

ZHOVTYY, I.F.; YEMEL'YANOVA, N.D.; FEDOROVA, L.V. [deceased]; RYZHUK,  
T.I.; LEONOV, Yu.A.; SUCHEVSKIY, P.T.; MOSKALENKO, V.V.;  
KOZLOVSKAYA, O.L.; DEMIDOVA, A.A. [deceased]; ANIKHEYEV, I.K.;  
CHIPIZUBOVA, P.A.; PROLIP'YEV, V.N.

Materials for a study of the trombiculid mites of Siberia and  
the Far East. Izv.Irk.gos.nauch.-issl.protivochum.inst. 16:  
156-172 '57. (MIRA 13:7)

(SIBERIA, EASTERN--MITES)

ZHOVTYY, I.F.; LEONOV, Yu.A.

Number of fleas on the gray rat in populated areas of the southern part of the coast region (Far East) and some regularities in its changes. Izv.Irk.gos.nauch.-issl.protivochum.inst. 17:75-89 '58.  
(MIRA 13:7)

(MARITIME TERRITORY--FLEAS) (PARASITES--RATS)

LEONOV, Yu.A.

Fleas of rodents in the southern part of the Maritime Territory.  
Izv. Irk. gos. nauch.-issl. protivochn. inst. 17:147-151 '58.

(MIRA 13:?)

(MARITIME TERRITORY--FLEAS) (PARASITES--RODENTS)

LEONOV, Yu.A.

New method of catching large gerbils and migrating fleas. Zool.  
zhur. 41 no.2:298-299 F '62. (MIRA 15:4)

1. Aral Sea Anti-Plague Station, Aralsk.  
(Gerbils) (Fleas as carriers of disease)

PANOV, D.L.; LEONOV, Yu.G.

Stratigraphy of lower and middle Jurassic sediments in the Kuban-Baksan interfluve. Trudy VNIIGAZ no.7:59-87 '59. (MIRA 13:5)  
(Kuban Valley--Geology, Stratigraphic)

BEZNOSOV, H.V.; KAZAKOVA, V.P.; LEONOV, Yu.G.; PANOV, D.I.

Stratigraphy of lower and middle Jurassic sediments in the central  
Caucasus. *Biul.MOIP.Otd.geol.* 34 no.4:150 J1-Ag '59.  
(MIRA 13:8)

(Caucasus--Geology, Stratigraphic)

BEZNOSOV, N.V.; KAZAKOVA, V.P.; LEONOV, Yu.G.; PANOV, D.I.

Lower and middle Jurassic stratigraphy of the central part of  
the Northern Caucasus. Trudy VNIIGAZ no.10:109-191 '60.  
(MIRA 13:10)

(Caucasus, Northern--Geology, Stratigraphic)

LEONOV, Yu P.

SUBJECT USSR/MATHEMATICS/Theory of probability CARD 1/2 PG - 572  
 AUTHOR LEONOV Ju.P.  
 TITLE On a problem of filtration of non-stationary random functions.  
 PERIODICAL Avtomat. Telemekh. 17, 97-106 (1956)  
 reviewed 2/1957

Let the components  $S(t)$  (useful signal) and  $N(t)$  (disturbance) of a signal  $X(t) = S(t) + N(t)$  be non-stationary stochastic processes which can be re-

presented in the form  $m \cdot q \cdot \int_{-\infty}^{\infty} e^{2\pi i \nu \tau} dx(\nu)$ ;  $x(\nu)$  is any stochastic process;

$m \cdot q$  means that the integral must be taken in the quadratic mean; furthermore also

$m \cdot q \cdot \int_{-\infty}^{\infty} G(\nu) e^{2\pi i \nu \tau} dx(\nu)$  shall exist, where  $G(\nu)$  is the frequency

characteristic of an arbitrary linear filter,  $|G(\nu)| \leq k$  (const). The author proves that also for such a process an optimal stationary linear filter for filtering out the disturbance can be determined by introducing the following new but practically sufficient criterion instead of that of N. Wiener ("Minimum of the mean quadratic error"). If a stationary linear filter is marked by the operator  $R_1$  and the impulse-transition function  $R(z)$ , respectively, let



Grand Tech Sci--(disc) *the*  
BEGMOV, Yu. P., *MC* rt in problems of synthesis of linear systems *linear*  
non-stationary *control* actions." *Yes*, 1957. 10 pp (Inst of Automatic  
and Telemechanics of the Acad Sci USSR), 100 copies (14, 22-50, 100)

*-6-*

LEONOV, YU. P.

AUTHORS: Leonov, Yu. P., Tel'ksnis, L. A., (Moscow) 103-11-4/10

TITLE: The Evaluation of Parameters of the Law of Distribution of a Random Function in the Case of Limited A Priori Data (Otsenka parametrov zakona raspredeleniya sluchaynoy funktsii pri ogranichennykh apriornykh dannyykh).

PERIODICAL: Avtomatika i Telemekhanika, 1957, Vol. 18, Nr 11, pp. 985-998 (USSR)

ABSTRACT: A method is described by means of which it is possible to carry out parameter evaluations of the distribution-law of a random function in the case of limited a priori data with respect to the function. It is shown that a decrease of a priori data in comparison to the parameters to be evaluated may be obtained if it is possible to control the correctness of the hypotheses set up for these parameters. One of the possible methods is investigated, and a scheme by means of which the correctness of the hypotheses set up can be checked, is given. There are 1 table, 6 figures, and 2 Slavic references.

SUBMITTED: May 15, 1957.

AVAILABLE: Library of Congress  
Card 1/1

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S/119/60/000/011/008/009

B012/B054

6,9210

AUTHORS: Leonov, Yu. P. and Lipatov, L. N.

TITLE: Apparatus for the Statistical Investigation of Dynamic Characteristics of Industrial Objects in the Presence of Noise

PERIODICAL: Priborostroyeniye, 1960, No. 11, pp. 20 - 22

TEXT: The authors describe an apparatus for the statistical study of dynamic characteristics of objects in the presence of noise, and for analyzing random processes with ultrasonic frequency. The device may also be used to estimate the statistical characteristics of random processes (expected values, correlation functions, dispersions), and to calculate Fourier coefficients, spectral-density functions, frequency characteristics of objects in the presence of noise, and parameters of weight functions. The method of estimating by means of this device was described by the authors in their paper (Ref., footnote p.20). Fig. 1 shows the functional scheme of the apparatus, Fig. 2 its total view. The apparatus consists of two blocks. The first block comprises the servosystems, the chart mechanism, and the multiplication potentiometers. Fig. 3 shows

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Apparatus for the Statistical Investigation  
of Dynamic Characteristics of Industrial  
Objects in the Presence of Noise

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the basic circuit diagram of this block. The servosystem is operated by a photoelectric head which follows the curve drawn on a tape. To increase the stability of the follow-up system, a correction quadripole  $R_3, R_4, R_5, C_1, C_2, C_3$  is installed at the input of the double triode  $\bar{A}_2$  ( $L_2$ ). An additional amplifying stage is installed to maintain the total amplification factor of the follow-up system. The second block comprises two voltage stabilizers with semiconductors and a reference diode (Fig.4), two phase-sensitive power amplifiers with semiconductors (Fig. 5), two integration motors with revolution indicators, and a control panel. The technical data of the apparatus are given. A test of the apparatus showed that the integration accuracy is at least 4%, and the difference between the experimental and calculated correlation function is at most 4%. A shortcoming is the comparatively long time for conducting the analytical work. There are 7 figures and 1 Soviet reference.

Card 2/5



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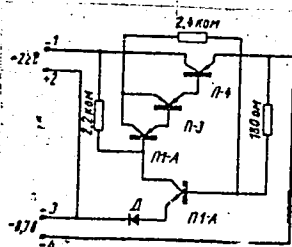


Рис. 4. Принципиальная схема стабилизатора напряжения.

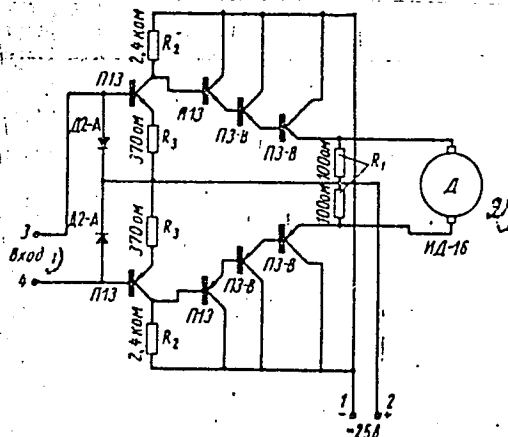


Рис. 5. Принципиальная схема усилителя мощности.

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B012/B054

Legend to Fig. 1: Functional scheme of the apparatus: 1) follow-up (reading) system, 2) multiplier, 3) power amplifier, 4) integration motor, 5) revolution indicator, 6) source of stabilized feeding, 7) control panel.

Legend to Fig. 3: Basic circuit diagram of the follow-up system:  
 $\Lambda_1(L_1)$  - 6H6П (6N6P);  $\Lambda_2(L_2)$  - 6H1П (6N1P).

OM - ohms, KOM - kilohms, MKФ - microfarads.

Legend to Fig. 4: Basic circuit diagram of the voltage stabilizer:  
OM - ohms, KOM - kilohms.

