exceeding that in any other part of the USSR. From 1936 to 1967, 10,[illegible] cases of this disease were recorded in Krasnoyarsk Kray. The highest incidence of the disease was in the 30 south-eastern rayons. Children younger than 16 yrs were mainly affected (61.3% of cases). The principal vector of the disease was D. nuttalli. The agent (D. sibiricus rickettsiae) was isolated for the first time from I. persulcatus and H. concinna. The most effective methods of detecting D. sibiricus rickettsiae in ticks were by immunofluorescence tests and tissue culture methods. Comparison of results obtained by various test methods showed that epidemiological data pertaining to exposure of the [illegible]-

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USSR

SHAYMAN, N. S., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, Apr 71, pp 7-11

tion to the infection could be best obtained by means of skin allergy tests. It was established that a considerable degree of latent immunity existed in the population. Absence of latent immunity was one of the reasons for the predominant occurrence of the disease among children.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

1/2 028 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--THE COMPARATIVE SENSITIVITY OF MAN AND ANIMALS TO THE ACTION OF VARIOUS SUBSTANCES ACCORDING TO THE INDICES OF ACUTE TOXICITY -U-

AUTHOR--KRASOVSKIY, G.N., SOBINYAKOVA, D.R.

COUNTRY OF INFO--USSR

SOURCE--GIGIYENA I SANITARIYA, 1970, NR 4, PP 29-34

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TOXICOLOGY, EXPERIMENT ANIMAL, DRUG SENSITIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1680 STEP NO--UR/0240/70/000/004/0029/0034

CIRC ACCESSION NO--AP0101735

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UNCLASSIFIED PROCESSING DATE--11SEP70

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CIRC ACCESSION NO--AP0101735

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN ORDER TO ASCERTAIN CERTAIN ASPECTS OF THE PROBLEM OF INTERSPECIFIC SENSITIVITY AN ATTEMPT WAS MADE TO COMPARE THE LEVELS OF LETHAL DOSES OF 260 SUBSTANCES FOR MAN AND LABORATORY ANIMALS. INFORMATION ON THE HUMAN LETHAL DOSES WAS TAKEN FROM THE LITERATURE ON FORENSIC MEDICINE. THE SENSITIVITY OF MAN TO TOXIC SUBSTANCES PROVED TO BE APPROXIMATELY EQUAL TO THAT OF LABORATORY ANIMALS OR EXCEEDED (2 TO 3 TIMES) IT TO AN INSIGNIFICANT EXTENT. THE FINDING WAS THAT DIFFERENCES IN THE SENSITIVITY COULD BE LEVELLED IF EXPERIMENTS WERE CARRIED OUT ON ANIMALS MOST SENSITIVE TO THE INVESTIGATED SUBSTANCE. IT IS SHOWN THAT THERE IS NO "UNIVERSAL" MOST SENSITIVE SPECIES OF ANIMALS THAT COULD BE USED IN THE SANITARY TOXICOLOGICAL EXPERIMENTS.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

Acc. Nr.: AP0029328 Ref. Code: UR 0240

PRIMARY SOURCE: Gigiyena i Sanitariya, 1970, Nr 1, pp 28-31

HYGIENIC ASSESSMENT OF CONDITIONS OF DISCHARGE OF INDUSTRIAL EFFLUENTS CONTAINING SILICON ORGANIC COMPOUNDS

Klyashchitskaya, A.L.; Krasovskiy, G.N.; Fridlyand, S.A.

Effluents from the production of silicon organic polymers have a complex composition: organic solvents and silicon organic compounds are peculiar ingredients of their contamination. Toxicologic tests revealed biological inactivity of silicons containing methyl, ethyl and phenyl radicals, as well as groups of compounds whose organic radicals contained fluorine, chlorine, sulfur and cyan. Compounds with a small number of structural units had a high biological activity. The maximum permissible concentrations of the 13 investigated silicon organic polymers in water bodies were determined judging by the organoleptic index.

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UDC 614.777:661.718.5

USSR

KLYASHCHITSKAYA, A. L. KRASOVSKIY, G. N., and FRIDLYAND, S. A.,
First Moscow Medical Institute imeni I. M. Sechenov

"Hygienic Evaluation of Industrial Effluents Containing Organosilicon Compounds"

Moscow, Gigyena i Sanitariya, No 1, 1970, pp 28-31

Abstract: Toxicological studies on polymethylhydro siloxane, sodium ethylsiliconate, and 10 other organosilicon compounds in the effluents of the Dankovskiy Chemical Plant showed that they are virtually nontoxic. The biological activity of the compounds is independent of the radical bound with silicon, and is determined by the length of the polymer chain and its molecular weight. Compounds with methyl, ethyl, and phenyl radicals as well as compounds whose organic radicals contain fluorine, chlorine, sulfur, or cyanogen, were nontoxic. The monomer A_3SiH, low-molecular-weight sodium siliconate, and hexamethylpolydimethylpolymethyl (trifluoropropyl) siloxane with a small number of structural units exhibited high biological activity. The main negative feature of the compounds is that they impart a disagreeable odor and taste to water.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

UDC 615.9:612.019

KRASOVSKIY, G. N. and SOBINYAKOVA, O. R., Chair of Communal Hygiene, First Moscow Medical Institute imeni I. M. Sechenov

"Comparative Sensitivity of Man and Animals to Various Substances According to the Indices of Acute Toxicity"

Moscow, Gigiyena i Sanitariya, No 4, 1970, pp 29-34

Abstract: A review of the literature on forensic medicine yielded 386 compounds for which lethal doses for man have been established. But lethal doses for animals (when administered perorally) were found for only 240 of the substances. Analysis revealed that man is approximately as sensitive to the compounds as animals or, in some cases, only slightly more so. The differences in sensitivity can be equated if toxicity tests are run on animals that are most sensitive to the particular substance under study. There is no "universal," highly sensitive animal because of structural and metabolic differences between species.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

UDC 621.372.8.092.22

SHEIN, A. G., KRASOVSKIY, G. YA.

"Theory of Resonator Three-Dimensional-Periodic Delay Systems"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 14, pp 73-77 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B122)

Translation: The characteristics of delay systems are investigated. The dispersion equations and formulas for the coupling resistances are obtained. There are 4 illustrations and an 8-entry bibliography.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

Acc. Nr: AP0043925 Abstracting Service: 5/70 Ref. Code: 4R0141
INTERNAT. AEROSPACE ABST.

K

A70-23143 Experimental investigation of the characteristics of two-dimensionally periodic slow-wave structures (Eksperimental'noe issledovanie kharakteristik dvumerno-periodicheskikh zamedliaiushchikh sistem), A. G. Shein, V. I. Moliavko, and G. Ya. Krasovskii (Khar'kovskii Institut Radioelektronik, Kharkov, Ukrainian SSR) *Radiofizika*, vol. 13, no. 1, 1970, p. 152-154. In Russian.

