"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANIK, V.P.

Effect of delays on the self-oscillations by an external periodic force. Izv. vys. ucheb. zav; radiofiz. 5 no.3:561-571 '62.
(MIRA 15:7)

1. Chernovitskiy gosudarstvennyy universitet.
(Oscillators, Electric)

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42115

S/109/62/007/010/002/012
D271/D308

9.3260

AUTHOR: Rubanik, V.P.

TITLE: Mutual synchronization of self-oscillating systems

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 10, 1962, 1711 - 1719

TEXT: The effect is studied of delay in interaction on mutual synchronization of two inductively coupled oscillators with very slightly differing self-oscillation frequencies. Delay is related to the period of considered frequency, weak interaction and arbitrary delays are taken into account. Oscillators are of electron tube type, operating in class A. The system is analyzed with the purpose of discussing stationary state conditions, stability and transitional processes. The case of symmetry is first investigated, i.e. when parameters of coupled oscillators are nearly equal. When there is no delay in interaction, stable stationary conditions exist only in a certain small range of frequency difference between two oscillators. As interaction becomes stronger, the range of mutual synchronization becomes wider. With any strength of interaction, two modes

Card 1/2

trend of

Card 2/2

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33863

S/041/62/014/001/004/007
B112/B104

16.3400 16.3900

AUTHORS: Rubanik, V. P., Fodchuk, V. I. (Chernovtsy)

TITLE: Existence and properties of a bounded solution of a system of quasi-linear differential-difference equations

PERIODICAL: Ukrainskiy matematicheskiy zhurnal, v. 14, no. 1, 1962, 87 - 92

TEXT: The authors consider a system of quasi-linear differential-difference equations of the form

$$du(t)/dt = \sum_{l=0}^{r} H_l u(t - \Delta_l) + F(t, u(t), u(t - \Delta_1), \ldots, u(t - \Delta_r), \varepsilon).$$

The real parts of the roots of the equation

$$\mathrm{Det}(Ez - \sum_{l=0}^{r} H_l e^{-\Delta_l z}) = 0$$

are assumed to be negative. It is demonstrated that an unambiguous,

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L 23311-65 EWT(1) IJP(c)

ACCESSION NR: AR5002273 S/0044/64/000/010/B039/B039

SOURCE: Ref. zh. Matematika, Abs. 10B187

AUTHOR: Rubanik, V. P.

TITLE: The interaction of two nonlinear vibrational systems in the presence of small retarded bond forces

CITED SOURCE: Tr. Seminara po teorii differents. uravneniy so otklonyayushchimsya argumentom. Un-t druzhby narodov im. Patrisa Lumumby, v. 2, 1963, 183-199

TOPIC TAGS: nonlinear vibrational system interaction, equation with retarded arguments, small retarded bond force, asymptotic series

TRANSLATION: The system of the equation (1) is discussed

$$\ddot{x}(t)+\omega_1^2(\tau)x(t)=\epsilon f_1[\tau, x(t), \dot{x}(t), \ddot{x}(t), y(t-\Delta), \dot{y}(t-\Delta), \ddot{y}(t-\Delta)],$$

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ACCESSION NR: AR5002273

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$$\ddot{y}(t)+\omega_2^2(\tau)\,y(t)=\varepsilon f_2[\tau,\ x(t-\Delta),\ \dot{x}(t-\Delta),\ \ddot{x}(t-\Delta),\ y(t),\ \dot{y}(t),\ \ddot{y}(t)], \qquad (1)$$

where ε is a small parameter, $\tau=\varepsilon t$, Δt the retardation, f_1, f_2, ω_1, ω_2 have a sufficient number of derivatives for their arguments. The solution is sought as an asymptotic series according to the Kry*lov Bogolyubov method, expanded by the author to apply to equations with retarded

$$x(t)=a(t)\cos\theta_1+\varepsilon U_1[\tau,a(t),b(t),\theta_1(t),\theta_2(t)]+\varepsilon^2U_2+\ldots,$$
$$y(t)=b(t)\cos\theta_2+\varepsilon V_1[\tau,a(t),b(t),\theta_1(t),\theta_2(t)]+\varepsilon^2V_2+\ldots, \qquad (2)$$

where U_1, U_2, V_1, V_2... are limited functions which are periodic in respect to each of the arguments $\theta_i(t)=\int\omega_i(\varepsilon t)\,dt+\alpha_i(t)$, $\theta_2(t)=\int\omega_i(\varepsilon t)\,dt+\alpha_2(t)$, $\alpha_1(t)$, $\alpha_2(t)$ $a(t)$, $b(t)$, being essentially slowly changing functions of time. The

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SUB CODE: MA ENCL: 00

Card 2/2

RUBANIK, V.P. (Chernovtsy)

Parametric excitation of oscillations dependent on periodical changes in delay. Izv. AN SSSR. Mekh. i mashinostr. no.6:141-142 N-D '63. (MIRA 17:1)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

S/141/63/006/001/014/018
E140/E135

AUTHORS: Al'tshul', B.A., and Rubanik, V.P.

TITLE: The interaction of nonlinear oscillatory systems in the presence of linear coupling forces with small delays

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, v.6, no.1, 1963, 137-148

TEXT: Previous studies of nonlinear coupled oscillatory systems include the assumption of instantaneous coupling forces; current engineering practice requires the study of such systems in the presence of propagation delays in the coupling forces. The present study will consider nonlinear systems with linear coupling forces subject to small delays. In the interests of generality, it will be assumed that the parameters of the oscillatory systems and the magnitude and delay of the coupling force are slowly varying functions of time; the nonlinearities are assumed to be weak. The solution is obtained by successive approximations. Examples are given of the Van der Pol equation with inductive coupling, and the effects of delay on oscillator "pulling" are

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The interaction of nonlinear ... S/141/63/006/001/014/018
E140/E135

investigated. There are 3 figures.

ASSOCIATION: Chernovitskiy gosudarstvennyy universitet
(Chernovitsy State University)

SUBMITTED: May 8, 1962

Card 2/2

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

The interaction of nonlinear ... S/141/63/006/001/014/018
E140/E135

investigated. There are 3 figures.

ASSOCIATION: Chernovitskiy gosudarstvennyy universitet
(Chernovitsy State University)

SUBMITTED: May 8, 1962

Card 2/2

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANIK, V.P.; KRAVCHENKO, Z.L.

Effect of coupling delay on the backlash processes in complex self-oscillatory systems. Izv. vys. ucheb. zav.; radiofiz. 6 no.2:380-391 '63. (MIRA 16:6)

1. Chernovitskiy gosudarstvennyy universitet.
(Oscillators, Electric) (Electronics)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

L 18011-63

ACCESSION NR: AP3003396 S/0142/63/006/003/0278/0282

45

AUTHOR: Rubanik, V. P.

TITLE: Mutual synchronization of self-oscillating systems operating at multiple frequencies

SOURCE: IVUZ. Radiotekhnika, v. 6, no. 3, 1963, 278-282

TOPIC TAGS: self-oscillating system, synchronization

ABSTRACT: Mutual synchronization of two self-excited oscillators, when the frequency of one is a multiple of the other's frequency, and when the coupling system between them introduces a delay, is analyzed mathematically. A set of differential-difference equations is used to describe interaction between the oscillating systems. It is found that: (1) the mutual synchronization region decreases when the coupling-system delay increases, and (2) the higher-frequency oscillator locks-in the lower-frequency oscillator as the latter

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L 18011-63

ACCESSION NR: AP3003396

inherently has some higher-frequency oscillations. Orig. art. has: 1 figure and 11 formulas.