Legend to Fig. 5: Basic circuit diagram of the power amplifier:  
1) Input; OM - ohms, KOM - kilohms; 2) integration motor.

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SOV/103-21-2-3/14

AUTHORS: Leonov, Yu. P., Lipitov, I.

TITLE: Statistical Methods of Determining Dynamic Characteristics of Industrial Objects in the Presence of Noises, and Analysis of Random Processes at Infra-Low Frequencies

PERIODICAL: Avtomatika i telemekhanika, 1960, Vol 21, Nr 2, pp 180-190 (USSR)

ABSTRACT: The paper describes a computer which performs the following type of operation with functions  $x(t)$ ,  $y(t)$ :

$$R_{yx}(\tau, T) = \frac{1}{T} \int_0^T x(t) y(t - \tau) dt. \quad (1)$$

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This computer is suitable for automatic computation of the following magnitudes: (1) Estimation of correlation functions and variances. The expression



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defined by Eq. (1) is an estimation of the mutual correlation function of two random processes  $X(t)$  and  $Y(t)$ . This estimation converges into a real correlation function for  $T \rightarrow \infty$ . Assuming  $X(t) = Y(t)$ , the estimation of the correlation function of the process  $X(t)$  is obtained. Assuming further  $\tau = 0$ , the computation result is an estimation of the variance. (2) Coefficients of Fourier series. The coefficients of Fourier series of any function  $x(t)$  may be obtained by selecting in Eq. (1) the following relationships:  $y(t) = \cos \omega_k t$  and  $\tau = 0$ . (3) Estimation of the function of spectral density. When  $x(t)$  is a representation of a stationary random process  $X(t)$ , the computation of the spectral density at the point  $\omega_k$  is based on Eq. (1), and it may be written as:

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$$M [a_k^2] = \frac{2}{T} \int_0^T R_{xx}(\tau) \cos \omega_k \tau d\tau + O\left(\frac{1}{T^2}\right) \tag{2}$$

$$a_k = \frac{2}{T} \int_0^T x(t) \cos \omega_k t dt. \tag{3}$$

When the interval (0, T) is sufficiently large, then

$$M [a_k^2] = \frac{2}{T} G_{xx}(\omega_k) + O\left(\frac{1}{T^2}\right), \tag{4}$$

where  $G_{xx}(\omega_k)$  is the spectral density of the process  $x(t)$ ,  $k$  the magnitude of variances

$M [a_k^2]$  is computed approximately, proceeding from a finite number of representations of the

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Statistical Methods of Determining Dynamic Characteristics of Industrial Objects in the Presence of Noises, and Analysis of Random Processes at Infra-Low Frequencies

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process  $X(t)$ . (4) Estimation of frequency characteristics. In this case, three signals are considered:

$$f_1(t) = D \cos \omega t,$$

$$f_2(t) = B \sin (\omega t + \theta) + n(t)$$

$$f_3(t) = D \sin \omega t,$$

where  $f_1(t)$  is the signal at input of the object;  $f_2(t)$  is the signal at the output of the object consisting of the response  $B \sin(\omega t + \theta)$  to  $f_1(t)$ , and of the noise  $n(t)$ . It is shown that the value  $A = B/D$  of the amplitude characteristic at the frequency  $\omega$  and the value  $\theta$  of the phase characteristic at the same frequency, may be expressed as:

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$$A = \frac{2}{D^2} \sqrt{R_{1,2}^2(0) + R_{3,2}^2(0)}, \quad \theta = \arctg \frac{R_{1,2}(0)}{R_{3,2}(0)} \quad (7)$$

where  $R_{3,2}(0)$  and  $R_{1,2}(0)$  are estimations of the correlation functions at  $\tau = 0$ . The setup for determining frequency characteristics is shown on Fig. 1. The follow-up system is continuously reading the representation  $f_2(t)$  of the investigated process. Thus, generated signal is applied to potentiometers connected to the sine and cosine generator. The  $f_2(t) \sin \omega t$  and  $f_2(t) \cos \omega t$  are obtained and applied to the integrating motors. Counters on the motor shaft indicate the magnitudes

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$R_{3,2}(0)$  and  $R_{1,2}(0)$ . (5) Estimation of parameters of weighting functions of linear systems. Objects considered are with monotone transient processes. In this case, the weighting function may be determined from its moments. The expression for the moment  $\alpha_n$  of the n-th order is given as:

$$\alpha_n = \int_{-\infty}^{+\infty} t^n k(t) dt \quad (n = 0, 1, \dots). \quad (9)$$

where  $k(t)$  is the weighting function. It is shown that estimation of  $\alpha_n$  may be obtained through estimation of moments  $a_n$  and  $b_n$  of the correlation functions, as indicated by Eqs. (24) and (25), respectively:

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$$a_n = \int_{-\infty}^{+\infty} \tau^n R_{xx}(\tau) d\tau \quad (24)$$

$$b_n = \int_{-\infty}^{+\infty} \tau^n R_{yy}(\tau) d\tau = 2 \int_0^{\infty} \tau^n R_{yy}(\tau) d\tau \quad (n = 0, 2, 4, \dots) \quad (25)$$

The computer under consideration makes it possible to obtain the estimations of moments  $a_n$  and  $b_n$ .

A general description of the computer is given. Its functional diagram is shown on Fig. 3.

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Statistical Methods of Determining Dynamic Characteristics of Industrial Objects in the Presence of Noises, and Analysis of Random Processes at Infra-low Frequencies

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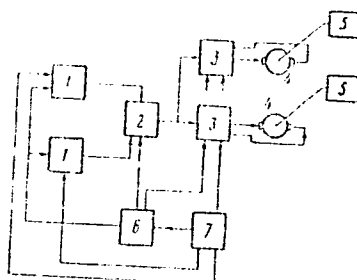


Fig. 3. (1) Reading arrangement (follow-up system); (2) multiplier; (3) power amplifier; (4) integrable motor; (5) shaft counter; (6) stabilized power supply; (7) regulation desk.

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The reading arrangement has a photosensitive head which follows the function representation recorded on paper tape. The use of paper tape is considered an advantage when analyzing industrial objects in the presence of magnetic fields and commutation effects. It is stated that the above computer is simple to operate and is very reliable. It is especially convenient for investigations of industrial objects. A disadvantage of the computer is the considerable time required for the analysis. There are 8 figures; and 5 references, 2 Soviet, 1 German, 2 U.S. The U.S. references are: Goodman, T. P., Hillsley, R., Continuous Measurement of Characteristics of Systems With Random Input, Trans. ASME, Nr 8, 1958; Russian translation of the book by J. H. Laning, Jr., R. H. Martin, Random Processes in Automatic Control, McGraw-Hill Co., 1956. August 3, 1959

SUBMITTED:  
Card 9/10



Statistical Methods of Determining Dynamic Characteristics of Industrial Objects in the Presence of Noises, and Analysis of Random Processes at Infra-Low Frequencies

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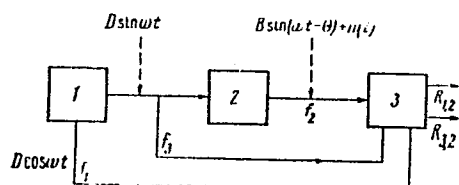


Fig. 1. (1) Sine and cosine generator; (2) object; (3) computer.

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S/103/60/021/006/017/027/XX  
B019/B063

16.9500(1024, 1132, 1344)

AUTHOR:

Leonov, Yu., P. (Moscow)

TITLE:

The Problem of the Shaping Filter and the Optimum Linear Systems 10

PERIODICAL: Avtomatika i telemekhanika, 1960, Vol. 21, No. 6, pp. 674-681

TEXT:  $Y(t)$  ( $-\infty < t < +\infty$ ) is assumed to be a random function representing white noise with the mathematical expectation value  $M[Y] \equiv 0$ , and  $k_y(u) = \delta(u)$  and  $G(\omega) = 1/2\pi$  are assumed to be the correlation function and the spectral density function, respectively. On the strength of the correlation theory it is shown that, under certain conditions, the non-steady random function  $X(t)$ ,  $M[X] \equiv 0$  ( $0 < t < T$ ) may be expressed by  $X = A_x Y$  (1), where  $A_x$  is an operator determined for a given  $X(t)$ . The reverse problem, i.e., the expression of white noise by the relation  $Y(t) = A_x^{-1} X(t)$  (2), is treated similarly. The following relations are

then obtained:  
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The Problem of the Shaping Filter and the Optimum Linear Systems

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$$X = AY = \int_{-\infty}^{+\infty} w_X(t, \tau) Y(\tau) d\tau \quad (18) \text{ and } Y = \int_{-\infty}^{+\infty} w_X^{-1}(t, \tau) X(\tau) d\tau \quad (24), \text{ where}$$

$$w_X(t, \tau) = \sum_{k=1}^{\infty} \sqrt{D_k} x_k(t) y_k(\tau) \quad (16) \text{ and } w_X^{-1}(t, \tau) = \sum_{k=1}^{\infty} \frac{y_k(t) a_k(\tau)}{\sqrt{D_k}} \quad (21)$$

hold for the weight functions. The application of these representations of (1) and (2) to the theory of optimal systems is discussed in detail. As an optimum, the author defines an operator  $B^*$  which guarantees a minimum of the mean square error, the error being the deviation of the function

$$\Gamma(t) = BX = \int_{-\infty}^t w^*(t, \tau) X(\tau) d\tau \quad (31) \text{ from a given random function } Z(t).$$

$w^*(t, \tau)$  is the weight function of the optimal operator. A previous paper has shown that the optimal weight function must satisfy the integral equation

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LIPATOV, L.N. (Moskva); LEONOV, Yu.P. (Moskva)

Practical method for estimating the coupling operator in linear  
approximation [with summary in English]. Avtom. i telem. 22  
no.5:561-570 My '61. (MIRA 14:6)  
(Boilers) (Automatic control)

PHASE I BOOK EXPLOITATION SOV/5856

Leonov, Yuriy Petrovich, Sergey Yakovlevich Rayevskiy, and Naum Samoylovich Raybman

Pomoashchnik avtomatiki; statisticheskaya dinamika v avtomatike  
(Aid in Automation; Statistical Dynamics in Automation) Moscow,  
Izd-vo AN SSSR, 1961. 116 p. (Series: Akademiya nauk SSSR.  
Nauchno-populyarnaya seriya). 8000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR.