Experimental verification of Shein's (1968) theoretical study of the characteristics of a two-dimensionally periodic slow-wave structure. It is found that Shein's formulas derived in two approximation, accounting only for the first harmonic are, in general, in satisfactory agreement with the experimental data. A certain increase in the error at the band boundaries is attributed to an augmented influence of the higher spatial harmonics on the structure of the hf field. V.P.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR UDC: 517.934:513.733.431

KRASOVSKIY, N. N., Institute of Mathematics and Mechanics, Academy of Sciences of the USSR, Sverdlovsk

"On the Game Problem of Evasion"

Minsk, Differentsial'nyye Uravneniya, Vol 8, No 2, Feb 72, pp 243-248

Abstract: The possibility of developing stable strategies of evasion in positional differential games is studied. The approach used in analyzing this problem is based on an extremum construction and the concept of positional absorption. Sufficient conditions are formulated under which an extremum strategy guarantees stable deviation of motion away from the target set for all $t \geq t_0$. Bibliography of four titles.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

KRASOVSKIY, N. N., Academician, and SUBBOTIN, A. I., Sverdlovsk Department of the Mathematics Institute imeni V. A. Steklov of the Academy of Sciences USSR

"On the Structure of Differential Games"

Moscow, Doklady Akademii Nauk SSSR, Vol. 190, No. 3, 21 Jan 70, pp 523-526

Abstract: A differential game for minimax time to encounter is considered. The purpose of the article is to show the game structure in a class of approximation strategies. The system is described by the equation

$$\dot{x} = f^{(1)}(t, x, u) + f^{(2)}(t, x, v)$$

where x is a phase vector and u, v are control vectors taught to the first and second players and constrained by the condition

$$u \in U, \quad v \in V,$$

where the sets U and V are bounded and closed. The $f^{(i)}$ are continuous functions satisfying the Lipschitz condition with respect to x. Approximation strategies

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KRASOVSKIY, N. N., Doklady Akademii Nauk SSSR, Vol 190, No. 3, 21 Jan 70, pp 523-526

U_a and V_a are defined as systems of sets U_Δ (t, x) and V_Δ(t, x) defined for all possible positions (t, x) for any choice of the covering Δ. Three theorems concerning the stability of sets of strategies are presented.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

KRASOVSKIY, N. N. (Ural State University)

"Differential Game of Approach. II. Regular Mixed Strategies"

Minsk, Differentsial'nyye Uravneniya; October, 1970; pp 1743-53

ABSTRACT: The problem of the approach of a conflicting, controlled motion with a given aggregate is considered. In particular, the case of regular mixed strategies is studied. An extremal strategy is determined whereby with known conditions the interception of any motion with a given aggregate is assured. The constructions given in the work carry over, in the case of combined controls, several constructions described earlier for the cases of additively distinct controls. The motions are formalized within the framework of generalized differential equations whose constructions are determined by the constructions of the systems in contingencies.

The article includes 21 equations. There are 21 references.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

KRASOVSKIY, N.N., Academician

"Differential Approach Game," Doklady Akademii Nauk SSSR, Vol. 193, No. 2, 1970, pp. 284-287. Urals State University imeni A. M. Gor'kiy, Sverdlovsk. Recd 6 Apr 70.

So: JPRS 51364, 14 Sep 70.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

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USSR

KRASOVSKIY, N. N.: SUBBOTIN, A. I. (Sverdlovsk Department, Steklov Mathematics Institute)

"Differential Game of Induction"

Minsk, Differentsial'nyye Uravneniyn; April, 1970; pp 579-91

ABSTRACT: The problem (in game theory) of the reduction of a controlled object to a given group is considered. It is assumed that the action of a conflicting controlled system is described by linear differential equations. It is proposed that the solution of this problem to sought in the class of generalized controls of players based on the principle of feedback, making it possible in contingencies to formalize, within the framework of differential equation theory, sliding modes generated by discontinuous strategies of the players. Sufficient conditions are formulated for the existence of a generalized extremal control which guarantees the reduction of an object to a given group at some finite instant of time. A discrete scheme is presented which approximates the proposed generalized construction.

17 references.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

UDC 518.731.343.1

USSR

KRASOVSKIY, N. N., Academician, Ural State University imeni A. M. Gor'kiy, Sverdlovsk

"Differential Game of Approach"

Moscow, Doklady Akademii Nauk SSSR, Vol 193, No 2, 1970, pp 284-287

Abstract: The article generalizes the results of an earlier article by the author and A. I. SUBBOTIN for the case in which control actions u and v on the right-hand side of the equations of motion are not separated. The results of the present article, just as those of the earlier article, are based on the concept of extremal strategy and the concept of the merging of the objective set, modified for application to the class of problems here under consideration.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR UDC 517.947.92

KRASOVSKIY, N. N., Academician, Institute of Mathematics and Mechanics of the Ural Science Center, Academy of Sciences of the USSR, Sverdlovsk

"Programmed Constructions for Positional Differential Games"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 6, 21 Aug 73, pp 1287-1290

Abstract: The formalization of differential games used in this article was given in two previous articles by the author in Izvestiya AN SSSR, Technical Cybernetics, Numbers 2 and 3, 1973.

The game is described by $\dot{x} = f(t,x,u,v)$, where x is a phase vector and u and v are the control action vectors of the first and second players (u and v are members of compact sets). The continuous function f is differentiable on x and satisfies the condition $||f|| \leq (1+||x||)\lambda$, where λ is a constant and $||x||$ is the Euclidean norm of x. In the game initial values t_0 and x_0 are given, and the first player strives to bring the result function within a closed target set before the expiration of a time limit. The first problem is to find a strategy u(t,x), a mixed strategy $\mu_{\{t,x\}}(du)$, or a counterstrategy u(t,x,v) which will reach the target on time. The program controls are represented by arbitrary probability measures $\eta_{t(du,dv)}$ on P Q, where u $\in$ P and

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USSR

KRASOVSKIY, Doklady Akademii Nauk, SSSR, Vol 211, No 6, 21 Aug 73, pp 1287-1290

$v \in Q$ for $t_0 \leq t \leq$ the time limit. The problem is approached by first finding the so-called upper program and lower program. Theorems are given which establish the necessary and sufficient conditions for the determination of these programs, leading in either case to the establishment of a "stable bridge" to the solution.

The second problem is that of the opponent, the goal being to prevent the result from reaching the target set before the time limit. It is approached in a similar manner, through upper and lower programs.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

1/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--A DIFFERENTIAL GAME OF NAVIGATION -U-

AUTHOR-(02)-KRASOVSKIY, N.N., SUBBOTIN, A.I.