ASSOCIATION: Kafedra prikladnoy matematiki i mekhaniki Chernovitskogo Gos. universiteta (Department of Applied Mathematics and Mechanics, Chernovitsy State University)

SUBMITTED: 25Jun62 DATE ACQ: 02Aug63 ENCL: 00

SUB CODE: SD NO REF SOV: 010 OTHER: 001

Card 2/2

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANIK, V.P. [Rubanyk, V.P.] (Chernovtsy)

Construction of transients in systems with delay. Avtomatyka 8 no.5: 78-79 '63. (MIRA 17:1)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANIK, V.P.

Remarks on the article "Mutual synchronization of self-oscillatory systems." Radiotekh. i elektron. 8 no.11:1958 N '63. (MIRA 17:1)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

TRANSLATION: This is a summary of a paper dealing with the influ-
ence of the delay of the coupling forces on processes of mutual syn-
chronization of masers. Identical generators are considered, and
the coupling forces are assumed small. For the case of large de-

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ACCESSION NR: AR5005662

tunings of the generator frequencies relative to the transition fre-
quencies, it is shown that there exists a certain detuning region

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ACCESSION NR: AR5005662

SUB CODE: EC ENCL: 00

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANIK, V. P. (Chernovtsy); STARIK, L. K. (Chernovtsy)

Interaction of a complex quasi-linear vibrating system with an imperfect energy source in the presence of combined resonances. Izv. AN SSSR. Mekh. i mashinostr. no.3:147-151 My-Je '64. (MIRA 17:7)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

ACCESSION NR: AP5002323 S/0141/64/007/005/0914/0925

B

AUTHORS: Rubanik, V. P.

TITLE: Forced synchronization of a self oscillator with delayed feedback

SOURCE: IVUZ. Radiofizika, v. 7, no. 5, 1964, 914-925

TOPIC TAGS: self oscillator, forced synchronization, frequency locking, fundamental frequency synchronization, subharmonic synchronization

ABSTRACT: Earlier investigations of the subject were limited to the synchronization of a self-oscillator with a small delay in the feedback circuit, and to synchronization at the fundamental frequency of the external generator. The present paper deals with large delay and also with resonance at harmonics of the external generator. In the case of fundamental resonance and large delay, self oscillations can be excited in the system at several frequencies, and it is shown that the stability limits of the synchronized oscillations depend on

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ACCESSION NR: AP5002323

the feedback-loop parameters. Synchronization occurs at any amplitude of the external signal, and the range of synchronization increases with increasing external-signal amplitude, passing through a maximum, and then decreasing as a result of the limitation imposed by regeneration processes. The synchronization for the case of subharmonic resonance lies within a narrow band near the harmonic frequency in the case of zero or low delay, and two narrow bands symmetrical about the harmonic frequency in the case of large delay. The effects of circuit and feedback parameters are discussed. Orig. art. has: 8 figures and 15 formulas.

ASSOCIATION: Chernovitskiy gosudarstvennyy universitet (Chernovtsy State University)

SUBMITTED: 30Nov63 ENCL: 00 SUB CODE: EC

NR REF SOV: 011 OTHER: 003

Card 2/2

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

MAZDANYUK, M.F.; RUBANIK, V.P.

Random processes in linear systems with delay. Trudy Sem. po teor. diff. urav. s otklon. arg. 3:245-248 '65. (MIRA 19:1)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

L 39105-66

ACC NR: AP6030357 SOURCE CODE: UR/0424/66/000/002/0174/0175

AUTHOR: Marchenko, Yu. I. (Chernovitsy); Rubanik, V. P. (Chernovitsy)

ORG: none

TITLE: Interaction of oscillating systems in the presence of a wave connection between them

SOURCE: Inzhenernyy zhurnal. Mekhanika tverdogo tela, no. 2, 1966, 174-175

TOPIC TAGS: electronic oscillator, electric vibrator

ABSTRACT: In technology, oscillating system are encountered which consist of simple oscillators, connected by certain types of communication lines. These are systems of mechanical vibrators on a common elastic base, which are used in vibrating machines, systems of electromagnetic generators separated from each other and resonators and certain other systems. In this article, an example is used to study the possibility of an approximate replacement of a wave connection with a delay connection. A mechanical model consisting of two self-exciting vibrators connected to an infinitely long crossbrace is analysed. It is determined that the replacement can be made with addition of terms to the equations to describe the dispersion of energy. If the infinitely long crossbrace is replaced in the model with a finite brace fastened at each end, standing waves will be formed and no equivalent delay connection can be substituted. However, if the brace is long and energy dispersion takes place, standing waves will not form and the replacement is possible. Orig. art. has: 7 formulas. [JPRS: 36,581]

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

L 10535-66 EWT(d)/ LJP(c)

ACC NR: AR5018765 SOURCE CODE: UR/0274/65/000/007/A011/A011

55

SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz'. Svodnyy tom, Abs. 7A78 B

44,55

AUTHOR: Rubanik, V. P.

16,44,55

TITLE: Generalization of Krylov-Bogolyubov asymptotic methods over quasi-linear oscillatory systems with delays

44,55

CITED SOURCE: Sb. dokl. Tashkentsk. politekhn. in-t, no. 6, 1964, 1-7

TOPIC TAGS: oscillatory system, quasilinear oscillatory system, oscillation, asymptotic method, signal frequency, linear system

TRANSLATION: Disturbing forces may have a multifrequency nature in nonlinear oscillatory systems. In such cases, along with fundamental resonances, various combination resonances may arise describable by formulas of this form: $\Sigma p_k \omega_k + \Sigma g_m \nu_m \approx \omega \mu$, in which ω_k are the natural frequencies of system oscillations, ν_m are the disturbing-force frequencies, p_k and g_m are integers. Oscillatory

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L 10535-66
ACC NR: AR5018765

processes in quasi-linear systems having a delay small in comparison with their period of oscillations are considered. These processes are describable by a system of differential-difference equations which can be replaced by one vector-matrix equation. An asymptotic method for obtaining signal-frequency solutions is suggested; the method can be easily generalized and extended over the case of multifrequency resonance oscillations. Ordinary differential equations obtained from this method can be solved by numerical methods or on a computer having nonlinear units. Bib 6.

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Card 2/2

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

L 59640-65 EWT(d) Pg-4 IJP(c)

ACCESSION NR: AR5002272 S/0044/64/000/010/B039/B039

10
B

SOURCE: Ref. zh. Matematika, Abs. 10B185

AUTHOR: Rubanik, V. P.

TITLE: The basis of applicability of the averaging principle to systems of differential-difference equations

16

CITED SOURCE: Nauchn yezhegodnik za 1959 g. Chernovitsk. un-t. Fiz.-mat-em fak Chernovtsy, 1960, 533-535

TOPIC TAGS: differential difference equation, averaging equation system, Bogolyubov theorem

TRANSLATION: For the differential difference system

$$\frac{dx(t)}{dt} = \varepsilon X[t, x(t), x(t-\delta(\varepsilon))], \qquad (1)$$

with small parameter ε, the author formulates the sufficient conditions of

Card 1/2

ble, static
B. Demidovich
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APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

MARCHENKO, Yu.I.; RUBANIK, V.P.

Mutual synchronization of molecular generators. Izv. vys. ucheb. zav.; radiofiz. 8 no.4:679-687 '65. (MIRA 18:9)

1. Chernovitskiy gosudarstvennyy universitet.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANIK, V.P.

Interaction between two nonlinear oscillatory systems with small delayed coupling forces. Trudy Sem. po teor. diff. urav. s otklon. arg. 2:183-199 '63. (MIRA 18:2)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANIK, V.P.; YAREMA, P.F.