Ed. of Publishing House: Ye. I. Levit; Tech. Ed.: O. M. Gus'kova.

PURPOSE : This book is intended for students, engineers, technicians,  
and those interested in the application of statistical methods  
to automatic control.

COVERAGE: Fundamental concepts of probability and information theory  
and examples of their application in science and technology are  
presented. Control systems which are optimal in a statistical

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Aid in Automation; Statistical (Cont.)

SOV/5856

sense are discussed, along with the construction of mathematical analogs for relationships between various quantities. Ways of using statistical methods for the investigation of control systems are indicated. The application of statistical methods for analyzing and evaluating the accuracy of individual automated processes is described. No personalities are mentioned. There are 12 references, all Soviet (including 2 translations).

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AVAILABLE: Library of Congress		

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1/16/62

LIPATOV, L.N. (Moskva); LEONOV, Yu.P. (Moskva)

Practical method for estimating the coupling operator in linear  
approximation [with summary in English]. Avtom. i telex. 22  
no. 5: 561-570 My '61. (MIRA 14:6)  
(Boilers) (Automatic control)



S/103/62/023/007/003/009  
D201/D308

16.8000

AUTHOR:

Leonov, Yu. P. (Moscow)

TITLE:

Statistical description of systems

PERIODICAL:

Avtomatika i telemekhanika, v. 23, no. 7, 1962,  
901-909

TEXT: The mathematical model of a system containing a random mechanism is developed in the following steps: definition of a statistical system and relationships within it; the characteristics of the statistical system from which it is deduced that various characteristics may be used for determining the probability functions of varying number of coordinates of the random vector; the characteristics of linear deterministic systems; same of non-linear systems; the definition, basic properties and moments of Markov systems; the Markov character of linear deterministic systems having a finite memory. The mathematical model described

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Card 1/2

LEONOV, Yu. P. (Moskva)

Markov system equations. Avtom. i telem. 23 no.9:1141-1143  
S 162. (MIRA 15:10)

(Markov processes)

LEONOV, Yu.P. (Moskva)

Statistical description of systems. Avtom. i telem. 23 no.7:  
901-909 J1 '62. (MIRA 15:9)

(Automatic control)

S/271/63/000/003/013/049  
A060/A126AUTHOR: Leonov, Yu.P.

TITLE: Problem of shaping filters and optimal linear systems. Summary

PERIODICAL: Referativnyy zhurnal, Avtomatika, telemekhanika i vychislitel'naya tekhnika, no. 3, 1963, 58, abstract 3A329 (Tr. VI Vses. soveshchaniya po teorii veroyatnostey i matem. statistike, 1960, Vil'nyus, Gos. izd-vo polit. i nauchn. lit. LitSSR, 1962, 223).

TEXT: The author considers a non-stationary stochastic process  $X(t)$ ,  $M\{X\} \equiv 0$ , representable by the canonic expansion

$$X(t) = \sum_{k=1}^{\infty} V_k x_k(t),$$

where  $V_k$  are stochastic variables satisfying certain conditions;  $x_k(t)$  are non-random functions. It is demonstrated that in that case  $X(t)$  is a generalized random function in the sense of Gelfand - Ito. It may be represented in the form:

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Problem of shaping filters and optimal ....

S/271/63/000/003/013/049  
A060/A126

$$X(t) = \int_{-\infty}^{\infty} W(t, \tau) Y(\tau) d\tau,$$

where  $V(t)$  is the white noise,

$$W(t, \tau) = \sum_{k=1}^{\infty} \sqrt{D_k} x_k y_k(\tau),$$

$D_k = M[V_k^2]$ ,  $\{y_k(t)\}$  is an arbitrary orthonormal  $(-\infty < t < \infty)$  system of functions, complete in  $L_2$ . The results of the theorem are applied to the determination of the weighting function of an optimal (with respect to RMS error) system.

L. T.

[Abstracter's note: Complete translation]

Card 2/2

LEONOV, Yu.P. (Moskva)

Markovian systems. Avtom. i telem. 26 no.5:802-808 (MIRA 18:12)  
My '65.

1. Submitted June 17, 1964.

L 63686-65 EWI(d)/EPP(n)-2/EWP(v)/EWP(k)/EWP(h)/EWP(l) IJP(c) WW/BC  
 UR/0103/65/026/005/0802/0808  
 62-50:519.217

ACCESSION NR: AP5013837

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35  
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AUTHOR: Leonov, Yu. P. (Moscow)

TITLE: Markov systems

SOURCE: Avtomatika i telemekhanika, v. 26, no. 5, 1965, 802-808

TOPIC TAGS: automatic control, automatic control design, automatic control system, automatic control theory

ABSTRACT: A statistical model of a plant containing internal noise is called the "Markov system." The system can be represented by a set of points  $S_1, \dots, S_n$  moving randomly along a straight line. The function of distribution of abscissas of these points is:

$$F(y_1, \dots, y_n, \tau / y_{k+1}, \dots, y_n, t; y_{k+1}', \dots, y_n', t; y_{k+1}^m, \dots, y_n^m, t_m) = \\ = F(y_1, \dots, y_n, \tau / y_{k+1}, \dots, y_n, t).$$

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ACCESSION NR: AP5013837

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with variable conditions written beyond the slash line. The trajectory of the vector  $Y_k(Y_1, \dots, Y_k)$  is Markovian with respect to the trajectory of the vector  $Y_{n-k}(Y_{k+1}, \dots, Y_n)$ . Differential equations (12, 18) for a continuous Markov system consisting of two points  $S_1$  and  $S_2$  are set up and solved. The Markov systems may form a chain, unidirectional or reciprocal, open or closed. Formally, the concept of a Markov system is a generalization of the concept of the Markov process. "The author wishes to thank V. S. Pugachev and Ye. G. Gladyshev for their participation in discussing the work and their valuable comments." Orig. art. has: 1 figure and 35 formulas.

ASSOCIATION: none

SUBMITTED: 17Jun64

ENCL: 00

SUB CODE: DP, IE

NO REF SOV: 003

OTHER: 000

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Card 2/2



L 25896-66 EWT(d)/EWT(1)/EPF(n)-2 IJP(c) WW

ACC NR: AP6011649

SOURCE CODE: UR/0020/66/167/003/0538/0539

AUTHOR: Leonov, Yu. P.

43  
B

ORG: Institute of Automation and Remote Control (Technical Cybernetics) (Institut avtomatiki i telemekhaniki (tehnicheskoy kibernetiki))

TITLE: Asymptotically optimal systems as a model for training process control.

SOURCE: AN SSSR. Doklady, v. 167, no. 3, 1966, 538-539

TOPIC TAGS: asymptotic property, cybernetics, optimal control, sequence

ABSTRACT: Assume there exists an object with controlled coordinates  $\{Y_n\}$  and control signals  $\{X_n\}$ --both signals being discrete functions of time. It is desired to control the object in a manner such that the control system is optimized in the sense of some quality criterion represented by

$$J = MQ_n(Y_n, X_n, \alpha)$$

where M is the mathematical expectation, X and Y are random arguments, and  $\alpha$  is a nonrandom quantity.  $\{X_n\}$  is a sequence which determines the control signal of the

2

Card 1/2

UDC: 621.3.078

L 25896-66

ACC NR: AP6011649

0

object and is optimum in the asymptotic sense. To find this sequence the following recurrence formula is used:

$$x_{n+1} = x_n + \frac{a_n}{b_n} (Z_n^* - Z_n) \quad (n = 1, 2, \dots)$$

where

$$a_n \rightarrow 0, \quad b_n \rightarrow 0, \quad \sum_1^{\infty} a_n = \infty, \quad \sum_1^{\infty} a_n^2 < \infty, \\ \sum_1^{\infty} a_n b_n < \infty, \quad \sum_1^{\infty} \left(\frac{a_n}{b_n}\right)^2 < \infty.$$

It is shown that this equation represents asymptotically optimum systems with feedbacks. This paper was presented by B. N. Petrov, academician, on 29 June 1965. Orig. art. has: 7 equations.