COUNTRY OF INFO--USSR

SOURCE--DIFFERENTSIAL'NYE URAVNENIIA, VOL. 6, APR. 1970, P. 579-591

DATE PUBLISHED----APR70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--GAME THEORY, DIFFERENTIAL EQUATION SYSTEM, NEGATIVE FEEDBACK, MOTION EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1229 STEP NO--UR/0376/70/006/000/0579/0591

CIRC ACCESSION NO--AP0124883

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

2/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124883

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONSIDERATION OF A GAME PROBLEM OF BRINGING A CONTROLLED OBJECT TO A GIVEN SET. IT IS ASSUMED THAT THE MOTION OF THE CONFLICTINGLY CONTROLLED SYSTEM IS DESCRIBED BY LINEAR DIFFERENTIAL EQUATIONS. IT IS SUGGESTED THAT THE SOLUTION TO THIS GAME PROBLEM BE SOUGHT IN A CLASS OF GENERALIZED PLAYER CONTROLS FORMED ACCORDING TO A FEEDBACK PRINCIPLE, THUS MAKING IT POSSIBLE IN CONTINGENCIES TO FORMALIZE THE SLIDING REGIMES GENERATED BY THE DISCONTINUOUS STRATEGIES OF THE PLAYERS WITHIN THE FRAMEWORK OF THE THEORY OF DIFFERENTIAL EQUATIONS. SUFFICIENT CONDITIONS ARE FORMULATED UNDER WHICH THERE EXISTS A GENERALIZED EXTREMAL CONTROL WHICH ENSURES THAT THE OBJECT IS BROUGHT TO A GIVEN SET BY A CERTAIN FINITE MOMENT OF TIME. A DISCRETE SCHEME FOR APPROXIMATING THE PROPOSED GENERALIZED CONSTRUCTION IS PRESENTED. FACILITY: AKADEMIIA NAUK SSSR, MATEMATICHESKII INSTITUT, SVERDLOVSK, USSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

1/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ON THE STRUCTURE OF DIFFERENTIAL GAMES -U-

AUTHOR-(02)-KRASOVSKIY, N.N., SUBBOTIN, A.I.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, DOKLADY AKADEMII NAUK SSSR, VOL. 190, NO. 3, 21 JAN 70, PP 523-526

DATE PUBLISHED--21JAN70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--GAME THEORY, VECTOR, ALGEBRAIC EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0478 STEP NO--UR/0020/70/190/003/0523/0526

CIRC ACCESSION NO--AT0113373

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

2/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0113373

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DIFFERENTIAL GAME FOR MINIMAX TIME TO ENCOUNTER IS CONSIDERED. THE PURPOSE OF THE ARTICLE IS TO SHOW THE GAME STRUCTURE IN A CLASS OF APPROXIMATION STRATEGIES. THE SYSTEM IS DESCRIBED BY THE EQUATION X EQUALS F PRIME(1) (T, X, U) PLUS F PRIME(2) (T, X, V) WHERE X IS A PHASE VECTOR AND U, V ARE CONTROL VECTORS TAUGHT TO THE FIRST AND SECOND PLAYERS AND CONTRAINED BY THE CONDITION U INTERSECTS U, V INTERSECTS V, WHERE THE SETS U AND V ARE BOUNDED AND CLOSED. THE F PRIME(I) ARE CONTINUOUS FUNCTIONS SATISFYING THE LIPSCHITZ CONDITION WITH RESPECT TO X. APPROXIMATION STRATEGIES U SUBA AND V SUBA ARE DEFINED AS SYSTEMS OF SETS U SUBDELTA (T, X) AND V SUBDELTA (T, X) DEFINED FOR ALL POSSIBLE POSITIONS (T, X) FOR ANY CHOICE OF THE COVERING DELTA. THREE THEOREMS CONCERNING THE STABILITY OF SETS OF STRATEGIES ARE PRESENTED. FACILITY: MATHEMATICS INSTITUTE IMENI V. A. STEKLOV OF THE ACADEMY OF SCIENCES USSR.

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USSR UDC: 539.3:534.1

KOLODYAZHNYY, A.P., KRASOVSKIY, V.L. and KUCHERENKO, V.M.

"Tests of Reinforced Cylindrical Shells for Stability Under Bending"

Dnepropetrovsk, Sb. Resheniye Nekotor, Fiz.-Tekhn. Zadach (Symposium on Solution of Certain Physical-Technical Problems), 1972, pp 49-52 (from Referativnyy Zhurnal-Mekhanika, 1973, Abstract No 2V294 by V.V. Kabanov)

Translation: A device is described for testing shells under pure bending on a universal compression machine, inspection test results are given for nonreinforced shells fabricated by spot welding out of KH18N9N steel plate. These test results agree with known data. Brief information is also included on strain gage tests of a shell reinforced by stiffeners. It is pointed out that at the instant of total loss of stability the amplitude of compression stress is 1.3 time the amplitude of tension stress.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR UDC 539.3:534.1

MANEVICH, A. I., DEMESHKO, M. F., KRASOVSKIY, V. L., KUCHERENKO, V. M.

"Experimental Study of the Stability of Longitudinally Fastened Cylindrical Shells Under Axial Compression"

V sb. Raschet prostranstv. konstruktsiy (Calculation of Three-Dimensional Structures -- Collection of Works), No. 14, Moscow, Stroyizdat, 1971, pp 87-102 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9V319)

Translation: Tests of 48 cylindrical shell models are reported. The shells were reinforced with stringers of open profile and the purpose of the test was to study the effect of the positioning of the ribs on the stability under axial compression. The shells and stringers were made of Kh18N9-n steel. In the case of shells with high critical stress (small lengths, "strong" ribs) there is noted a considerable deviation from structural-orthotropic theory especially under external positioning of the ribs (up to 40-50%). The effect of the sign of the eccentricity is emphasized, however, quantitatively considerably less than the theoretical effect. It was observed that with internal stringers the deformation curve may have an

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MANEVICH, A. I., et al, Raschet prostranstv. konstruktsiy, No. 14, Moscow, Stroyizdat, 1971, pp 87-102

ascending character after the bifurcation point. The varying nature of the loss in stability of shells of both types is noted. Analysis of the nature of the bulging and tensometric measurements showed that the deviation between theory and experiment in this range of parameters is basically associated with the characteristics of the mechanism for the loss of stability of shells with ribs of open profile not described by existing theories. To reform the theory it is necessary to take into account the mutual relationship between the bulging of elements of the shells and the entire shell. A computation scheme should include the possibility of bending of the walls of the ribs in the plane of least rigidity and also account for the redistribution of stresses in the skin and stringers after local bulging of the skin. Authors abstract.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

KRASOVSKIY, V.M.

SOV/JPRS 59A79
14 June 73

SOME CHARACTERISTIC FEATURES OF GROWTH ON EMBOSSED SUBSTRATES

[Article by V. M. Krasovskiy, [illegible], A. A. Milov, K. G. M. [illegible], Novosibirsk, Protsessy [illegible] Trudy Simpoziuma, Russian, Part 2, 1969, pp 150-154]

The mastery of the epitaxial process of growing silicon layers suitable for instruments permits improvement of the characteristics and facilitation of the technological process for making solid state circuits by the planar process.

It is no less prospective to use the epitaxial process to create the instrument structures since in this case it is possible to vary the electrophysical properties of the layers during the growth process. Two mutually complementing paths are possible: the local growth and growth on substrates with a shaped profile.

We have investigated some of the characteristic features of epitaxial growth of n^+ and n^+-conductivity layers in the same process on substrates with a shaped profile. The shaped profile was created using the ordinary methods of photolithography and deep etching of silicon through a mask of a photoresistance. The outside view of the photographic standard is shown in photograph No 21.

Epitaxial growth was carried out at a substrate temperature of 1,200° C for an n-conductivity layer and 1,270° C for an n^+ conductivity layer. Special attention was given to obtaining epitaxial layers with a minimum number of lattice defects.

In the case of epitaxial growth, it was found that the preliminary oxidation of the silicon plates before the photolithographic processes leads to increased density of the packing defects in the epitaxial layer on all surfaces which were not subject to chemical etching during the photolithographic process (photograph No 22) (in the intervals between elements the packing defect density is two orders less than in the mesoregions, the upper plane of which was coated with SiO_2).