Forced synchronization of a self-excited oscillator with delayed feedback. Izv. vys. ucheb. zav.; radiofiz. 7 no.5:914-925 '64. (MIRA 18:2)

1. Chernovitskiy gosudarstvennyy universitet.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

MAYDANYUK, M.N.; RUBANIK, V.P.

Random processes in simple linear systems with retarded argument. Pribl. metod. resh. diff. urav. no.1:60-63 '63 (MIRA 18:2)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANIK, Vasiliy Vasil'yevich [Rubanyk, V.V.]; SHCHUDRYA, M.A., red.; GURVICH, O.G.[Hurvych, O.H.], tekhn. red.

[The young village of Ksaverovks] Molodits' Ksaverivky. Kyiv, Kyivs'ke oblasne knyzhkovo-gazetne vyd-vo, 1961. 34 p. (MIRA 14:11)

1. Predsedatel' kolkhoza "Druzhba", Kiyevskoy oblasti (for Rubanik). (Grebenki District--Rural conditions)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

CZECHOSLOVAKIA

RUBANINSKY, V.

Ministry of Health (Ministerstvo zdravotnictva)

Bratislava, Farmaceuticky obzor, No 9, 1963, pp 385-387

"Changes in the Organization in the Field of Distribution of Drugs and Health Materials."

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

A. RUBANOV

The legal status of foreigners in the U.S.S.R., by M. Boguslavsky and A. Rubanov. Moscow, Foreign Languages Publishing House, (N. D.)

122 P.

Translation of the original Russian Title. Pravovoye polozheniye inostrantsev v SSSR. Moscow, 1959.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANOV, A.I. (Gomel'skaya oblast')

Calcium hypochlorite as a material for oxygen production in school laboratory conditions. Khim. v shkole 10 no.4:54-56 Jl-Ag '55.
(Calcium hypochlorite) (Oxygen) (MLRA 8:9)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANOV, A. K.

"Spectral Analysis of Ore and Minerals," bk., Moscow, 1948.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

3-58-6-2/34

AUTHOR: Rubanov, A.M.

TITLE: The Main Thing at Present Is the Quality of Training (Glavnoye seychas - kachestvo podgotovki)

PERIODICAL: Vestnik Vysshey Shkoly, 1958, Nr 6, p 11-16 (USSR)

ABSTRACT: Party and Government regulations concerning the further development of the kolkhoz system call for a drastic improvement in the training of agricultural specialists. In recent years the correspondence system of agricultural training has been considerably expanded. In 1952, correspondence enrollment comprised 8,800 persons, in 1957 - 22,000 and in 1958 a 25,000 enrollment is expected. A reverse process is being observed at the resident vuzes, where the number of enrollments is noticeably going down. In 1955, 32,600 persons were admitted, in 1957 - 27,500, while for 1958 the plan provides for 26,000 persons. The number of students participating at present in higher agricultural correspondence schooling is 81,200. At the VSKhIZO, 8,500 students are being trained at present, of whom over 50 % are specialists of medium qualification (agriculturists, zootechnicians, mechanics, etc.), 10 % are kolkhoz presidents, sovkhoz directors, party workers, etc., 25 % are in some way connected with agricultural enterprises, and the

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remaining 15 % are not working in agriculture. At the Azovo-Chernomorskiy sel'skokhozyaystvennyy institut (Azov-Black Sea Agricultural Institute) instructors often refuse to work in the correspondence faculty due to their distaste for this type of training. Agricultural vuzes at present have 58 correspondence faculties. The author blames the Glavnoye upravleniye sel'skokhozyaystvennykh vuzov Ministerstva sel'skogo khozyaystva SSSR (Main Administration of Agricultural Vuzes, USSR Ministry of Agriculture) for not having trained the required teaching personnel for many of these faculties. Another serious deficiency is the poor organization of contact between the instructors and the students, and the unsatisfactory quality of some of the text material. The evaluation of the students' work is also criticized with reference to the Khar'kovskiy institut mekhanizatsii sel'skogo khozyaystva (Khar'kov Institute of Agricultural Mechanization). Another point at issue is the problem of furnishing students with textbooks. The Vsesoyuznyy sel'skokhozyaystvennyy institut (All-Union Agricultural Institute) has recently finished an inventory of textbooks being published. This will ascertain which textbooks are still needed by the correspondence students. The third substantial deficiency in organizing agricultural correspondence schooling

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is that the laboratory-examination meetings are overtaxed with lectures, and the time assigned for carrying out the planned work is too short. The author thinks that all the curricula of higher agricultural correspondence education should be revised. He also questions the necessity of 6 years of schooling for the correspondence students, and feels that it was a mistake to close the correspondence departments at the Kostroma, Ivanovo and Ryazan' agricultural institutes. They have been reopened in the meantime. The author feels that VSKhIZO should be an instructional-methodical center for higher agricultural correspondence education, and that training-consultation points should be established by the agricultural vuzes in accordance with the regulations laid down by the USSR Ministry of Higher Education.

ASSOCIATION: Glavnoye upravleniye sel'skokhozyaystvennykh vuzov Ministerstva sel'skogo khozyaystva SSSR (Main Administration of Agricultural Vuzes, USSR Ministry of Agriculture)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

24(1, 4) SOV/170-59-4-8/20

AUTHORS: Stepanov, B.I., Rubanov, A.S.

TITLE: On the Theory of Negative Optical-Acoustical Effect (K teorii otritsatel'nogo optiko-akusticheskogo yavleniya)

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 4, pp 52-62 (USSR)

ABSTRACT: A new phenomenon, the sounding of an optico-acoustical chamber when the source of light is replaced by a cooled body, was described and correctly explained by Veyngerov, Gerlovin and Pankratov [Ref 1]. Oscillations in gas pressure arise due to the periodic cooling connected with the transformation of the gas kinetic energy into the oscillational energy of molecules and then into radiation. In the present paper a detailed analysis of the main processes taking place in the optico-acoustical chamber is given. A concept of negative radiation fluxes, convenient for the description of the negative optico-acoustical effect, was formulated by Stepanov [Ref 4] and is employed in the present investigation. The negative optico-acoustical effect arises as a result of the negative pulsating illumination of a gas. Processes which take place at that are analogous to the processes arising during the absorption by the gas of a

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modulated flux of positive radiation, but they proceed in the opposite sense. Both the positive and negative optico-acoustical effects are described by the same mathematical relationships. The magnitude of pulsation of temperature resulting from the absorption of a modulated flux is proportional to the density of incident radiation and depends on the temperature of the surrounding medium. All calculations are carried out taking into account the background of thermal radiation. Expressions (30) and (31) in the present paper are converted into the formulae of Reference 5, derived without an allowance for the thermal radiation background, if the temperature of the surrounding medium is assumed to be equal to zero.

There are 4 tables, 1 graph and 7 Soviet references.

ASSOCIATIONS: Institut fiziki i matematiki AN BSSR (Institute of Physics and Mathematics of the Belorussian AS). BGU imeni V.I. Lenina (Belorussian State University imeni V.I. Lenin), Minsk

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RUBANOV, A.S.; STEPANOV, B.I., akademik

Entropy of the distribution of dynamic variables. Dokl. AN SSSR 140 no.1:96-99 S-O '61. (MIRA 14:9)

1. Institut fiziki AN BSSR. 2. AN BSSR (for Stepanov).
(Information theory)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

S/058/61/000/008/021/044
A058/A101

9,5300

AUTHORS: Stepanov, B. I., Rubanov, A. S.