SUB CODE: 12,06/SUBM DATE: 18Jun65/ ORIG REF: 001/ OTH REF: 002

Card 2/2 *BLG*

ACC NR: AP7002092

SOURCE CODE: UR/0103/66/000/012/0081/0087

AUTHOR: Leonov, Yu. P. (Moscow)

ORG: none

TITLE: Classification and statistical testing of hypotheses

SOURCE: Avtomatika i telemekhanika, no. 12, 1966, 81-87

TOPIC TAGS: pattern recognition, ~~hypothesis~~ <sup>analysis</sup> statistical ~~learning~~ <sup>mechanism</sup> ~~system~~ ~~approximation method~~

ABSTRACT:

The problem of teaching systems to separate (classify) situations into given classes is considered as the problem of statistical testing of hypotheses. It is explained why determining the algorithm for teaching a system how to classify situations can be reduced to determining the algorithm for teaching the system to achieve optimal testing of hypotheses. The equivalence of these two problems made it possible to obtain the following results: 1) To define the classification problem and to obtain concepts of classes, classifier, and generalized tests. 2) To utilize a natural criterion for optimal classification on the basis of errors of the first and second kinds. (The performance of the classifier is characterized by errors of the first and the second kinds.) 3) To show that under sufficient conditions, the classifier

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UDC: 62-50

ACC NR: AP7002092

is a nonrandomized device. 4) To obtain an asymptotic model for teaching a system how to classify situations into given classes. The method of stochastic approximations was utilized in obtaining these results. Orig. art. has: 3 figures and 7 formulas.

SUB CODE: ~~17~~<sup>09</sup> / SUBM DATE: 07Feb66/ ORIG REF: 005/ OTH REF: 002/  
ATD PRESS: 5112

Card 2/2

LEONOV, Yuriy Petrovich; RAYEVSKIY, Sergey Yakovlevich; RAYEMAN, Naum Samoylovich; LEVIT, Ye.I., red. izd-va; GUS'KOVA, O.M., tekhn. red.

[Manual on automatic control; statistical dynamics in automatic control] Pomoshchnik avtomatiki; statisticheska' upra'ka v avtomatike. Moskva, Izd-vo Akad. nauk SSSR, 1961. 116 p.  
(MIRA 14:10)

(Automatic control)

LEONOV Yu. S.

48-5-24/56

SUBJECT: USSR/Luminescence

AUTHOR: Leonov Yu.S.

TITLE: Crystallophosphor Lithium-Magnesium-Tungstate with Manganese Activator (Kristallofosfor litiy-magniy-vol'framata s aktivatorom margantsem)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1957, Vol 21, #5, pp 686-687 (USSR)

ABSTRACT: The formation process of lithium-magnesium-tungstate lumino-phore activated by manganese was investigated by means of thermal and roentgenographic analysis methods. This lumino-phore shows a bright red luminescence.

It was found out that the crystallophosphor was formed only at a temperature of 740°C. The luminosity of luminescence begins to rise sharply at 740°C.

The dependence of luminosity on manganese concentration was studied in detail. Without manganese this lumino-phore did not show any luminescence at all. High concentration of manganese resulted in instability of the system. The optimum concentra-

Card 1/2

LEONOV, Yu.S.

20-5-16/60

AUTHOR LEONOV, Yu.S.

TITLE Zinc Borate Phosphors and Their Luminescent Properties.  
(Tsink-boratnyye fosfory i ikh lyuminestsentnyye svoystva - Russian)

PERIODICAL Doklady Akad.Nauk SSSR, 1957, Vol 114, Nr 5, pp 976-979 (U.S.S.R.)

ABSTRACT Reference is made to previous papers dealing with the same topic. The author precisely enumerates the data available and states that in the system  $ZnO - B_2O_3$  the compounds  $ZnO.B_2O_3$  and  $3ZnO.B_2O_3$  can be formed. Their debyeograms are shown in form of a diagram. The production of the samples by annealing is described in short. The X-ray pictures were taken according to the method of Debye powders. The characteristic lines are enumerated. On the basis of the aforementioned two compounds the phosphors were produced. A drawing shows the spectra of the green luminescence of the phosphorus  $ZnO.B_2O_3$  (Mn) (a) and of the orange-colored luminescence of the phosphorus  $3ZnO.B_2O_3$  (Mn) (b). The phosphors were excited by light with the wavelength 2537 Å. The author produced phosphors with a ratio ( $ZnO/B_2O_3$ ) of 3:2 and then recorded the spectrum. It consists of two bands which turned out to be emission bands of both phosphors with ratios ( $ZnO:B_2O_3$ ) of 3:1 and 1:1.

The characteristic features of the zinc-borate phosphors is their ability of storing light sums. It was interesting to check the correctness of the conclusion drawn with respect to the existence of two individual phosphors also with respect to this characteristic feature. For this purpose the author recorded the curves of thermal illumina-

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20-5-16/60

Zinc Borate Phosphors and Their Luminescent Properties.

tion of the phosphor  $ZnO.B_2O_3$  and of the phosphor  $3ZnO.B_2O_3(Mn)$ . Carrying out of these measurements is described in short. Both lumino-phores have some capturing levels in common, but other levels are characteristic of the one or the other phosphorus. The totality of data of radiographic analysis, of the aforementioned phosphors, of the study of their luminescence spectra, and of the measuring of the curves of their thermal illumination gives eloquent proof of the existence of two individual phosphors:  $ZnO.B_2O_3(Mn)$  and  $3ZnO.B_2O_3(Mn)$ . The mechanism of the reactions investigated is then discussed. ( 4 illustrations ).

ASSOCIATION Physical Institute "P.N.Lebedev" of the Academy of Science of the USSR  
PRESENTED BY TERENIN A.N., Member of the Academy  
SUBMITTED 24.11.1956  
AVAILABLE Library of Congress.  
Card 2/2



LEONOV, Yu. S.

AUTHOR: Leonov, Yu. S.

78-3-5-33/39

TITLE: Investigation of the Reaction Between Zinc Oxide and Boric Anhydride Using Luminescence Effects (Izucheniye reaktsii mezhdru oksis'yu tsinka i bornym angidridom s izpol'zovaniyem nablyudeniy lyuminestsentsii)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol 3 Nr 5, pp 1245-1253 (USSR)

ABSTRACT: The reaction in the solid phase of the  $ZnO-B_2O_3$ -system was investigated, and the phase diagram was perfected. Two compounds -  $ZnO \cdot B_2O_3$  and  $3 ZnO \cdot B_2O_3$  - are formed in the system. It was found that in the presence of manganese traces the compound  $ZnO \cdot B_2O_3$  has green luminescence and the compound  $3 ZnO \cdot B_2O_3$  has orange luminescence. The melting-point curves between  $ZnO$  and  $B_2O_3$  were determined with respect to different compositions. It was found in this connection that the interaction between  $ZnO$  and  $B_2O_3$  shows a complicated multistage character. A smaller quantity of the compound  $3 ZnO \cdot B_2O_3$  is formed at temperatures of up  $780^\circ C$  independently from the composition

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Investigation of the Reaction Between Zinc Oxide and Boric Anhydride Using Luminescence Effects

78-3-5-33/39

of the initial mixture. It was found that, in the presence of manganese chloride at a concentration of from 5 to 7 per cent by weight, the course of the reaction between ZnO and B<sub>2</sub>O<sub>3</sub> is influenced: In the presence of manganese, only the compound ZnO.B<sub>2</sub>O<sub>3</sub> is formed; in the presence of manganese chloride, 3 ZnO.B<sub>2</sub>O<sub>3</sub> is formed besides ZnO.B<sub>2</sub>O<sub>3</sub>.

When burning the compound ZnO.B<sub>2</sub>O<sub>3</sub> with 7% manganese sulfate, the compound 3 ZnO.B<sub>2</sub>O<sub>3</sub> is partly formed at 850°C. The possibilities of applying the luminescence analysis for investigations of the reactions in solid phase, which take place in the ZnO-B<sub>2</sub>O<sub>3</sub>-system, were discussed. There are 7 figures, 3 tables, and 7 references. 3 of which are Soviet.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev, AS USSR)

SUBMITTED: May 21, 1957

AVAILABLE: Library of Congress

Card 2/2

1. Zinc oxide--Chemical reactions--Luminescence effects 2. Boric anhydride--Chemical reactions--Luminescence effects 3. Applications



s/080/60/033/04/04/045

AUTHOR: Leonov, Yu.S.TITLE: The Technology of Luminophors (Non-Stoichiometric Composition of the Charge and Formation of a Flux in the Heating Process)

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 4, pp 769 - 774

TEXT: It has been shown that the luminescent phase of a lithium-magnesium-tungstate luminophor pertains to the stoichiometric composition  $2Li_2O \cdot MgO \cdot WO_3 (Mn)$ . If the luminophors are synthesized at a high temperature (1,200°C) the composition of the charge should be taken which corresponds to stoichiometric one, i.e., without an excess of  $WO_3$ ; in the case of heating at a lower temperature (800°C) an excess of  $WO_3$  is necessary. It has been established that in the presence of excess  $WO_3$  in the charge low-melting lithium tungstate is formed which acts as a flux; in this case a three-phase luminophor is obtained; the luminescent phase contains lithium tungstate and magnesium oxide as admixtures. The time of heating cannot compensate the effect of the flux formed, if the heating is carried out at a temperature of 800°C. The brightest luminophor is obtained in the case of stoichiometric composition  $2Li_2O \cdot MgO \cdot WO_3$  and a heating at 1,200°C in the course of 5 hours. A luminophor of non-stoichiometric composition in the

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S/080/60/033/04/04/045

The Technology of Luminophors (Non-Stoichiometric Composition of the Charge and Formation of a Flux in the Heating Process)

case of heating at 1,200°C reaches its maximum brightness after 7 minutes and diminishes brightness if it is heated longer. The increase in brightness of the luminophor, obtained by using a charge of non-stoichiometric composition, is explained and it has been shown that the possibility of mutual compensation of the temperature and the heating time is limited. Thanks are expressed to professor, doctor of chemistry M.A. Konstantinova-Shlezinger.