Prolonged holding in hydrochloric acid to remove the possible residual islets of silicon dioxide did not lead to significant variations of the packing

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UDC[537.226+537.311.33]:[537+535]

BUNAREV, V. I., ZIMIN, V. N., KRASOVSKIY, V. M., RYABININ, I. V., and TROITSKAYA, N. V.

"Structural and Electrophysical Properties of Aluminum Oxide-on-Silicon Films"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronic Engineering. Collection of Scientific and Technical Works on Microelectronics), 1971, vyp. 3(29), pp 75-79 (from RZh-Fizika, No 1, Jan 72, Abstract No 1YE1406 by authors)

Translation: The authors studied the structural and electrophysical properties of aluminum oxide films as a function of the procedures of their deposition on silicon, as well as the electrophysical properties of the $Al-Al_2O_3-Si$ structure.

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USSR

KRASOVSKIY, V. N.

UDC 539.3.01

"On the Oscillation of an Elastic Ring on a Rigid Base"

Tr. Kuybyshev. aviats. in-t (Works of Kuybyshev Aviation Institute), 1972, No. 63, pp 76-80 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V47)

Translation: The basic relationships in the operation of an oscillating frictional contact under dry friction conditions are discussed. It is shown that the general properties of elastic bodies (finiteness and deformation continuity) are determined by the continuity of the functions of the oscillating and kinematic slipping. It was found that a slip plane is located at the entrance to the contact upon achieving a tangential force. 8 ref. Author's abstract.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

1/2 034 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--APPROXIMATE THEORY OF THE UNSYMMETRICAL PROCESS OF CALENDERING POLYMER MATERIALS -U-

AUTHOR-(03)-KRASOVSKIY, V.N., MINISHKI, V.I., MIRZOEV, R.G.

COUNTRY OF INFO--USSR

SOURCE--KAUCH. REZINA 1970, 29(2), 31-4

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--RUBBER, POLYMER, MECHANICAL STRESS, PLASTIC FABRICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0389 STEP NO--UR/0138/70/029/002/0031/0034

CIRC ACCESSION NO--AP0113307

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

2/2 034 UNCLASSIFIED

CIRC ACCESSION NO--AP0113307 PROCESSING DATE--14OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THE TITLE PROCESS PARAMETERS (ROLLER ROTATION RATES, ANGLE SUBTENDED BY THE CLOTH, PRESSURE BETWEEN THE ROLLERS) ON THE DISTRIBUTION OF STRESSES IN THE RUBBER OF POLYMERIC MASS WAS ANALYZED MATH.

FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

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USSR

UDC: 51

KRASS, I. A., LUK'YANOVA, V. A.

"Investigation of a Leont'yev Model With Delay"

Sb. tr. In-t mat. Sib. otd. AN SSSR (Collected Works. Institute of Mathematics of the Siberian Department, Academy of Sciences of the USSR), 1972, vyp. 7(24), pp 45-60 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V543 by the authors)

Translation: The first part of the article is concerned with the nonlinear extremum problem of finding the maximum non-negative eigenvalue in the generalized eigenvalue problem. The conditions of existence of the solution and an iterative algorithm for finding it are determined for this problem. The second part of the paper deals with a model of the Leont'yev type where each product requires manufacturing funds which must go through several preliminary preparation stages (the number of stages depends on the type of good). It is shown that finding the rate of growth of the described model reduces to a problem formulated in the first part of the paper; the influence which delay in building funds has on the rate of growth of the model is explained.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

UDC: 51

KRASS, I. A. and LUK'YANOVA, V. A.

"Investigating Leont'yev Models With Delay"

Sb. tr. In-t mat. Sib. Otd. AN SSSR (Collection of Works of the Institute of Mathematics, Siberian Division, Academy of Sciences, USSR) No 7(24), 1972, pp 45-60 (from RZh--Matematika, No 7, 1973, Abstract No 7V543)

Translation: In the first part of this paper the authors pose the nonlinear extremal problem of finding the maximum nonnegative eigenvalue in a generalized problem of eigenvalues. For this problem, the conditions for the existance of a solution and an iterative algorithm seeking it are found. The second part of the paper examines a model of the Leont'yev type, in which each product requires for its preparation funds which must go through several preliminary stages of preparation (the number of stages is a function of the type of product). It is shown that finding the rate of increase of the model reduces to the problem posed in the first part of the paper; the effect of the delay in the development of the funds on the rate of increase of the model is explained. Authors' abstract.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

UDC: 51

KRASS, I. A.

"Asymptotic Behavior of Trajectories and Existence of Submodels in the von Neumann-Gayle Model"

Sb. tr. In-t mat. Sib. otd. AN SSSR (Collected Works. Institute of Mathematics, Siberian Department, Academy of Sciences of the USSR), 1971, vyp. 2(19), pp 90-108 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V479)

Translation: The paper deals with various problems concerned with the asymptotic behavior of the growth of a product on a trajectory in the von Neumann-Gayle model. It is shown in the first part of the article that the presence of a trajectory in the model on which a pair of products would have different rates of growth leads to the existence of a submodel in the model. It is shown in the second part that the asymptotic behavior of the growth of a product on a trajectory differs considrably in the models of von Neumann and Gayle. From the introduction.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

UDC 581.183.035.2

KRASTINA, YE. YE., and TSAREVA, L. A., Artificial Climate Laboratory, Moscow Order of Lenin and Order of the Red Banner of Labor Agricultural Academy imeni K. A. Timiryazev

"Study of the Relationship Between Circadian Rhythms of Opposite Leaves Under Different Light Conditions"

Moscow, Izvestiya Timiryazevskoy Sel'skokhozyaystvennoy Akademii, No 1, 1970, pp 32-40

Abstract: A study was made to determine whether there was any correlation between the circadian rhythms of opposite (primary) leaves of the bean plant exposed to different light conditions. The bean plants were grown in an aqueous Knop nutrient medium under fluorescent lights and a constant temperature of 20° C. The fluorescent lights were arranged horizontally above the plants. At first, all the plants were exposed to a diurnal light-dark cycle, and then to different lighting conditions, depending on the experiment. In the experimental plants, and of the opposite leaves was introduced through a side opening into a dark chamber located under the lighting and having a detachable top lid. The second leaf was kept under continuous light.

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USSR

KRASTINA, YE. YE., et al., Moscow, Izvestiya Timiryazevskoy Sel'-skokhozyaystvennoy Akademii, No 1, 1970, pp 32-40

During the experiment, the leaves introduced into the chamber were either kept in constant darkness or exposed to a light-dark cycle (during the light period the top lid was removed). In each experiment, there were two or three controls.

In the control variants, the plants were totally exposed to the light-dark cycle, continuous light and also to darkness, (in a special chamber with a removable forward wall). This chamber was located far from the light sources, so that the plants received very weak diffused light when the forward wall was removed. This light was sufficient to take readings but not scrong enough to induce plant reactions to interruption of darkness. The rhythm of movement of bean leaves was measured by changes in the angle between leaf petioles and ribs.

Results of experiments under different lighting conditions revealed no correlation between circadian rhythm of the opposite leaves. The rhythm of movement of each leaf was determined by the light conditions.

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KRASULIN, G.A.