TITLE: Calculation of the indications of a detector used with optical amplifiers

PERIODICAL: Referativnyy zhurnal, Fizika, no. 8, 1961, 178, abstract 8Ж209 ("Dokl. AN BSSR", v. 4, no. 9, 1960, 372-375)

TEXT: A general calculation of the indications of a radiation detector with an optical amplifier placed between the detector and the source is carried out. Equations describing the change in detector indications incident to switching on of the amplifier are derived. The amplification factor of the radiation flux is determined and the method of measuring it is indicated. The quantum yield of the amplifier's emission is considered. There is given a curve of the radiation detector indications as a function of the relative location of the detector and the volume under investigation. The applicability of the given analysis to amplifiers and attenuators of corpuscular streams is pointed out.

Ye. Aleksandrov

[Abstracter's note: Complete translation]

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANOV, A.S.

S/201/62/000/004/001/005
D234/D308

AUTHORS: Stsyapanaw, B.I. and Rubanaw, A.S.

TITLE: Distribution entropy of coordinates and momenta of a harmonic oscillator

PERIODICAL: Akademiya navuk Byelaruskay SSR. Vestsi. Seriya fizika-tekhnichnykh navuk, no. 4, 1962, 30-36

TEXT: For the entropies of Vth stationary state of a harmonic quantum oscillator, the authors obtain

$$H_q^v = \frac{1}{2} \ln \frac{h}{\mu\omega} - \int_{-\infty}^{\infty} \frac{e^{-y^2}}{\sqrt{\pi} 2^v v!} P_v^2(y) \ln \frac{e^{-y^2}}{\sqrt{\pi} 2^v v!} P_v^2(y) dy; \quad (2)$$

$$H_q^v = \frac{1}{2} \ln \mu\omega h - \int_{-\infty}^{\infty} \frac{e^{-y^2}}{\sqrt{\pi} 2^v v!} P_v^2(y) \ln \frac{e^{-y^2}}{\sqrt{\pi} 2^v v!} P_v^2(y) dy, \quad (3)$$

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P_v being Hermite's polynoms. The integrals were computed on an electronic computer 'Minsk-1' and are tabulated up to v - 12. Inequalities are established by which the difference of H and its value for v = 0 does not exceed $(\frac{1}{2})$ ln (2v + 1). The entropies are found to increase monotonically. The dependence on temperature is found to be

$$H_q = H_q^{v=0} + \frac{1}{2} \ln \operatorname{cth} \frac{h\omega}{2kT} ; \quad (12)$$

$$H_p = H_p^{v=0} + \frac{1}{2} \ln \operatorname{cth} \frac{h\omega}{2kT} . \quad (13)$$

If light is absorbed from outside one must substitute the equilibrium temperature by

$$T(u + S) = \frac{h\omega}{k \ln \left[1 + \frac{A}{B(u + S)}\right]} . \quad (20)$$

A, B being the probability coefficients for transitions between levels, u the density of equilibrium radiation. The relation

$$H_E < H_q + H_p \quad (25)$$

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Distribution entropy ...

is established. It is found that for a given average value H_p and H_q reach their maximum value at thermodynamical equilibrium. There are 2 tables.

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L 16150-63 EWT(d)/FCC(w)/BDS AFFTC/IJP(C)

ACCESSION NR: AR3005145 S/0058/63/000/006/B007/B007

SOURCE: RZh. Fizika, Abs. 6 B51

AUTHOR: Rubanov, A. S.

TITLE: On the entropy of coordinate and momentum probability distribution

CITED SOURCE: Sb.Materialy* Konferentsii molody*kh ucheny*kh AN BSSR. Minsk, AN BSSR, 1962, 156-158

TOPIC TAGS: entropy, dynamic variable, harmonic oscillator, coordinate, momentum, stationary state

TRANSLATION: The coordinate and momentum entropy in the stationary states of a harmonic oscillator are considered on the basis of the previously introduced definition of the dynamic variable (RZhFiz, 1963, 2B18). It is found that they increase with increasing number of the level. It is shown that their difference is equal to $\ln \mu\omega$, where μ -- mass and ω -- frequency of the oscillator. The connection between their values is calculated for different oscillators.
T. Khazanovich.

DATE ACQ: 15Jul63 SUB CODE: PH ENCL: 00

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

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S/250/62/006/004/001/001
I024/I224

AUTHORS: Rubanov, A. S., Metel'skiy, A. S., Gairilova, Ya. N., and Kogan, A. Sh.

TITLE: Calculation of the entropy of probability distributions of the co-ordinates and momenta of an harmonic oscillator

PERIODICAL: Akademiya nauk Belaruskay SSR. Doklady, v. 6, no. 4, 1962, 220–222

TEXT: The purpose of the article is to check the assumption that the co-ordinate and momentum entropies in a harmonic oscillator increase with the number of the stationary state level (Rubanov A. S., Stepanov B.I., DAN SSSR, 140, 1, 1961). The entropy of the probability distribution of the above variables for the υ-level is found from the expression

$$H^{\upsilon} - \ln a = -\int_{-\infty}^{+\infty} \frac{e^{-y^2}}{\sqrt{\pi}\, 2^{\upsilon} \upsilon\,!} H_{\upsilon}^2(y) \ln \frac{e^{-y^2}}{\sqrt{\pi}\, 2^{\upsilon} \upsilon\,!} H_{\upsilon}^2(y)\, dy. \quad (4)$$

$a = \sqrt{\frac{h}{\mu\omega}}$ for the entropy of the co-ordinate distribution and $a = \sqrt{\mu\omega h}$ for the entropy of the momemtun distribution, where μ is the mass and ω the frequency of the oscillator. In calculation, the integral taken twice, with the lower limit of 0 and the upper limit of b was chosen so that the value of the integral remained unchanged with the increase of b.

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The integral was evaluated by the Simpson rule with a step $h=0.001$, on an electronic computer "Minsk-1". The coordinate and the momentum entropies were calculated for the first 12 levels of the oscillator. Rubanov and Stepanov found the upper limits of the coordinate and momentum entropies:

$$H_q^v - H_q^0 = H_p^v - H_p^0 \leqslant \tfrac{1}{2}\ln 2(v+\tfrac{1}{2}). \qquad (6)$$

/A

For $v \leqslant 12$, $H_q^v - H_q^0 = H_p^v - H_p^0$ are less than $\frac{1}{2}\ln 2(v+\frac{1}{2})$ by about 0.5–0.6 of the coordinate and the momentum entropies with the increase of v was confirmed. The difference $[(H^v - H^0) - \frac{1}{2}\ln 2(v+\frac{1}{2})]$ was found to increase with the number v, tending to a certain limit as $v \to \infty$. The values of $[H^v - H^{-v}]$ and the corresponding differences of the upper entropy limits are given. These differences decrease as v increases. There are 2 tables.

ASSOCIATION: Institut fiziki AN BSSR (Institute of Physics AS BSSR). Institut matematikii i vychislitel'noy tekhniki AN BSSR (Institute of Mathematics and Computational Science of the AS BSSR)

PRESENTED: by B. I. Stepanov, Member of the Academy of Sciences BSSR

SUBMITTED: December 6, 1961

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANOV, A.S.

Entropy of the probability distribution of coordinates in the case of disturbance. Dokl. AN BSSR 6 no.7:423-426 Jl '62. (MIRA 16:8)

1. Institut fiziki AN BSSR. Predstavleno akademikom AN BSSR B.I. Stepanovym.
(Probabilities) (Quantum theory)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANOV, A.S.