There are: 1 table, 1 photograph, 1 graph and 7 references, 4 of which are Soviet, 2 German and 1 English.

ASSOCIATION: Fizicheskii institut im. P.N. Lebedeva AN SSSR (Physical Institute imeni P.N. Lebedev AS USSR)

SUBMITTED: July 13, 1959

Card 2/2

20876

9.4300 (1138, 1137, 1140, 1147)

S/051/61/010/005/005/006  
E032/E114

AUTHOR: Leonov, Yu.S.

TITLE: Uranium Activated Lithium-Magnesium-Tungstate

PERIODIC: Optika i spektroskopiya, 1961, Vol.10, No.5,  
pp. 679-680

TEXT: Lithium-magnesium-tungstate phosphor activated with manganese was investigated in detail by M.A. Konstantinova-Shlezinger, Ye.G. Vasil'yeva and Z.N. Repukhova (Ref.1) and the present author (Refs. 2, 3). The present paper reports an attempt to activate this phosphor by other elements, namely Cu, Ti, Sb, Sn, Au, Ag and U. Of these, only uranium was found to be successful. The best results were obtained with  $2\text{Li}_2\text{O} \cdot \text{MgO} \cdot \text{WO}_3(\text{U})$ . The luminescence spectrum of this phosphor was investigated at room temperature and at liquid nitrogen temperature. Fig.1 shows the luminescence spectrum obtained at room temperature (Curve a). At the liquid nitrogen temperature (curve b) the maximum is slightly displaced towards the short-wave region. This phosphor has a high yield which, however, is lower by a factor of 2 than that of  $2\text{Li}_2\text{O} \cdot \text{WO}_3(\text{U})$ . The excitation spectrum was obtained with Card 1/3

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S/051/61/010/005/005/006  
E032/E114

Uranium Activated Lithium-Magnesium-Tungstate

the aid of a hydrogen lamp (Fig.2; room temperature). The phosphor was also excited by cathode rays and X-rays. The average excited-state lifetime was found to be of the order of  $10^{-5}$  sec. Acknowledgements are expressed to M.A. Konstantinov for advice and interest. A.Yu. Borisov and L.A. Tumerman are mentioned for their contribution in this field. There are 2 figures and 6 Soviet references.

SUBMITTED: November 5, 1960

Card 2/3

20876

S/051/61/010/005/005/006  
E032/E114

Uranium Activated .....

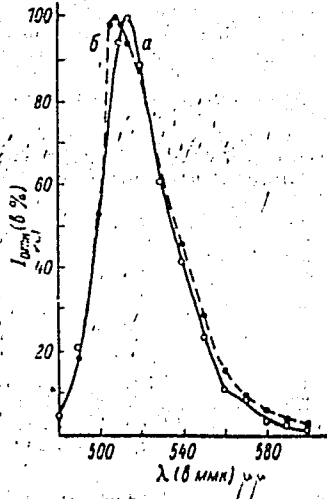


Fig. 1

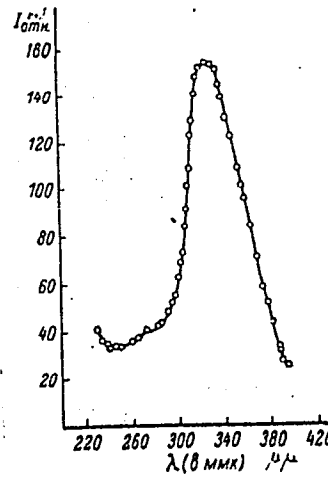


Fig. 2

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S/051/62/012/002/013/020  
E202/E192

AUTHOR:

Leonov, Yu.S.

TITLE:

Effect of grinding on the luminescent properties  
of tungsten luminophors

PERIODICAL:

Optika i spektroskopiya, v.12, no.2, 1962, 265-270

TEXT:

The effect of the residual and partly unreacted components of luminophors on brightness of their luminescence was studied with the help of the absorption and emission spectra. CdO-WO<sub>3</sub> and ZnO-WO<sub>3</sub> were selected in view of their simple chemistry and the 1:1 oxide ratio. The brightness of luminescence was measured visually using a photometer  $\Phi M$  (FM). Absorption spectra were measured by diffused reflection from the thick layer of powder, using a photoelectric assembly with quartz monochromator and photomultiplier  $\Phi \text{BY-19}$  (FEU-19), and the emission spectra using a similar assembly with  $\Phi \text{BY-27}$  (FEU-27). Absorption spectra of CdO (55%)-WO<sub>3</sub> (45%) mol. baked at 700 °C for 1 hour, 800 °C for 1 hour, 900 °C for 5 hours and 900 °C for 12 hours were plotted before and after comminution.

Card 1/2

S/080/62/035/006/006/013  
D204/D307

AUTHOR:

Leonov, Yu. S.

TITLE:

The function of the excess of one of the components  
in the synthesis of crystalline luminescent materials

PERIODICAL:

Zhurnal prikladnoy khimii, v. 35, no. 6, 1962,  
1222-1226

TEXT: Mixtures of ZnO and of CdO with  $WO_3$  were studied to determine more accurately the influence of the excess of one component on the luminescence. In the ZnO- $WO_3$  system various mixtures of the two oxides were fired successively at 800 and 900°C, for 1 hour at each temperature. After the 800°C firing, the luminescence rose with increasing ZnO content to a flat maximum extending over the region 55% ZnO.45%  $WO_3$  - 80% ZnO.20%  $WO_3$  and decreased sharply thereafter. After the firing at 900°C, the stoichiometric 1:1 mixture exhibited the highest luminescence of all specimens tested. The comparatively

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The function of the ...

S/080/62/035/006/006/013  
D204/D307

ASSOCIATION: Fizicheskiy institut imeni P. N. Lebedeva, AN SSSR  
(Physics Institute imeni P. N. Lebedev, AS USSR)

SUBMITTED: February 9, 1961

Card 3/3

L 35532-65 EWT(l)/EWT(m)/EWP(t)/EPR/EWP(b) Ps-4 IJP(c) JD/JG

ACCESSION NR: AP5008177

S/0286/65/000/005/0056/0056

AUTHOR: Leonov, Yu. S.

TITLE: A method for obtaining a luminophor.<sup>21</sup> Class 22, No. 168819

21  
B

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 5, 1965, 56

TOPIC TAGS: luminophor, magnesium compound, samarium, cerium  
21 21 21

ABSTRACT: This Author Certificate presents a method for obtaining a luminophor based on magnesium borate. The method involves heating a batch in the presence of an activator. To sensitize the luminescence of the luminophor, trivalent samarium and tetravalent cerium are used as the activator.

ASSOCIATION: none

SUBMITTED: 24 Jan 64

ENCL: 00

SUB CODE: CC

NO REF SOV: 000

OTHER: 000

Card 1/1

L 3156-66 EWT(1)/EWT(m)/EWP(t)/EWP(b) IJP(c) JD/JG

ACCESSION NR: AP5016047

UR/0368/65/002/005/0434/0439  
535.338.42

AUTHOR: Leonov, Yu. S. 44, 65

38  
26  
8

TITLE: The luminor  $3MgO \cdot B_2O_3$  (Ce-Sm) with luminescence sensitized by  $Ce^{4+}$  21, 44, 55

SOURCE: Zhurnal prikladnoy spektroskopii, v. 2, no. 5, 1965, 434-439

TOPIC TAGS: luminor, luminescence, luminescence spectrum, optic activity, rare earth element 27

ABSTRACT: The purpose of the investigation was to determine the effect of Ce and Sm activators introduced into  $3MgO \cdot B_2O_3$  separately, since it has been observed that the introduction of Ce together with Sm intensifies the luminescence of the resultant material. The highest brightness was obtained with a luminor made of  $3MgO \cdot B_2O_3$  containing 0.037 Ce and 0.001 Sm. When the ratio of the cerium and samarium concentrations changes, the total luminescence brightness decreases more

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L 3156-66

ACCESSION NR: AP5016047

12

strongly than if the concentrations of both activators are changed but their ratio is kept constant. The lumino<sup>r</sup> produced exhibited the bright orange-red luminescence of  $Sm^{3+}$ . In the case of cathode excitation the luminescence is weaker. The  $Ce^{4+}$  is partially reduced by the bombarding electrons to  $Ce^{3+}$ , giving rise to blue luminescence. Comparison of the absorption (reflection) and excitation spectra has shown that when both  $Sm^{3+}$  and  $Ce^{4+}$  are present, new absorption and excitation bands appear, and that in addition, when there is an excess of  $Ce^{4+}$ , the excitation of the  $Sm^{3+}$  occurs in the absorption band of  $Ce^{4+}$ . In conclusion I am grateful to M. A. Konstantinova-Shlezinger, M. D. Galanin, V. V. Antonov-Romanovskiy, and N. A. Gorbacheva for advice and a discussion. Orig. art. has 4 figures

ASSOCIATION: None

SUBMITTED: 18Nov64

ENCL: 00

SUB CODE: OP

NR REF SQV: 004

OTHER: 005

Card

2/2

ACC NR: AP7004992

SOURCE CODE: UR/0048/66/030/009/1524/1526

AUTHOR: Leonov, Yu.S.