SPPS 59508

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(4)

II-7. DISTRIBUTION OF THE RELATIVE SUPERSATURATION OF THE VAPOR PHASE ALONG THE DEPOSITION ZONE WHEN GROWING MONOCRYSTALLINE FILMS OF $A^{II}B^{VI}$ COMPOUNDS UNDER CONDITIONS CLOSE TO EQUILIBRIUM

[Article by G. A. Krasulin, A. K. Zakharenko, V. V. Tokmakov, A. V. Vanyukov, Moscow; Novosibirsk, III Simposium po Proteessam Rosta i Sinteza Poluprovodnikovych Kristallov i Plenok, Russian, 12-17 June, 1972, p 17]

An experimental method of determining the deviation of the system from the equilibrium state during growth of monocrystalline films of $A^{II}B^{VI}$ compounds under conditions close to equilibrium has been developed. The method takes into account the interaction of two processes which are opposite in direction and which take place during growth of the film -- deposition and etching.

The ratio of the maximum possible deposition rate $|v_{dep}|$ to the etching rate $|v_e|$ is taken as the relative supersaturation of the vapor phase $|\gamma|$; that is, $\gamma = v_{dep}/v_e$. The resultant growth rate of the film $|v_g|$ is equal to the difference in the deposition and etching rates. Consequently, $\gamma = 1 + v_g/v_e$.

Thus, in determining the magnitude of the relative supersaturation of the vapor phase at any point of the deposition zone it is necessary first to obtain the temperature dependence of the etching rate for the specific technological growth process.

The given method was used when studying the mechanism of formation of monocrystalline films of $A^{II}B^{VI}$ compounds for the gas transport method of growth.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

KRASULIN, YU. L.

JPRS 61321, 26 Feb. 74

THERMOPHYSICS OF PLASMA METAL SPRAYING, FACING, CUTTING AND SPHEROIDIZE ANNEALING

[Article by N. N. Rykalin, I. D. Kulagin, M. Kh. Shorshorov, V. V. Kudinov, Yu. L. Krasulin, V. A. Petrunichev and A. A. Uglov, Moscow, Plazmennaya Protsessy v Metallurgii i Tekhnologii Neorganicheskikh Materialov, Russian, 1974, pp 66-84]

Introduction

The development of the technique of generating low-temperature plasma placed in the hands of technologists an extremely flexible tool, in terms of thermal properties, for processing solids. Plasma heating quickly found application for cutting, coating, melting, welding, spheroidize annealing of powders and for other purposes. The range of application of low-temperature plasma for research and industrial purposes continues to expand apace.

The primary problems that are solved during plasma processes are those that involve interaction of plasma with a solid. These include local heating, melting of the base and applied metal, directional removal of molten metal from a cut, or melting, spraying and acceleration of particles by the plasma during the application of coatings. The specific power which modern technological plasmatrons are capable of developing on a solid surface is 10^5-10^6 W/cm^2 during plasma arc processing and 10^3-10^4 W/cm^2 during plasma jet processes. The specific power of the plasma jet may be decreased virtually without bound, depending on the requirements of the process, and can be spread over a large area, insuring "soft", uniform heating of a surface. This property of the plasma jet is used for melting and metal spray coating.

Most plasma treatment processes, even with the highest concentration of energy, may be described on the basis of the theory of concentrated heat sources, developed by N. N. Rykalin [1].

Certain aspects of thermal physics of the most commonly used plasma processes and ways of controlling them are discussed in the article.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR K UDC 621.39[illegible]-181.3 2

GREVTSEV, N. V., YEGOROV, A. V., KONSHIN, V. V., KOSTINSKIY, L. N., [illegible], Yu. L., PETROV, Yu. P.

"An Installation for Film Vaporization by the Method of Electrical Explosion of Foil"

Elektron. prom-st'. Nauchno-tekhn. sb. (The Electronics Industry. Scientific and Technical Collection), 1970, No 1, pp 67-69 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V233)

Translation: The authors describe the semiautomatic MEV-1 machine designed for laboratory production of vaporized current-conducting films, contact areas and so forth by the method of electrically exploding foil. To assure directed flight of the foil particles, a magnetic field is used together with a special directing device which utilizes gas-kinetic forces. A bank of capacitors is used to create the explosion. Three illustrations, bibliography of six titles. N. S.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--ACRYLONITRILE POLYMERIZATION IN LIQUID AMMONIA -U-

AUTHOR-(03)-KRASULINA, V.N., NOVOSELOVA, A.V., ORLOVA, G.A.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(5), 1029-32

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--LOW TEMPERATURE EFFECT, POLYMERIZATION, ACRYLONITRILE, AMMONIA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1018 STEP NO--UR/0459/70/012/005/1029/1032

CIRC ACCESSION NO--AP0136445

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5"

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2/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136445

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POLYMN. OF ACRYLONITRILE (I) IN LIQ. NH SUB3 SOLNS. OF LI, NA, AND LINH SUB2 AT MINUS 70DEGREES GAVE WHITE POLYACRYLONITRILE (OF MOL. WT. 78,000-430,000) IN HIGH YIELDS. THE POLYMN. RATE REACHED A MAX. AT MINUS 70 TO MINUS 50DEGREES AND DECREASED AT HIGHER TEMPS. THE POLYMN. WAS ZERO ORDER WITH RESPECT TO I. FACILITY: INST. VYSOKOMOL. SOEDIN., LENINGRAD, USSR.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

Acc. Nr. AP0055644 Abstracting Service: CHEMICAL ABST. 6-70 Ref. Code UR0460

111878y **Stereospecific polymerization of trimethylsilyl methacrylate by butyllithium.** Andreev, D. N.; Krasulina, V. N.; Mikhailova, N. V.; Nekrasova, T. I.; Novoselova, A. V.; Smirnova, G. S. (Inst. Vysokomol. Soedin., Leningrad, USSR). *Vysokomol. Soedin., Ser. B* 1970, 12(2), 123-6 (Russ). The polymn. of $H_2C:CMeCO_2SiMe_3$ (I) in the presence of BuLi gave 90-100% of the corresponding polymer (II), which is extremely hygroscopic and is hydrolyzed by air moisture. Ir and NMR spectroscopy of poly(methacrylic acid) (III), obtained by the mild hydrolysis of II, showed that ≤65% of all segments are isotactic. The polymn. of I is recommended as a convenient method for the prepn. of isotactic III. CPJR

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

UDC 612.821

KRASUSKAYA, N. A.