Thermodynamic description of optimum coding. Dokl. AN BSSR 7 no.3:165-169 Mr '63. (MIRA 16:6)

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

(Information theory)

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L 15570-63
Ps-4/Pr-4/Pi-4 EPR/EWT(d)/EPF(c)/EWT(i)/EWT(m)/FOC(w)/BDS AFFTC/ASD
ACCESSION NR: AP3003041 RM/WW/JW/IJP(C) S/0250/63/007/005/0317/0319

AUTHOR: Rubanov, A. S.

TITLE: An inequality for entropy

SOURCE: AN BSSR, Doklady, V. 7, no. 5, 1963, 317-319

TOPIC TAGS: entropy, inequality, uncertainty, information theory

ABSTRACT: This paper was presented by academician of the AN BSSR B. I. Stepanov. The author uses

$$\varphi\left(\frac{\int f(x)\rho(x)dx}{\int \rho(x)dx}\right) \leq \frac{\int \varphi(f)(x)\rho(x)dx}{\int \rho(x)dx},$$

where $\alpha \leq f(x) \leq \beta$, α and β can be finite or infinite, and $f(x)$ is almost everywhere different from α and β. The weight function $\rho(x)$ is finite and positive everywhere on the interval and integrable, and $\varphi''(z)$ is positive and finite for $\alpha < t < \beta$. He derives $H > -\ln \int [f(x)]^2 dx$.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANOV, A.S.; SEDOY, G.I.

Entropy of the distribution of coordinates and pulses of a particle situated in a potential well with infinite walls. Dokl. AN BSSR 7 no.7:449-452 Jl '63. (MIRA 16:10)

1. Institut fiziki AN BSSR i Institut matematiki i vychislitel'noy tekhniki AN BSSR. Predstavleno akademikom AN BSSR B.I.Stepanovym.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANOV, A.S.

Uncertainty relation for the disintegration of a quasi-stationary state. Dokl. AN BSSR 7 no.9:594-597 S '63. (MIRA 17:1)

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

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L 63125-65 EWA(k)/FBD/EWT(1)/EEC(k)-2/T/EEC(b)-2/EWT(k)/EWA(h)/EWA(m)-2 JCTB/IJP(c)

ACCESSION NR: AR5019161 UR/0272/65/000/007/0008/0008
389:621.375.8:621.391.822

23
B

SOURCE: Ref. zh. Metrologiya i izmeritel'naya tekhnika. Otdel'nyy vypusk, Abs. 7.32.73

AUTHOR: Stepanov, B. I.; Rubanov, A. S.

TITLE: Considering the effect of noise on the optical properties of a laser

CITED SOURCE: Zh. prikl. spektroskopii, v. 1, no. 1, 1964, 35-40

TOPIC TAGS: solid laser, laser optical property, noise factor

TRANSLATION: The authors consider the effect of noise radiation density on the threshold, generating power, and efficiency of the working substance of a solid laser. Noises occur due to luminescence and scattering of the

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Bibl. with 2 titles.

SUB CODE: EC, OP ENCL: 00

Card 1/1

RUBANOV, A.S.; KOZYABO, L.A.

Coordinate entropy of steady states of hydrogenlike ions. Dokl. AN BSSR 8 no. 3:150-153 Mr '64. (MIRA 17:5)

1. Institut fiziki AN BSSR i Institut matematiki i vychislitel'noy tekhniki AN BSSR. Predstavleno akademikom AN BSSR B.I.Stepanovym.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

KABASHNIKOV, V.P.; RUBANOV, A.S.

Effects of rotation on the parameters of a potential Morse curve for a diatomic molecule. Dokl. AN BSSR 8 no.10:634-637 O '64. (MIRA 18:3)

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L 28376-66 EEC(k)-2/EWA(h)/EWP(k)/EWT(1)/EWT(m)/FBD/T/EWP(e) IJP(c) WH/WG

ACC NR: AP6013104 SOURCE CODE: UR/0368/66/004/004/0348/0350

73
B

AUTHOR: Stepanov, B. I.; Rubanov, A. S.; Chaley, A. V.

ORG: none

TITLE: Thermal regime of a glass laser 25

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 4, 1966, 348-350

TOPIC TAGS: neodymium glass, solid state laser, heat conduction, temperature distribution, laser r and d

ABSTRACT: The authors determine the temperature field in a neodymium-glass laser 15 by solving the equations of heat conduction in a cylindrical rod under conditions of repeated generation pulse. The boundary conditions are introduced by determining the Biot number. Separate equations are written for the heating and the cooling cycle, first for stationary conditions and an infinitely long rod, and then for periodic application of heat, assuming the heating (lasing) time to be much shorter than the cooling time. Tables are presented for several rod diameters and several cooling times. Orig. art. has: 14 formulas and 2 tables. [02]

SUB CODE: 20/ SUBM DATE: 29Jun65/ ORIG REF: 001/ ATD PRESS: 4262

UDC: 621.375.9

Card 1/1 CC

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

L 27729-66 FBD/EWT(1)/EWT(m)/EEC(k)-2/T/EWP(k)/EWA(h) IJP(c) WG

ACC NR: AP6015589 SOURCE CODE: UR/0368/66/004/005/0389/0394

AUTHOR: Stepanov, B. I.; Rubanov, A. S.; Kabashnikov, V. P.; Chaley, A. V.

ORG: none

TITLE: Temperature conditions of a ruby laser

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 5, 1966, 389-394

TOPIC TAGS: ruby laser, temperature, thermal analysis

ABSTRACT: Formulas are derived for the temperature field of a cylindrical ruby laser cooled by air, water, liquid nitrogen and liquid hydrogen assuming uniform heat release with respect to volume. Both monopulse conditions and free emission with a given prf are considered. The results of the formulas are tabulated and compared with the temperature conditions of a continuously operated ruby rod of various diameters. It is found that formulas derived by solving the thermal conductivity equation with boundary conditions of the first kind may be used for calculating the thermal conditions of a ruby laser at nitrogen temperatures when the ruby rod has a radius of 0.7 cm or greater. This type of calculation gives an error of approximately 25%. It is shown that steady-state conditions are reached for all practical purposes in about 0.03 sec for a cylinder with a radius of 0.8 cm. Orig. art. has: 3 tables, 18 formulas. [14]

SUB CODE: 20/ SUBM DATE: 29Jun65/ ORIG REF: 003/ ATD PRESS: 5002

UDC: 621.375.9

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

L 08867-67 EWP(o)/EWT(m) WW

ACC NR: AP6026964 SOURCE CODE: UR/0250/66/010/007/0452/0455

AUTHOR: Stepanov, B. I.; Rubanov, A. S.

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

50

B

TITLE: Energy balance in pumping radiation

SOURCE: AN BSSR. Doklady, v. 10, no. 7, 1966, 452-455

TOPIC TAGS: laser pumping, ruby laser, resonator, neodymium glass

ABSTRACT: The authors consider a ruby rod laser and establish the relation between the pumping power of the lamp and the pumping energy density inside the rod. The results are used to compare the mathematical equations with the experimental data. Relations are obtained for the quantity of pumping light falling on the rod, the power absorbed in the rod, noise, and the losses due to reflection and transmission. In addition to dependence on the properties of the lamp, reflector, and the active substance, noise also depends on the properties of the resonator. When the noise rises, resonator efficiency drops and generation power declines toward zero. Equations, similar to those obtained for ruby, are derived for four-level neodymium glass lasers. Orig. art. has: 16 formulas.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

L 09118-67 EWT(m)/EWP(e) WW

ACC NR: AP6027733 SOURCE CODE: UR/0020/66/169/004/0819/0822

114

AUTHOR: Stepanov, B. I. (Academician AN BSSR); Rubanov, A. S.