ORG: none

TITLE: On the synthesis of new luminophors, Germanium- and manganese-activated magnesium orthoborate phosphor /Report, Fourteenth All-Union Conference on Luminescence (Crystal Phosphors) held at Riga, 16-23 Sept. 1965/

SOURCE: AN SSR. Izvestiya. Seriya fizicheskaya, v. 30, no.9, 1966, 1524-1526

TOPIC TAGS: photoluminescence, cathodoluminescence, magnesium compound, boron compound, manganese, germanium, luminescence spectrum

ABSTRACT: It is known that manganese-activated magnesium orthoborate exhibits red cathodoluminescence but no photoluminescence. The author has previously found that the addition of 5 mole percent of germanium to this material results in a strongly photoluminescent material that can be excited in the near ultraviolet. In the present work  $3\text{Mg} \cdot \text{B}_2\text{O}_3:\text{Ge}:\text{Mn}$  phosphors containing 5 mole percent of Ge and 0.07 mole percent of Mn were synthesized and investigated in order to determine whether the germanium enters the magnesium orthoborate lattice with the manganese or whether it reacts with the magnesium oxide to form an additional manganese-activated magnesium germanate phosphor. The phosphors were synthesized by heating to  $1050^\circ$  appropriate mixtures of

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ACC NR: AP7004992

magnesium carbonate, boric acid, and germanium and manganese oxides. The photoluminescence emission and excitation spectra of  $3\text{MgO} \cdot \text{B}_2\text{O}_3 : \text{Ge} : \text{Mn}$  and  $4\text{MgO} \cdot \text{GeO}_2 : \text{Mn}$ , and the cathodoluminescence spectra of these materials,  $3\text{MgO} \cdot \text{B}_2\text{O}_3 : \text{Mn}$ , and mixtures of them, were recorded. The photoluminescence spectra of the orthoborate and the germanate were very similar, but there were differences. From a comparison of the spectra and from the effects of variations in the synthesis conditions it is concluded that there was no luminescent  $4\text{MgO} \cdot \text{GeO}_2 : \text{Mn}$  phase in the investigated  $3\text{MgO} \cdot \text{B}_2\text{O}_3 : \text{Ge} : \text{Mn}$  phosphors.  $2\text{MgO} \cdot \text{SiO}_2 : \text{Ge} : \text{Mn}$ ,  $2\text{MgO} \cdot \text{TiO}_2 : \text{Ge} : \text{Mn}$ ,  $\text{MgO} \cdot \text{WO}_3 : \text{Ge} : \text{Mn}$ , and  $\text{MgO} : \text{Ge} : \text{Mn}$  phosphors were also investigated but all of these materials exhibited either very weak or no photoluminescence. The author thanks M.A.Konstantinova-Shlezinger for constant attention to the work and valuable advice, M.V.Fok for discussing certain aspects of the work, and V.A.Chikhacheva and L.E.Osin for providing the equipment for and assisting with the cathodoluminescence measurements. Orig. art. has: 3 figures.

SUB CODE: 20      SUBM DATE: none      ORIG. REF: 002      OTH REF: 003

Card 2/2



YERMOLENKO, A.P.; KOROLEVA, N.V.; KOROLEV, N.V.; LEONOV, Yu.V.

Quenching of hardened ferritic-austenitic chromium-nickel steel.  
Metalloved. i term. obr. met. no. 12:51-55 D '65.

(MIRA 18:12)

LEONOV, Yu.T.

Improvement in the ventilation of pilot-balleon lanterns.  
Meteer. i gidrol. no.6:39-40 Je '56. (MLRA 9:9)  
(Balleons, Pilot)

LEONOV, Z.

Centralized freight haulage is an important means of lowering transportation costs. Avt.transp.33 no.6:5-7 Je '55.  
(MLRA 8:10)

1. Zamestitel' nachal'nika transportnogo upravleniya Ministerstva trgovli SSSR  
(Transportation, Automotive--Costs)

LEONOV, Z.I.

[Centralized delivery of goods to stores and public eating establishments] Tsentralizovannaiia dostavka tovarov v torgovuiu set' i predpriatia obshchestvennogo pitania. Moskva, Gos. izd-vo  
torg. lit-ry, 1957. 39 p. (MIRA 11:5)  
(Delivery of goods)

ЛЕОНОВ, З.

LEONOV, Z.

~~Commercial transportation in England. Nov.torg.tekh. no.2:41-47~~  
'57. (MLRA 10:8)  
(Great Britain--Transportation, Automotive)

LEONOV, Z.

Results of centralized deliveries of goods. Sov.torg. no.9:9-13  
S '57. (MLRA 10:8)  
(Delivery of goods)

LEONOV, Z.I.; LUNIN, V.I.; MONFRED, V.A.; VINOGRADOV, V.I., red.;  
TSIPERSON, A.A., red.; CHICHKOV, N.V., red.; ANTSELOVICH,  
K.I., tekhn. red.

[Specialized transportation of commercial goods] Spetsializirovannyye perevozki torgovykh tovarov. Moskva, Gostorgizdat, 1963. 111 p.  
(Transportation, Automotive) (MIRA 17:1)

BEREZINA, O.; ZLOTNIKOVA, L.; LEONOVA, A.; NOVITSKAYA, O.

Methodology of labor productivity analysis and planning by  
factors in the petroleum refining industry. Biul. nauch.  
inform: trud i zar, plata 3 no. 11:3-10 '60. (MIRA 14:1)  
(Petroleum industry--Labor productivity)



LEONOVA, A.A.

2

17 (3, 12)

SGV/16-60-3-10/87

AUTHOR: Ananashchenko, M.I., Nakhotenova, Ye.I. and Leonova, A.A.

TITLE: Methods of Determining Diphtheria Antitoxin in Immune Sera

PERIODICAL: Zhurnal mikrobiologii, epidemiologii i immunologii, 1960, Nr 4, pp 44 - 47 (USSR)

ABSTRACT: The authors made a comparative study of Bömer's and Jensen's methods of titrating diphtheria antitoxin in immune sera, and of K.T. Khalyapina's modifications of these methods which are generally used in the Soviet Union. The results obtained with the original and with the modified methods diverged. The modified methods proved the diphtheria antitoxin content in the sera to be lower than by the original methods. This is because the modified methods take no account of the assumed titer of the serum but titrate all sera at 1:20,000 AU. Moreover, the modified Jensen's method does not include a control batch of tests, so that corrections based on the individual reactivity of the rabbit cannot be introduced into the results. The authors conclude that, for correct results, Jensen's and Bömer's original methods should be used. To decide at what level to titrate the sera under test, a series of

ASSOCIATION: Institut epidemiologii i mikrobiologii imeni Gamalei AN SSSR (Institute of Epidemiology and Microbiology imeni Gamaleya of the AN, USSR)

SUBMITTED: October 20, 1959

Card 2/2

L 30117-65 EWT(d)/IDB(jj)/BXT/EED-2/EWP(1) Po-4/Pq-4/Pg-4/Pk-4 IJP(C)  
TK/BB/GG/GS/JXT(bf)

S/0000/64/000/000/0070/0073

ACCESSION NR: AT5005805

51  
53  
B+1

AUTHOR: Leonova, A. A.

TITLE: Introducing UDK (universal decimal classification) into machine design

SOURCE: Moscow. Vsesoyuznyy institut nauchnoy i tekhnicheskoy informatsii. Sozdaniye i ispol'zovaniye tsentral'nogo otraslevogo spravochno-informatsionnogo fonda (Organization and use of a central special reference collection); materialy nauchno-tekhnicheskogo soveshchaniya. Moscow, 1964, 70-73

TOPIC TAGS: library, classification, catalog, information processing, information recording, coding

16C

ABSTRACT: General and specific card catalogs of the TsINTIAM (Central Institute of Scientific and Technical Information on Automation and Machine Design) information service were arranged according to the universal decimal classification (UDK). Experience determined methods to eliminate problems in the classification of material. Solutions of complex or controversial scientific problems were registered systematically; the discarded indexes and the reference figures used in special divisions were marked on the UDK tables. Two auxiliary catalogs were established: one for topics represented indirectly in the UDK; another for index analysis, which showed all the titles with a corresponding reference figure reflecting the basic  
Card 1/2

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ACCESSION NR: AT5003805

topic of the article. All UDK sub-tables of the 5th and 6th classes and the general index tables published in the short edition of the UDK Vsesoyuznoy knizhnoy palaty (UDK of the All-Union Book Board) were used as basic manuals for classification. Reference data were chosen according to the main subject of the article rather than its title. A proper choice of an index required the consideration of the future card position in the main catalog. Notes-P information was collected, generalized, and forwarded to the interdepartmental UDK commission.

ASSOCIATION: Vsesoyuznyy institut nauchnoy i tekhnicheskoy informatsii (All-Union Institute of Scientific and Technical Information)

SUBMITTED: 23Sep64

ENCL: 00

SUB CODE: DP

NO REF SOV: 000

OTHER: 000

Card 2/2

CHIZHEVSKIY, Aleksandr Leonidovich, prof.; LEONOVA, A.B., red.;  
GERASIMOVA, Ye.S., tekhn.red.