"Evaluation of the Strength of the Stimulation Process by Results of the Use of Caffeine"

Leningrad, Metodiki Otsenki Svoystv Vysshey Nervnoy Deyatel'nosti, "Nauka," 1971, pp 72-77

Abstract: In evaluating the strength of the stimulation process in dogs, testing should be begun with a 0.4 gram dose of caffeine. If a decrease in reflexes is observed at this point, the next dose is 0.2 grams. If there is an increase in reflexes with a dose of 0.4 grams, 0.7 grams should be used. Each of the doses of caffeine used should be repeated at least five times. One table and 21 bibliographic entries.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

UDC 612.821

KRASUSKIY, V. K. (Deceased)

"Some 'Additional' Criteria for Evaluating Features of Higher Nervous Activity"

Leningrad, Metodiki Otsenki Svoystv Vysshey Nervnoy Deyatel'nosti, "Nauka," 1971, pp 64-72

Abstract: Such conditioned reflex indicators as the degree of subsequent inhibition after a differentiating stimulus, the number of phase relationships and the coefficient of variability can serve as additional indicators in evaluating typological features of the nervous systems of dogs. Three tables and 13 bibliographic entries.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

Acc. Nr. AP0039251 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code UR 0096

68946e Deposits of iron oxides in the lower part of the fire-box of a supercritical-pressure boiler with mazut firing. Krasnikova, I. Yu.; Belyakov, I. I. (Tsent. Kotloturbin. Inst., Leningrad, USSR). *Teploenergetika* 1970, 17(1), 28-32 (Russ). Porous Fe oxide deposits were formed in the boilers of the Konakov elec. power plant. The deposits were black with 0.1-0.2 mm thickness consisting of 84-96% magnetite, <5.5% Cu, and <6% Ca, with small amt. of Mn, Cr, Ni, and V. There were signs of pit corrosion under the deposits. The rate of deposit formation depends on the thermal load and mainly on the degree of the use of mazut (fuel oil). When the boilers were fired with gas, no deposit formation took place on the boiler tubes. The corrosion assocd. with the deposits causes complete destruction of the tubes after 6000-7000 hr of operation with mazut or combined gas-mazut firing. M. Shelef

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REEL/FRAME
19740476

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR UDC: None

KRASYUK, B. A., Doctor of Technical Sciences

"Laser Beam Applications"

Moscow, Sovremennaya tekhnologiya priborostroyeniya, No 8, 1972, pp 3-13

Abstract: Written in the popular science style, with no mathematical analysis except for a single simple formula, this article describes some of the manifold applications of the laser. As it does so, it throws enough light on laser operation to indicate why the laser is capable of performing those functions. It defines coherence as the characteristic in which two or more random processes strengthen or weaken each other when summed, and sets the limits of laser pulse power output at from tens of kilowatts to more than several megawatts. Among the laser's latest achievements, it lists estimation of the ability of semiconductor materials to withstand gamma radiation, and the capacity of laser radiation of about 1.06 microns in wavelength, where the active element is glass with a neodymium impurity, to stimulate effects in semiconductors similar to those triggered by gamma radiation. Typical processes of laser

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

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UDC: None

KRASYUK, B. A., Sovremennaya tekhnologiya priborostroeniya, No 8, 1972, pp 3-13

technology are described, including automatic devices for adjusting the rated values of carbon film resistors sealed in glass. These devices are so effective that deviations of no more than 0.01% from the rated value are tolerated under mass production conditions. The function of the laser and the operation of laser devices in punching holes in foil or fine metallic layers are discussed as well as the differences in views of theoretical physicists concerning the ability of the laser in this direction. A list of the various kinds of welding lasers can do is presented, together with a note about the laser devices, such as the Luch-1 and UL-2, produced in the Soviet Union for industrial tool manufacture.

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USSR UDC 621.38.836.112.15c24

BERKOVSKAYA, K.F., KIRILLOVA, N.V., KONAKOVA, R.V., KRASYUK, B.A., MESKIN, S.S., RAVICH, V.N., SOBOLEV, V.I., SHUMAN, V.B.

"Opticoelectronic Pair, Light-Emitting Diode--Photothyristor: New Element Of Electronic Apparatus"

V sb. Mikroelektronika (Microelectronics--Collection Of Works), Moscow, Izd-vo "Sovetskoye Radio," No 4, 1971, pp 216-228

Abstract: The possibilities are analyzed of a new type of opticoelectronic pair, GaAs light-emitting diode--Si photothyristor. The characteristics and parameters are furnished of light-emitting diodes and photothyristors of various types. The possibilities of their optimum combination are considered. Specific regimes of operation are recommended and the parameters of the opticoelectronic pair are presented for three regimes of operation. 6 fig. 3 tab. 8 ref.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

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8

UDC 621.391.63

AVTONOMOV, V. A., BORISOV, B. S., GRUDININ, A. S., VARLAMOV, I. V., KANDYBA, Pe, Ye., KOLYASNIKOV, V. A., KRASYUK, B. A., MESKIN, S. S., PETRUSEVICH, V. A., POLTORATSKIY, E. A., RAVICH, V. N., and CHICHERIN, L. A.

"High-Spped Optical-Electronic Switch"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronics Technology. Scientific-Technical Collection. Microelectronics), 1971, Issue 2(28), pp 3-8 (from RZh-Elektronika i yeye primeneniye, No 8, August 1971, Abstract No 8B321)

Translation: An optical-electronic pair is developed, on the basis of which a hybrid microcircuit is produced which assures a high galvanic decoupling and is compatable with respect to the input and output parameters with integrated logic circuits manufactured by domestic industry. 4 ill. 4 ref.
Summary.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

UDC: 681.327.02

USSR

YESHCHIN, K. K., KRASYUK, B. A., MEDVEDEV, N. F., MESKIN, S. S., RAVICH, V. N., SOROKIN, A. G.

"A Memory Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 28, 1970, Soviet Patent No 280543, Class 21, filed 11 Jan 69, p 40

Abstract: This Author's Certificate introduces a memory device which contains a diode matrix connected to control keys and to a discharge readout amplifier. As a distinguishing feature of the patent, the signal-to-noise ratio is improved by connecting a diode light source and optically coupled photo receiver to each group of diodes in the matrix. The photo receivers are united and connected to the input of the readout amplifier.

USSR UDC: 621.382.3

IGNATKINA, R. S., KURGAYEVA, N. Ye., KRASYUK, B. A., MESKIN, S. S., NEDEL'SKIY, N. F., RAVICH, V. N., TSARENKOV, B. V., Moscow Coordinating [illegible] Sciences of the USSR, Leningrad

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5"

"The Gallium Phosphide Electroluminescent Dynistor"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 5, No 9, Sep 71, pp 1695-1699

Abstract: This paper describes sources of red and green light with an S-shaped current-voltage curve based on epitaxial gallium phosphide PNPN structures -- electroluminescent dynistors. The electrical and electroluminescent characteristics and parameters of these devices are presented, and it is shown that the properties of electroluminescent gallium phosphide dynistors are similar to those of dynistors based on other materials.

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Optics & Spectroscopy

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DONCHENKO, V. A., ZUYEV, V. YE., KRASYUK, I. K., PAL'YANOV, P. A., PASHININ, P. P., PROKHOROV, A. M., KABANOV, M. V.

"Energy Attenuation of Supershort Pulses of Optical Emission by Dispersive Media"

Moscow, Pis'ma v ZhETF, Vol 18, No 4, 1973, pp 230-232

Abstract: Preliminary results are presented from direct measurements of one of the basic characteristics of a dispersive medium -- the attenuation coefficient -- on its interaction with a supershort pulse of optical emission. A decrease in attenuation of the supershort pulse by comparison with the case of emission which is continuous in time was detected experimentally. The results of measurements of the optical thickness of suspensions of polystyrene latexes and lycopodium spores are tabulated for continuous and pulsed emission. The observed "transparency" of the medium which is three times as great in the case of a laser pulse by comparison with continuous radiation is not connected with such effects as the thermal effect on the properties of the medium, the spectroscopic effect of saturation and self-focussing.

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USSR. UDC: None

KRASYUK, I. K. and PASHININ, P. I.