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

TITLE: Energy balance of radiation noise in lasers

SOURCE: AN SSSR. Doklady, v. 169, no. 4, 1966, 819-822

TOPIC TAGS: laser radiation, ruby, neodymium glass, radiation spectrum, power loss, luminescence, light scattering

ABSTRACT: This is a continuation of earlier work (Zhurn. prikl. spektroskopii v. 1, 35, 1964; DAN v. 162, 1039, 1965) dealing with laser power loss due to noise. In the present article a connection is established, on the basis of energy balance, between the noise radiation density and the resonator characteristics, and a general scheme is proposed for the calculation of the energy characteristics of solid-state laser with allowance for the effect of radiation noise. Separate energy-balance equations are written for each noise source (scattering of the main flux, luminescence) and analytic expressions are obtained for the integral noise density and for the power of the generated radiation with allowance for the noise. The relations show that the main effect of noise is to lower the laser threshold. Concrete formulas and some numerical estimates are given for three- and four-level lasers. In the case of neodymium-glass and ruby rods, the average noise-loss coefficients are estimated at

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ACC NR: AP6027733

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0.09 and 0.51 cm^{-1}, and the influence of the noise is appreciable, especially in the case of the neodymium glass. It is therefore concluded that the noise-loss coefficient is an important parameter of the resonator. Orig. art. has: 17 formulas.

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Card 2/2

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[illegible]

Afforestation

Deep furrowing in the dry steppe and semi-desert zones. Les. khoz. 5 No. 9, 1952

Monthly List of Russian Accessions. Library of Congress November 1952. UNCLASSIFIED.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

APANASEVICH, P.A.; BORISEVICH, N.A. VOLOD'KO, L.V.; GLADCHENKO, L.F.; GRIBKOVSKIY, V.P.; GURINOVICH, G.P.; IVANOV, A.P.; KUZNETSOVA, V.V.; PIKULIK, L.G.; FILIPOVICH, V.A.; RUBANOV, A.S.; RUBANOV, V.S.; SAMSON, A.M.; SARZHEVSKIY, A.M.; SOLOV'YEV, K.N.; UMREYKO, D.S.; KHAPALYUK, A.P.; YEL'YASHEVICH, M.A., akademik, red.

[Interaction betwen nonequilibrium radiation and matter] Vzaimodeistvie neravnovesnogo izlucheniia s veshchestvom. Minsk, Nauka i tekhnika, 1965. 223 p. (MIRA 18:3)

1. Akademiya nauk SSSR. Institut fiziki. Akademiya nauk Belorusskoy SSR (for Yel'yashevich).

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RUBANCV, B.V.

Plowing

Deep furrowing in the dry steppe and semi-desert zones. Les. khoz. 5. no. 9. 1952

Monthly List of Russian Accessions, Library of Congress, November 1952. Unclassified.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

S/169/62/000/009/045/120
D228/D307

AUTHORS: Rubanov, G. I., Logvinov, V. M. and Kovalevich, T. A.

TITLE: Problem of the vertical differentiated trap bodies in the south of the Siberian Platform

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 9, 1962, 37, abstract 9A249 (In collection: Geofiz. raboty pri reshenii geol. zadach v Vost. Sibiri, M., Gostoptekhizdat, 1961, 176-184)

TEXT: Unique differentiated dolerite dikes were recorded near the Yershovskiye Rapids on the R. Angara. Rocks strongly enriched in disseminated ilmenite are sometimes observed in the central (axial) parts of the dikes. The dikes were revealed by magnetic surveying operations on a scale of 1:10,000. Analysis of the magnetic fields allowed it to be supposed that they are due to steeply-dipping differentiated magnetic dolerite bodies. The external appearance and composition of the dolerites varies from fine-grained ophitic and poikilitic at the exocontacts to medium-grained pegmatoidal and

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...he south
...nearly oriented
Abstracter's note:

Card 2/2

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

MARTSINOVSKAYA, E.G.; MATSKEVICH, T.L.; RUBANOV, G.M.

Secondary electron emission from iodine. Fiz. tver. tela 3 no.12:3634-3636 D '61. (MIRA 14:12)

1. Fiziko-tekhnicheskiy institut imeni A.F. Ioffe AN SSSR, Leningrad.

(Secondary electron emission)
(Iodine)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

STESHENKO, V.V.; PIVOVAROV, A.V.; RUBANOV, I.A.

Single-crystal focusing short-wave X-ray quantimeter. Prib. i tekh. eksp. 8 no.4:189-190 Jl-Ag '63. (MIRA 16:12)

1. Nauchno-issledovatel'skiy institut mineral'nogo syr'ya Ministerstva geologii i okhrany nedr KazSSR.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

L 15531-63 EWP(q)/EWT(m)/BDS AFFTC/ASD/APGC WH

ACCESSION NR: AP3004917 S/0120/63/000/004/0189/0190

62

61

AUTHOR: Steshenko, V. V.; Pivovarov, A. V.; Rubanov, I. A.

TITLE: One-crystal short-wave focusing x-ray quantometer

SOURCE: Pribory*i tekhnika eksperimenta, no. 4, 1963, 189-190

TOPIC TAGS: quantometer, spectrometer, x-ray-spectral analysis

ABSTRACT: A ten-channel spectrometer is described whose distinguishing feature is that it uses one crystal for all working channels. The quantometer includes a 5BKhV-1 x-ray tube, a curved quartz analyzing crystal, a container with MSTR-4 counters and a PS-10000 scaler. An eleventh, monitor, channel is of goniometer type and can be tuned to any of the working elements. The quantometer is tuned to the following elements: 32 Ge, 37 Rb, 39 Y, 40 Zr, 41 Nb, 42 Mo, 82 Pb, 73 Ta, 90 Th, 92 U; stronger analytical lines are tabulated. A functional diagram and a collimator arrangement are presented. Orig. art. has:

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L 15531-63

ACCESSION NR: AP3004917

2 figures.

ASSOCIATION: NII mineral'nogo sy*r'ya Ministerstva geologii i okhrany* nedr KazSSR (Scientific-Research Institute of Crude Minerals, Ministry of Geology and Conservation of Mineral Resources, KazSSR)

SUBMITTED: 29Sep62 DATE ACQ: 28Aug63 ENCL: 00

SUB CODE: PH NO REF SOV: 001 OTHER: 004

Card 2/2

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANOV, I.V.; MIRAKHMEDOV, M.; SHARIPOVA, A.

Anhydrite in recent salt deposits of the Sarykamysh lakes. Dokl. AN SSSR 158 no.3:622-624 S '64. (MIRA 17:10)

1. Institut geologii i geofiziki im. Kh.M.Abdullayeva AN UzSSR. Predstavleno akademikom N.M.Strakhovym.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANOV, I.V.

Conditions governing the accumulation of recent salt deposits in Uzbekistan. Uzb.geol.zhur. 7 no.5:32-39 '63. (MIRA 17:3)

1. Institut geologii im. Kh.M.Abdullayeva AN UzSSR.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANOV, I.V.

Some geochemical characteristics of salt accumulation in the Lyavlyakan group of lakes in the Kyzylkum. Uzb. geol. zhur. 8 no.5:7-14 '64. (MIRA 18:5)

1. Institut geologii i geofiziki im. Kh.M.Abdullayeva AN UzSSR.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANOV, I.V.

Mineralogy of recent salt deposits in the Golodnaya Steppe.
Mat. po proizv. sil. Uzb. no.15:147-156 '60. (MIRA 14:8)

1. Institut geologii AN UzSSR.
(Golodnaya Steppe—Salt deposits)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

IMAS, V.A.; KUDRINA, S.A.; PETROV, N.P.; RUBANOV, I.V.; SHIKIN, S.S.