[Manual on the use of ionized air in industry, agriculture,  
and in medicine; instructions on the use of "Soiuzsantekhnika"  
ionized air installations] *Rukovodstvo po primeneniui ionizirovannogo vozdukha v promyshlennosti, sel'skom khoziaistve i v meditsine; metodicheskie ukazania pri pol'zovanii aeroionifikatsionnymi ustanovkami "Soiuzsantekhniki."* Moskva, Gosplan-izdat, 1959. 55 p. (MIRA 13:6)

(Air, Ionized)

SOCHILOVA, A.A.; BUYANOVSKAYA, I.S.; KENINA, A.Ye.; DMITRIYEVA, V.S.; FURER,  
N.M.; BELYAYEVA, L.A.; KUVSHINOVA, Ye.V.; VAKULENKO, N.A.; ZAMUKHOV-  
SKAYA, A.N.; LEONOVA, A.G.

Agar diffusion method for determining the activity of antibiotics.  
Trudy VNIIA no.1:10-26 '53. (MLRA 8:1)  
(Antibiotics--Testing) (Bacteriology--Culture and culture media)

LEONOVA, A.G.

Fractional analysis of diphtherial anatoxins prepared on media  
with various splitting coefficients. Zhur.mikrobiol.epid. i immun.  
27 no.4:37-42 Ap '56. (MLRA 9:7)

1. Iz Instituta epidemiologii i mikrobiologii imeni N.F.Gamalei  
AMN SSSR

(DIPHTHERIA

anatoxin, fractional analysis on media with various fission  
coefficients)

(CULTURE MEDIA

with various fission coefficients for prep.of diphtherial  
anatoxins, Fractional analysis)

PAVLOV, P.V.; LEONOVA, A.G.

Stabilization of diphtherial toxin for the Schick test. Zhur.  
mikrobiol. epid. i immun. 29 no. 3: 106-111 Mr '58. (MIRA 11:4)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei AMN SSSR.  
(DIPHTHERIA, immunology,  
Schick test, stabilization of toxin (Rus))

LEONOVA, A.G.; PAVLOV, P.V.

Use of the method of precipitation in agar in the selection of toxigenic variants of strain P48; author's abstract. Zhur. mikrobiol.epid. i immun. 30 no.5:88-89 My '59. (MIRA 12:9)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei AMN SSSR.

(DIPHTHERIA)



APANASHCHENKO, N.I.; NEKHOTENOVA, Ye.I.; LEONOVA, A.G.

Methods for the determination of diphtheria antitoxin in immune  
serums. Zhur. mikrobiol. epid. i immun. 31 no. 4:44-47 Ap '60.  
(MIRA 13:10)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei  
AMN SSSR.

(DIPHTHERIA) (TOXINS AND ANTITOXINS)

PAVLOV, P.V.; LEONOVA, A.G.; SMIRNOV, M.V.

Effect of products of deep splitting of proteins in a culture medium on *C. diphtheriae* toxin formation. Report No.1: Medium digested by an enzymatic mixture of trypsin and enterokinase for the preparation of diphtherial toxin. Zhur.mikrobiol.epid.i immun. 31 no.8:65-69 Ag '60. (MIRA 14:6)

1. Iz Otdela profilaktiki detskikh infektsiy Instituta epidemiologii i mikrobiologii imeni Gamalei AMN SSSR.  
(CORYNEBACTERIUM DIPHTHERIAE) (TOXINS AND ANTITOXINS)  
(BACTERIOLOGY--CULTURES AND CULTURE MEDIA)  
(TRYPSIN) (KINASE)

PAVLOV, P.V.; LEONOVA, A.G.

Effect of the products of protein splitting in a culture medium on toxin formation. Report No.2: Antigenic and immunogenic properties of diphtheria toxins (toxoids) obtained on a medium, digested by two enzymes during culture of the Weisensee strain. Zhur.mikrobiol.epid.i immun. 32 no.1:95-99. Ja '61. (MIRA 14:6)

1. Instituta epidemiologii i mikrobiologii imeni Gamalei AMN SSSR.  
(CORYNEBACTERIUM DIPHTHERIAE) (TOXINS AND ANTITOXINS)  
(TRYPSIN) (PROTEINASE)

PAVLOV, P.V.; LEONOVA, A.G.

Determination of the optimal antigen dose for active immunization.  
Report No.1: Determination of the optimal dose of native diphtherial  
anatoxin. Zhur. mikrobiol., epid. i immun. 32 no.9:8-12 S '61.

(MIRA 15:2)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei AMN SSSR.  
(DIPHTHERIA) (TOXINS AND ANTITOXINS)

PAVLOV, P.V.; NEKHOTENOVA, Yo.I.; LEONOVA, A.G.; APANASHCHENKO, N.I.;  
POMYANKEVICH, A.N.

Production of diphtheria toxin under conditions of submerged cul-  
tures. Nauch. osn. proizv. bakt. prep. 10:71-76 '61. (MIRA 18:7)

1. Institut epidemiologii i mikrobiologii im. Gamalei AMN SSSR.

PAVLOV, P.V.; LEONOVA, A.G.

Determination of optimum doses of antigens used for active immunization. Report No.2: Determination of the optimum dose of sorbed diphtheria anatoxin as a monoantigen and as a component included in polyvalent preparations. Zhur. mikrobiol., epid. i immun. 40 no.3:59-63 Mr '63.

(MIRA 17:2)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei AMN SSSR.

PAVLOV, P.V.; AKIMOVA, V.V.; LEONOVA, A.G.; KASHINTSEVA, N.S.

Experimental study of combined vaccine for active immunization  
against scarlet fever, diphtheria, whooping cough and tetanus.  
Zhur. mikrobiol., epid. i immun. 40 no.9:3-10 S'63.

(MIRA 17:5)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei  
AMN SSSR.

LEONOVA, A.G.

Method of double diffusion on agar gel for the determination of the  
toxigenicity of hemolytic streptococci. Zhur. mikrobiol., epid. i  
immun. 41 no.12:113-116 D '64. (MIRA 18:3)

1. Institut epidemiologii i mikrobiologii imeni Gamalei AMN SSSR.



SHILIN, Ya.V., doktor med.nauk; LEONOVA, A.I.; LEMESH, N.S.; MOROZOVA, L.A.

Surgical treatment of strabismus. Vest.oft. 70 no.5:57-58  
S-0 '57. (MIRA 12:6)

1. Poliklinicheskoye otdeleniye Tsentral'noy bol'nitsy im.  
N.I.Pirogova (glavnyy vrach N.S.Barkov), Kuybyshev.  
(STRABISMUS, surg.  
technic)

LEONOVA, A. I.

Feb 51

USSR/Chemistry - Petroleum

"Synthesis and Catalytic Conversion of Aliphatic Sulfur Compounds Through Their Contact With Aluminosilicate Catalyst," I. N. Tita-Skvortsova, S. Ya. Levina, A. I. Leonova, Ye. A. Karasova, *Late Petroleum Chem, Moscow State U*

"Zhur Obshch Khim" Vol XXI' No 2, pp 242-250

Obtained aliphatic sulfides and disulfides with C<sub>9</sub> and C<sub>10</sub> from corr bromides, and aliphatic mercaptan of C<sub>10</sub> from C<sub>10</sub> disulfide. Concluded from passing cond formed over aluminosilicate catalyst: (1) At 250° mercaptans (decylmercaptan) form sulfides (didecylsulfide) and alkenes (decene-1), at 300° only alkenes. (2) At 300° sulfides (dimerylsulfide) form alkenes and mercaptans. (3) Disulfides (dimeryl disulfide) form mercaptans which are partly converted into alkenes.

176T13

CA

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Transformation of some sulfur compounds of the aromatic series (dithioresorcinol, thioresol, ditolyl disulfide, and 2,6-dimethylthianthrene) over an aluminosulfate catalyst. I. N. Tit-Skvorcova, A. L. Lomonosov, and S. Ya. Levina (M. V. Lomonosov State Univ., Moscow). *Doklady Akad. Nauk S.S.S.R.* 80, 377-80 (1951); cf. *Uchenye Zapiski Moskov Gosudarst. Univ.* 132, No. 7, 254 (1950). --m-C<sub>6</sub>H<sub>4</sub>(SH)<sub>2</sub> passed over an aluminosulfate catalyst at 300° gives 23.8% C<sub>6</sub>H<sub>5</sub>, 11.9% PhSH, and 26.3% thianthrene, m. 155-6°, possibly by intermediate cleavage of H<sub>2</sub>S. p-MeC<sub>6</sub>H<sub>4</sub>(SH)<sub>2</sub> at 300° gave a trace of MePh and unchanged material; at 400°, 6.4% MePh and a liquid mercaptan, C<sub>11</sub>H<sub>14</sub>S, apparently impure starting material; at 500°, 34% MePh was obtained, the rest being unchanged MeC<sub>6</sub>H<sub>4</sub>(SH)<sub>2</sub>. PhSH reacts similarly, while (p-MeC<sub>6</sub>H<sub>4</sub>)<sub>2</sub>S<sub>2</sub> at 400° yields 11.4% MePh and 18.6% p-MeC<sub>6</sub>H<sub>4</sub>(SH)<sub>2</sub>, as well as some crude material. 2,6-Dimethylthianthrene at 400° gave 28.5% liquid mercaptan (apparently impure p-MeC<sub>6</sub>H<sub>4</sub>(SH)<sub>2</sub>); C, O, and H were detected but no CO was found.  
G. M. Kosolapoff

<sup>D</sup>  
LENOVA, A. I.  
^

USSR/Chemistry - Organic Sulfur Compounds

Jan 52

"Mixed Sulfides With a Number of Carbon Atoms From C<sub>11</sub> to C<sub>20</sub> and Their Basic Constants," I. N. Tits-Skvortsova, S. Ya. Levina, A. I. Leonova, T. A. Danilova, Lab of Petroleum Chem, Moscow Order of Lenin State U

"Zhur Obshch Khim" Vol XXII, No 1, pp 135-138

By interaction of metal derivs of aliphatic, aromatic, and naphthenic thioles with aliphatic and naphthenic halogen derivs, following mixed sulfides were synthesized and described for the 1st time: phenyl-, cyclohexyl-, cyclopentyl-, and  $\alpha$ -naphthyl-decylsulfides; phenyl- and cyclohexyl-cyclopentyl sulfides;  $\alpha$ -naphthyl- and B-tetra-lyl-cyclohexyl-sulfides. Yields were 62-84% except in cases with cyclohexyl halognides, where they were 30-34% due to side-reaction of cyclohexene formation.