"Breakdown in Argon and Nitrogen With a Picosecond, 0.35μ Wavelength Laser Pulse"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, No 8, 20 April 1972, pp 471-473

Abstract: This letter represents the continuation of earlier papers by the authors mentioned above in which it was experimentally shown that a picosecond laser pulse with a wavelength of 0.69 μ produces optical puncture in argon, helium, or nitrogen, due to multiphoton ionization of the atoms or molecules. The present letter describes investigations to clarify the mechanism for the formation of breakdown in argon and nitrogen with a picosecond laser beam with a wavelength of 0.35 μ. In this investigation, the threshold intensity of the breakdown was measured as a function of the gas pressure. The schematic of the experimental apparatus is given in one of the early papers (ZhETF, 9, 581, 1969). Analysis of the experimental results shows that the relative increase in the probability of photoionization with increasing frequency of the radiation is satisfactorily given in the paper by L. V. Keldysh in the ZhETF, 47, 1945, 1964. The authors conclude that the theory of avalanche

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KRASYUK, I. K., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, No 8, 20 April 1972, pp 471-473

breakdown could be improved by taking into account the specific qualities of processes in the optical range: in particular, the effect of resonance transitions between oscillatory states, self-focusing effects, and the like. Members of the P. N. Lebedev Physics Institute, they express their gratitude to V. I. Vovchenko and M. V. Yevteyev for their help with the experiments, and to V. M. Marchenko for setting up the equipment for measuring the duration of the laser pulse.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

BUNKIN, F. V., KRASYUK, I. K., MARCHENKO, V. M., PASHININ, P. P., PROKHOROV, A. M., Physics Institute imeni P. N. Lebedev, Academy of Sciences, USSR

"Investigation of the Structure of a Spark Produced in the Focussing of a Picosecond Laser Pulse in Gases"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, No 4, 1971, pp 1326-1331

Abstract: Research is conducted on the formation of points of strong nonlinear scattering of laser radiation and breakdown in air, nitrogen, and argon due to the focussing of a ruby laser radiation pulse with a duration of 20 -- 100 picoseconds and a power of about 2×10^9 watts. The mechanism of this phenomenon, which is linked to the self-focussing of laser radiation in a gas, is discussed. An analysis is given of the results of determination of the breakdown thresholds by means of short-focus and long-focus lenses. The part played by the self-focussing of laser radiation in the development of breakdown at optical frequencies is assessed. 3 figures. 16 bibliographic entries.

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USSR

KRASYUK, I. K., PASHININ, P. P., and PROKHOROV, A. M., Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

"Experimental Observation of Induced Compton Absorption of Laser Emission in a Spark"

Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki (Letters to the Journal of Experimental and Theoretical Physics), Vol 12, No 9, 5 Nov 1970, p 439-442

Abstract: The first experiments of the observation of induced Compton absorption (ICA) of laser emission by a plasma are reported. The total number of radiated quanta remains constant, but the radiation energy is transferred to the electrons in the plasma by the change in frequency of the scattered quanta. The spectrum of the radiation that has passed through the plasma should, owing to the ICA, be shifted in the longwave direction. The experimental equipment, shown in a diagram, consists basically of a ruby laser that produces picosecond pulses (50 nsec), an optical amplifier, a plasma chamber with associated filters and optical elements, and a spectrograph. A beam splitter diverts part of the energy to a high-speed oscillograph. The energy density at the focus of the lens system was 2×10^{14} watt/cm^2, which is considerably greater than a spark in helium. Half

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KRASYUK, I. K., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 12, No 9, 5 Nov 1970, p 439-442

of the pulse energy is passed through the plasma, is collimated, and enters the top half of the spectrograph slit. The other half is diverted around the chamber to the lower half of the spectrograph slit. An arc spectrum of iron was photographed simultaneously for reference. Spectra obtained for helium and aluminum foil plasmas exhibit longwave shifts and shortwave absorption. Part of the energy is absorbed across the entire spectrum. Normalizing the curves for bremsstrahlung absorption in helium, the integral absorption for the spectrum is 1.3 ($\pm$0.3) x 10^{-5}, and the mean absorption is 0.26 x 10^{-2} cm^{-1}. Similar results are obtained when aluminum foil is placed at the focus in the plasma chamber. The authors conclude that the spectrum shift is due to induced Compton scattering. Other possible mechanisms are ruled out because of time considerations. The effect, therefore, can play a dominant role in plasma heating by electromagnetic radiation and under given conditions can greatly exceed the classical bremsstrahlung absorption, which is weakened by nonlinear effects in strong fields. Effective quantities of energy can be injected into the plasma only if the emission spectrum width is comparable to the radiation frequency. The authors thank F. V. Bunkin for discussions. Orig. art. has 2 figs. and 7 refs.

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USSR

[illegible], [illegible], KULEVSKIY, L.A., [illegible], P.P., and [illegible], A.M., Physics Institute imeni P.N. Lebedev, Academy of Sciences, USSR

"Application of Picosecond Ruby Laser Pulses for Measuring Damping Time of the Luminescence Band of the First Phonon Repetition of Exciton n in CdS"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 59, No 2(8), 1970, pp 346-349

Abstract: The object of this paper was to determine experimentally the attenuation time of a luminescence band in CdS generated as a result of radiation recombination of a free exciton with a simultaneously emitted photon and one longitudinal optical phonon. A previously described ruby laser emitting picosecond pulses was used as a source of nonlinear excitation in CdS. The ruby laser generated a series of picosecond pulses from which, by means of a special gate, a single pulse was discriminated. The discriminated pulse was directed to the

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USSR

KRASYUK, I. K., et al., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 59, No 2(8), 1970, pp 346-349

CdS sample mounted in a cryostat at a temperature of 77°K. The CdS luminescence induced by the ruby laser was directed at the FEU-F7 photomultiplier the electric signal from which was recorded by means of one of the beams of the OLK-02 high-speed oscillograph. The oscillograph also recorded, simultaneously, the generated radiation pulse, a portion of which was directed at a coupled photoelement FEK-15. A portion of CdS radiation was focused on the slit of a IEP-51 spectrograph. By placing a proper filter before the photomultiplier it was possible to observe green radiation from CdS or a blue band of the first phonon repetition of exciton A. The experimental value of the attenuation time was 1.3 nanosec. It is concluded that the use of picosecond laser pulses for investigating relaxation processes in solids will make it possible to obtain a series of new data.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

1/2 051 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--INVESTIGATION OF BREAKDOWN IN ARGON AND HELIUM PRODUCED BY A PICOSECOND RUBY LASER LIGHT PULSE -U-

AUTHOR-(03)-KRASYUK, I.K., PASHININ, P.P., PROKHOROV, A.M.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 5, PP 1606-1608

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ARGON, HELIUM, RUBY LASER, PICOSECOND PULSE, IONIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0002 STEP NO--UR/0056/70/058/005/1606/1608