Experiment in the manufacture of high-voltage porcelain from Uzbekistan raw products. Report No.2: Experimental masses. Izv.AN Uz.SSR Ser.tekh.nauk no.5:43-54 '60. (MIRA 14:9)

1. Institut geologii AN UzSSR i Institut energetiki i avtomatiki AN UzSSR.

(Uzbekistan—Porcelain)
(Electric insulators and insulation)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

IMAS, V.A.; KUDRINA, S.A.; PETROV, N.P.; RUBANOV, I.V.; SHIKIN, S.S.

Manufacture of high-voltage porcelain from Uzbekistan raw materials. Report No.1. Izv.AN Uz.SSR.Ser.tekh.nauk no.4: 30-45 '60. (MIRA 13:8)

1. Institut geologii AN UzSSR i Institut energetiki i avtomatiki AN UzSSR.

(Electric insulators and insulation)
(Uzbekistan--Porcelain)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANOV, I.V.

Neogene alluvium in the Brich-Mullinskaya Depression. Uzb. geol.zhur. no.3:44-52 '59. (MIRA 12:12)

1. Institut geologii AN UzSSR.
(Tien Shan--Alluvium)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

PETROV, N.P.; RUBANOV, I.V.; CHERNEVSKIY, N.N.; ABDULLAKHODZHAYEV, A.A.

Ilsemannite from brown coal and kaolins in Uzbekistan. Dokl. AN Uz.SSR no.1:17-20 '59. (MIRA 12:4)

1. Institut geologii AN UzSSR. Predstavleno akademikom AN UzSSR A.S.Uklonskim.

(Uzbekistan--Ilsemannite)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANOV, I.V.; SALIDZHANOV, S.B.

Parkent porous dolomite as building material. Izv. AN Uz. SSR no. 12:71-76 '56. (MIRA 14:5)

(Parkent region--Dolomite)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

PETROV, Nikolay Petrovich; RUBANOV, Ivan Vasil'yevich; CHISTYAKOV, P.A., kand.geol.-min.nauk, otv.red.; CHAYKA, G.V., red.; SHEPEL'KOV, A., tekhn.red.

[Composition, formation, and means of utilizing Angren kaolins] Kaoliny Angrena, ikh veshchestvennyi sostav, usloviia obrazovaniia i puti ispol'zovaniia. Tashkent, Izd-vo Akad.nauk Uzbekskoi SSR, 1960. 148 p. (MIRA 14:4)
(Angren Valley--Kaolin)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

KONOPATSKIY, N.S.; RUBANOV, L.F.

Total attention should be focused on the education of the public. Vest. sviazi 24 no.7:24 Jl '64. (MIRA 17:9)

1. Nachal'nik Lyubanskogo rayonnogo uzla svyazi Minskoy oblasti (for Konopatskiy). 2. Sekretar' partiynoy organizatsii Lyubanskogo rayonnogo uzla svyazi Minskoy oblasti (for Rubanov).

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

POPKOV, K.K., inzh.; RUBANOV, S.M., inzh.

Principles of the design of shielding of reactor cooling systems. Sudostroenie 26 no. 11:65-70 N '60. (MIRA 14:1)
(Nuclear reactors—Cooling)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

ARTEM'YEVA, N.A.; POPKOV, K.K.; RUBANOV, S.M.; SHKORBATOVA, L.S.

Use of various approximations of the method of spherical harmonics in claculating the penetration of neutrons through shielding. Atom. energ. 19 no.6:531-532 D '65. (MIRA 19:1)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

L 45801-65 EWT(m)/EPF(c)/EWA(n)-2/EWG(m)/EPR/T/EPA(bb)-2 Pr-4/Ps-4/Pu-4
ACCESSION NR AM4042770 BOOK EXPLOITATION 35 B+1 S/

Broder, Dmitriy Leonidovich (Doctor of Physical and Mathematical Sciences); Popkov, Konstantin Konstantinovich; Rubanov, Stanislav Mikhaylovich

Biological shielding of marine nuclear reactors (Biologicheskaya zashchita sudovykh reaktorov), Leningrad, Izd-vo "Sudostroyeniye", 1964, 410 p. illus., biblio. 1,000 copies printed.

TOPIC TAGS: nuclear engineering, marine nuclear reactor, reactor shielding, radiation biological effect

PURPOSE AND COVERAGE: This book presents the physical principles and design principles of nuclear power installation shielding. The book is intended for

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useful for students of higher educational institutions.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

Ch. II. Effect of radiation on the [illegible]
dosimetry -- 39
Ch. III. Radiation effects on materials. Characteristics of materials used for protective purposes -- 51
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SUBMITTED: 28Dec63
NO REF SOV: 142
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SUB CODE: NP, PR, LS
OTHER: 129

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

[illegible]YANINA, Ye.N.; [illegible], K.K.; [illegible], [illegible]; [illegible]VETKOVA, S.A.

Increase of trapping gamma-radiation and radiative heat release in a reactor vessel with the aid of some blocking and boration of the thermal shield. Atom. energ. 19 no.[illegible]:383 [illegible] 165. (MIRA 18:11)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

POPKOV, K.K.; RUBANOV, S.M.

Dependence of the density of radiation disturbances of the reactor vessel on the make-up of the iron-water thermal shielding. Atom. energ. 18 no.1:70-71 Ja '65. (MIRA 18:2)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

L 19586-63 EPF(c)/EWT(1)/EPF(n)-2/EWT(m)/BDS AFFTC/ASD/AFWL/SSD
Pr-4/Pu-4

ACCESSION NR: AP3006490 S/0170/63/006/009/0047/0051

AUTHOR: Bokacheva, L. P.; Kiselev-Fedorov, V. P.; Popkov, K. K.; Rubanov, S. M.

TITLE: Problem of calculating heat release by gamma components

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 6, no. 9, 1963, 47-51

TOPIC TAGS: nuclear reactor, Gamma radiation, thermal shielding, heat release, scattered Gamma radiation, capture Gamma radiation, radiative capture, water water reactor, reactor vessel, buildup factor

ABSTRACT: A simplified method is proposed for calculating the heat generated by capture γ-radiation in the thermal shielding and reactor-vessel material of a water-water reactor. The method is based on hypothetical substitution of the water layers located between the shieldings by equivalent layers of steel; the calculations are then carried out using the buildup factor for scattered γ-radiation for homogeneous iron shielding. Tests showed that for

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L 19586-63
ACCESSION NR: AP3006490

iron 1 cm thick, the error does not exceed 1%. Graphs of the heat flux generated by capture γ-radiation in iron and water are presented. Orig. art. has: 3 figures and 5 formulas.

ASSOCIATION: none

SUBMITTED: 04Jan63 DATE ACQ: 30Sep63 ENCL: 00

SUB CODE: NS NO REF SOV: 006 OTHER: 001

Card 2/2

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

L 28026-66 EWT(m)/ETC(f)/EPF(n)-2/EWG(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP5026446 (N) SOURCE CODE: UR/0089/65/019/004/0383/0383

AUTHOR: Goryanina, Ye. N.; Popkov, K. K.; Rubanov, S. M.; Tsvetkova, S. A.

ORG: None

TITLE: Reduction of capture gamma rays and of radiative heat release in reactors by means of borated thermal shields and other protective measures.