CIRC ACCESSION NO--AP0127652

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

2/2 051 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0127652

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THRESHOLD FLUX FOR BREAKDOWN IN ARGON AND HELIUM INDUCED BY A 50 PICOSECOND RUBY LASER PULSE IS INVESTIGATED. THE RESULTS SHOW THAT BOTH FOR ARGON AND HELIUM THERE EXIST PRESSURE RANGES IN WHICH BREAKDOWN OCCURS EITHER AS THE RESULT OF THE AVALANCHE MECHANISM OR AS A RESULT OF MULTIPHOTO IONIZATION OF THE GAS ATOMS IN THE FIELD OF A STRONG LIGHT WAVE. THE TWO MECHANISMS CAN BE DISTINGUISHED THANKS TO THEIR DIFFERENT DEPENDENCE ON GAS PRESSURE. THE MAGNITUDES OF THE MULTIPHOTON IONIZATION PROBABILITIES ARE ESTIMATED FOR THRESHOLD VALUES OF THE BREAKDOWN FLUXES. THE EXPERIMENTAL BREAKDOWN THRESHOLDS AND IONIZATION PROBABILITIES ARE COMPARED WITH THOSE CALCULATED ON BASIS OF THEORETICAL DATA AVAILABLE IN THE LITERATURE. FACILITY: FIZICHESKIY INSTITUT IM. P. N. LEBEDEVA, AKADEMII NAUK SSSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

1/2 013 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--A STUDY OF GASLESS VARIANT OF S. PARATYPHI B AND ITS EPIDEMIOLOGICAL SIGNIFICANCE -U-

AUTHOR-(04)-KRASYUK, L.S., ZARITSKIY, A.M., DEMIKHOVSKAYA, A.A., ZAKHARENKO, N.I.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 5, PP 69-71

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SALMONELLA PARATYPHI, EPIDEMIOLOGY, RIVER WATER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/0092 STEP NO--UR/0016/70/000/005/0069/0071

CIRC ACCESSION NO--AP0114488

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

2/2 013 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114488

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS STUDIED 23 STRAINS OF PARATYPHOID B MICROBES WHICH FAILED TO FORM ANY GAS ON THE MEDIA WITH CARBOHYDRATES AND MULTIATOMIC ALCOHOLS. THESE STRAINS WERE ISOLATED FROM THE PATIENTS INFECTED BY DRINKING RIVER WATER. BIOCHEMICAL ACTIVITY AND PATHOGENICITY OF THESE STRAINS FAILED TO CHANGE AFTER PASSAGE ON NUTRIENT MEDIA AND THROUGH THE ORGANISM OF MICE FOR 3 YEARS (OBSERVATION PERIOD). IN STUDYING THE NUCLEOTIDE COMPOSITION OF DNA OF GAS FORMING AND GASLESS VARIANTS OF S. PARATYPHI B THE AUTHORS FAILED TO FIND ANY STATISTICALLY SIGNIFICANT DIFFERENCES BETWEEN THE COEFFICIENTS OF THEIR SPECIFICITY AND ALSO BETWEEN THE CONTENT OF INDIVIDUAL NITROGEN BASES. APPARENTLY, THE CAUSE OF THE CHANGES OF BIOCHEMICAL PROPERTIES OF S. PARATYPHI B RESULTING FROM THE STAY OF THE MICROBE IN WATER SHOULD BE SOUGHT IN ALTERATION OF THEIR ENZYMATIC COMPOSITION. FACILITY: KIEV INSTITUT EPIDEMIOLOGII MIKROBIOLOGII I PARAZITOLOGII.

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USSR UDC: 621.396.96:621.391.[illegible]

VERENTSOV, B. A., KRASYUK, N. P., TUPITSYN, L. A., SHUPETSI, I. L.

"Defining Characteristics for Radar Recognition of Objects"

Tr. Sev.-Zap. zaoch. politekhn. in-t (Works of the Northwest Polytechnical Correspondence Institute), 1972, No 20, pp 5-8 (From RZh-Radiotekhnika, No 12, Dec 72, abstract No 12G8 [résumé])

Translation: The authors examine selection of optimum parameters of a radar signal reflected from a target, where these parameters are typical characteristics of an observed class of objects. It is shown that there is an optimum duration for the probe signal which depends on the structure of the object. Data are given from corresponding experiments.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

UDC: 623.962.396

VARENTSOV, B. A., KRASYUK, N. P., TUPITSYN, L. A., SHAPIRIN, I. L.

"Experimental Studies of the Radar Characteristics of Objects by the Method of Hydroacoustic Modeling"

Tr. Sev.-Zap. zaoch. politekhn. in-t (Works of the Northwest Polytechnical Correspondence Institute), 1972, No 20, pp 13-15 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12G33 [résumé])

Translation: The paper describes an equipment complex for studying the radar characteristics of different objects by methods of hydroacoustic modeling. The measurement procedure is given.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201610004-5

USSR

UDC: 621.371.333.3

LANDE, B. Sh., KRASYUK, N. P., MEGRETSKAYA, I. I.

"On the Space-Time Characteristics of the Field of Scattering From a Rough Surface"

Tr. Sev.-Zap. zaoch. politekhn. in-t (Works of the Northwest Polytechnical Correspondence Institute), 1972, No 20, pp 16-18 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12G24 [résumé])

Translation: Solutions are found for the problem of scattering of microwaves on a statistically rough surface in the Kirchhoff approximation with small perturbations, and an expression is derived for space-time correlations in the envelope of scattered radio signals under conditions of high radar resolution.

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KRASYUK, N. P., LANDE, B. SH. MEGRETSKAYA, I. I.

"Effect of Radar Resolution on the Spectral Width of a Microwave Signal Scattered by the Sea Surface"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 10, 1972, pp 2182-2184

Abstract: The theory of radio wave scattering from the sea surface simulated in the form of a superposition of large and small unevennesses has been presented previously as applied to electromagnetic waves [I. M. Fuks, Izv. vuzov MVSSO SSSR (Radiofizika), Vol 9, No 5, 876, 1966]. The nondissipative mechanism of broadening of the spectrum as a result of the orbital motion of the particles is established in the form

$$\Delta f(\text{hertz}) = (q/2)\sqrt{gh\gamma}/\pi,$$

where h is the mean square height of the surface, γ is the dispersion of the slope angles, g is the gravitational constant and q is the wave number. Considering that the sea surface is a random surface with respect to heights with a normal distribution law, the question of the effect of the dimensions of the resolved section of the surface on Δf has remained unclear. Expressions are derived for this mechanism, and the band width $2\Delta f$ at the half power level is

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KRASYUK, N. P., et al., Radiotekhnika i Elektronika, Vol 17, No 10, 1972, pp 2182-2184

defined in the form

$$2\Delta f = \sqrt{2.88 + \delta^2} / \pi.$$

The values of $2\Delta f$ are plotted as a function of L -- the linear dimension of the resolved area. In the general case the graphs of the function contain two horizontal segments on the upper and lower levels. The first of these levels corresponds to the limiting high resolution and extends to L ~ 30 meters. In this case the spectral width is in accordance with the function presented by Fuks. The second horizontal segment corresponds to the limiting low resolution of the instrument and extends from L = 1,000 meters. In this case the spectral width arises from the dissipative mechanism of damping of the capillary waves and is in accordance with the function presented by F. G. Bass, et al., [Izv. vuzov MVSSO SSSR (Radiofizika), Vol 2, No 2, 290, 1963].

With high resolution of the instrument the value of $2\Delta f$ is larger, the higher the wind velocity and the slip angle of the radio beam. The minimum slip angle during irradiation of the surface opposite to the wind effect is approximately 3-4° inasmuch as the distribution law of the slope angles differs from the normal in this case and has a shifted mean value.

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