SOURCE: Atomnaya energiya, v. 19, no. 4, 1965, 383

TOPIC TAGS: nuclear reactor, nuclear reactor shield

ABSTRACT: An abbreviated version of the original paper is presented. In their paper the authors investigated theoretically the effect of introducing an admixture of boron to the thermal water-iron shielding of water-cooled and water-moderated reactors. In homogeneous reactors, the boron admixture was added to a 25-cm thick water-iron mixture, while in heterogeneous reactors, the shields made of boron steel were used. In the original paper, the concentration of boron was calculated for various areas including the exterior surface of the reactor. It was also shown that: (1) the addition of boron to thermal shields considerably reduced the radiative heat release; (2) the use of boron steel shields

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L 28026-66

ACC NR: AP5026446

with a boron content exceeding 2% was not advisable; (3) the use of lead and boron-containing materials for protection of the reactor exterior surface, reduced considerably (3 to 5 times) the capture gamma radiations from thermal shields and the reactor vessel. In this respect, the use of lead was the most effective measure, although in thick lead layers (over 6 cm) the increase of capture gamma rays from lead was observed.

SUB CODE: 18 / SUBM DATE: 22May65 / ORIG REF: 004 / OTH REF: 000

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

L 28389-66 EPF(n)-2/EWA(h)/EWT(m)/ETC(f)/EWG(m)/EWP(t)/ETI IJP(c) WW/JD/JG

ACC NR: AP6001796 SOURCE CODE: UR/0089/65/019/006/0531/0532

40
B

AUTHOR: Artem'yeva, N. A.; Popkov, K. K.; Rubanov, S. M.; Shkorbatova, L. S.

ORG: None

TITLE: Applicability of various spherical-harmonic approximations to calculations of neutron passages through shielding 19

SOURCE: Atomnaya energiya, v. 19, no. 6, 1965, 531-532

TOPIC TAGS: nuclear reactor shield, neutron shielding, neutron flux

ABSTRACT: An abbreviated version of the original paper is presented. The accuracy of multigroup approximations of P_1-, P_2- and P_3-orders for analyzing the neutron flux distributions in various media was investigated in the original paper. The age-diffusion approximation was also considered. Theoretical calculations were compared with experimental data obtained on space-energy distributions of neutron fluxes. An 18-group system was used for calculating P_1-, P_2- and P_3 approximations. A 7-group system was used for age-diffusion approximations. Shielding compositions containing water, graphite, boron carbide, iron, lead and various homogeneous and heterogeneous mixtures were considered. It was concluded that by using spherical-harmonic method the calculations

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ACC NR: AP6001796

could be limited by P_3-approximations. The P_1-approximation could be applied only for shielding thicknesses not exceeding 5 to 8 free-path lengths. It was also proven that the shielding functionals for materials of heavy and middle atomic weights were determined by neutrons of intermediate energy. A satisfactory coincidence in distribution of fast neutron fluxes was obtained by applying P_2- and P_3-approximations to heterogeneous compositions. This coincidence effect was still better for moderated and thermal neutrons.

SUB CODE: 18 / SUBM DATE: 15June65 / ORIG REF: 002 / OTH REF: 000

Card 2/2

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

BRODER, Dmitriy Leonidovich, doktor fiz.-mat. nauk; POPKOV, Konstantin Konstantinovich; RUBANOV, Stanislav Mikhaylovich; GLADKOV, G.A., kand. fiz.-mat. nauk, retsenzent; VESELKIN, A.P., kand. fiz.-mat. nauk, retsenzent; YEGOROV, Yu.A., kand. fiz.-mat.nauk, retsenzent; POLOGIKH, B.G., kand. fiz.-mat. nauk, re retsenzent; VLASOVA, Z.V., red.; CHISTYAKOVA, R.K., tekhn. red.

[Biological shielding for ship reactors] Biologicheskaia zashchita sudovykh reaktorov. Leningrad, Izd-vo "Sudostroenie," 1964. 410 p. (MIRA 17:4)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

ABSTRACT: The article deals with thermal shielding of reactors by iron-water mixtures of different compositions, from the point of view of the influence of the composition of the mixture on the neutron-induced radiation damage in the reactor shell. The shield consisted of 20 cm iron-water mixture, the composition of which was varied, 9 cm of iron to simulate the reactor shell, and 30 cm of water, corresponding to the primary shielding bath. The calculations were made

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

ASSOCIATION: None

Card 2/3

L 26928-65

ACCESSION NR: AP5004011

SUBMITTED: 15Jan64 ENCL: 00 SUB CODE: NP

NR REF SOV: 002 OTHER: 001

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

Card 3/3

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANOV, Vladimir Ivanovich; SOMINSKIY, V.S., prof., red.; URAZOV, I., red.

[Technological progress, production organization and labor productivity] Tekhnicheskii progress, organizatsiia proizvodstva, proizvoditel'nost' truda. Krasnoiarsk, Krasnoiarskoe knizhnoe izd-vo, 1963. 67 p. (MIRA 17:11)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

L 33306-66 EWP(j)/EWT(1)/EWT(m)/T IMP(e) RM

ACC NR: AR6016195 SOURCE CODE: UR/0058/65/000/011/D027/D027

73

B

AUTHOR: Rubanov, V. M.; Kizel', V. A.

TITLE: Spectroscopic manifestations of intermolecular interactions in concentrated solutions of dyes and of the change of the emission and absorption oscillator strengths

15

SOURCE: Ref. zh. Fizika, Abs. 11D212

REF SOURCE: Tr. Komis. po spektroskopii. AN SSSR, t. 3, vyp. 1, 1964, 297-301

TOPIC TAGS: molecular interaction, dye chemical, oscillator strength, luminescence, light absorption, light emission, absorption spectrum, luminescence spectrum

ABSTRACT: The authors investigated optical absorption and luminescence of a series of substances in solutions and in films. The oscillator strengths f were calculated with account of the effective field and the randomness of the distribution of the oscillators. A decrease of f_{abs} in the region of intermolecular distances 5 - 30 Å is established. A correlation is observed between the effects of the decrease of f_{abs} and f_{emit} of the substance, and also the overlap of the absorption and luminescence spectra. The absence of association in the solutions has made it possible to ascribe the observed effect to the influence of the inductive-resonant intermolecular interaction. [Translation of abstract]

SUB CODE: 20, 07/

Card 1/1

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANOV, V.S.

Energy transfer in two-component mixtures. Izv. AN SSSR Ser. fiz. 27 no.5:700-702 My '63. (MIRA 16:6)

(Quantum theory)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

RUBANOV, V.S.

Energy migration and transfer in a two-component mixture. Opt. i spektr. 13 no.3:454-457 S '62.(MIRA 15:9)
(Quantum theory)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

SHEMPEL', V.I., akademik; RUBANOV, V.S., kand.sel'skokhoz.nauk

Special aspects of fertilizer usage in crop rotations of White Russia. Zemledelie 8 no.1:41-47 Ja '60. (MIRA 13:4)

1. Akademiya nauk BSSR i Akademiya sel'skokhozyaystvennykh nauk BSSR (for Shempel'). 2. Belorusskiy nauchno-issledovatel'skiy institut zemledeliya (for Rubanov).
(White Russia--Field crops--Fertilizers and manures)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5

SHEMPEL', V.I., glav. red.; PROKOPOV, P.Ye., red.; STRELKOV, I.G., red.; RUBANOV, V.S., red.; LAZARCHIK, K., red.; LESHCHILOVSKIY, P., red.

[Methods for improving the fertility of turf-Podzolic soils. Priemy povysheniia plodorodiia dernovo-podzolistykh pochv; sbornik nauchnykh trudov. Minsk, Urozhai, 1965. 217 p. (MIRA 18:7)

1. Belorusskiy nauchno-issledovatel'skiy institut zemledeliya.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810003-5"