207T26

232T11

USSR/Chemistry - Sulfur Compounds, 1 Jun 52  
Petrolium

"Transformation of Some Sulfur Compounds of the Naphthene Series Over an Aluminosilica Catalyst, I. N. Pits-Skovortsova, A. I. Leonova, S. Ya. Levina, Moscow State University M. V. Lomonosova

"Dok Ak Nauk SSSR" Vol 84, No 4, pp 741-743

Cyclopentanethiol and cyclohexanethiol do not behave alike over an aluminosilica catalyst at 300°. Cyclopentanethiol, losing a mol of H<sub>2</sub>S, becomes cyclopentane. The end product of

232T11

cyclohexanethiol is methylcyclopentane. Apparently, the following process takes place: cyclohexanethiol, losing an H<sub>2</sub>S mol, becomes cyclohexane; cyclohexane isomerizes into methylcyclopentane which hydrogenates to methylcyclopentane. Dicyclopentyl sulfide becomes cyclopentane over an aluminosilica catalyst at 300°, the sulfur leaving the mol in the form of H<sub>2</sub>S. Dicyclopentyl disulfide is reduced over an aluminosilica catalyst at 300° as a result of destructive hydrogenation into cyclopentane thiol, part of which, losing a mol of H<sub>2</sub>S, turns into cyclopentane.

232T11

LEONOVA, A. I.

LEONOVA, A. I.

Catalytic transformations over aluminosilicate catalyst of *p*-thioresol, diphenyl disulfide, *p,p'*-ditolyl disulfide and 2,6-dimethylthianthrene. L. N. Tita-Skvorcova, A. I. Leonova, S. Ya. Leyva, and E. A. Kuznetsov (M. V. Lomonosov Inst. Univ. Moscow). *Sbornik statei Obshchei Khim., Akad. Nauk S.S.S.R.* 1, 611-7 (1954).—The aromatic S derivs. listed above on contact with aluminosilicate catalyst at 300–400° suffer the most characteristic rejection of destructive hydrogenation. Thus, *p*-MeC<sub>6</sub>H<sub>4</sub>SH changes in part to MePh; 2,6-dimethylthianthrene is not formed. PhS<sub>2</sub> yields 2 mole. PhSH, the latter then being converted to C<sub>6</sub>H<sub>6</sub> and thianthrene. (*p*-MeC<sub>6</sub>H<sub>4</sub>)<sub>2</sub>S<sub>2</sub> at first yields *p*-MeC<sub>6</sub>H<sub>4</sub>SH, which then is converted to MePh. 2,6-Dimethylthianthrene is totally decompd., yielding MeC<sub>4</sub>H<sub>8</sub>SH and being in part converted to C and H. Reduction of *p*-MeC<sub>6</sub>H<sub>4</sub>SO<sub>2</sub>Cl with Zn dust in ice H<sub>2</sub>SO<sub>4</sub> at 0° gave 78.6% *p*-MeC<sub>6</sub>H<sub>4</sub>SH, m. 43°; a 23.8% yield was obtained from *p*-MeC<sub>6</sub>H<sub>4</sub>SO<sub>2</sub>Cl and S after 2 hrs. refluxing, along with a low yield of (*p*-MeC<sub>6</sub>H<sub>4</sub>)<sub>2</sub>S<sub>2</sub>, b. 178–80°, m. 44.8–5° (from MeOH). PhS<sub>2</sub>, m. 60°, was obtained in poor yield from PhMgBr and S<sub>2</sub>Cl<sub>2</sub> in Et<sub>2</sub>O, along with much PhSPh and PhBr. (*p*-MeC<sub>6</sub>H<sub>4</sub>)<sub>2</sub>S<sub>2</sub>, m. 47°, was obtained in 30.1% yield from 46 g. *p*-MeC<sub>6</sub>H<sub>4</sub>SO<sub>2</sub>Cl and 30 g. *p*-MeC<sub>6</sub>H<sub>4</sub>SH in Et<sub>2</sub>O in the presence of 36.3 g. powd. KOH. Stirring 40 g. *p*-MeC<sub>6</sub>H<sub>4</sub>SH with 200 ml. concd. H<sub>2</sub>SO<sub>4</sub> in an open flask 20 hrs. gave 10.2 g. 2,6-dimethylthianthrene, pure product, 15%, m. 117° (from EtOH). G. M. K.

LEONOVA, A. I.

USSR •

J. Synthesis and catalytic transformations of sulfur compounds of naphthene series on contact with aluminosilicate catalyst. L. N. Tuz-Skvortsova, A. I. Leonova, and S. Ya. Levina (M. V. Lomonosov State Univ., Moscow). *Sbornik Statei Obshchei Khim.* 2, 1135-43 (1953). — KOH (28.1 g.) in 125 ml. EtOH satd. with H<sub>2</sub>S with cooling and treated at reflux with 74.5 g. cyclopentyl bromide, then refluxed 1 hr. gave 52% cyclopentanethiol, b<sub>10</sub> 129-31°, n<sub>D</sub><sup>20</sup> 1.4880, d<sub>4</sub> 0.9550, and 5.9% dicyclopentyl sulfide, b<sub>10</sub> 133-4°, n<sub>D</sub><sup>20</sup> 1.5140, d<sub>4</sub> 0.9715. A 39.5% yield was obtained from cyclopentylmagnesium bromide and S. The pure thiol b<sub>10</sub> 129.5-30.5°, n<sub>D</sub><sup>20</sup> 1.4871, d<sub>4</sub> 0.9551; the disulfide b<sub>10</sub> 140.5-1°, n<sub>D</sub><sup>20</sup> 1.5482, d<sub>4</sub> 1.0340, formed in 5% yield from the Grignard synthesis. Cyclopentanethiol passed over aluminosilicate catalyst at 300° gave 33.1% cyclopentene, 18.5% unchanged thiol, 69.1% H<sub>2</sub>S, a little CO, 4.65% olefins, 5.6% O, and 15.3% H; the reaction was run in N stream. Reaction of cyclohexylmagnesium bromide with S gave 60% cyclohexanethiol, b<sub>10</sub> 82-8°, n<sub>D</sub><sup>20</sup> 1.4926, d<sub>4</sub> 0.9449, along with 3.4 g. corresponding disulfide, b<sub>10</sub> 108-8°, n<sub>D</sub><sup>20</sup> 1.5176, d<sub>4</sub> 1.0478. The thiol passed in N over aluminosilicate catalyst at 300° gave 43% (on catalyze obtained in 49% yield) methylcyclopentane, 0.1% unchanged thiol, and much H<sub>2</sub>S; the isolation of the hydrocarbon was preceded by treatment with 80% H<sub>2</sub>SO<sub>4</sub> to remove unsatd. compds. (probably cyclohexene). Cyclohexane passed over the catalyst at 300° gave no change. Cyclohexene gave 27% methylcyclopentane and small amounts of methylcyclopentenes, along with aromatic substances. Cyclopentene over the aluminosilicate catalyst at 300° gave no reaction.

DUEK





LEONOVA, A. I.

Chemical Abst.  
Vol. 48 No. 5  
Mar. 10, 1954  
Organic Chemistry

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Catalytic transformations over aluminosilicate catalyst of thiophenol, dithioresorcinol, thianthrene, and diphenyl sulfide. I. N. Tit-Skvortsova, A. I. Leonova, S. Ya. Levina, and E. A. Katsheva (Moscow State Univ.). *Zhur. Obshch. Khim.* 23, 303-10(1953).—The various S derivs. were passed over the  $Al_2O_3 \cdot SiO_2$  catalyst in N at space velocity 0.25. In all cases  $H_2S$  evolution was noted. PhSH was used at 200°, 300°, and 500°. In all cases the catalyzate was a mixt. of liquid and solid products distributed as follows: at 200°  $C_6H_6$  49.5, thianthrene 11.1, and PhSH 7.7; at 300° 42.2, 15.9, and 6.6%, resp.; at 500° 30.3, 10-12.7, 14.6-17.7%, resp. Possibly more PhSH is retained by the catalyst at the lower than at the higher temp. (500°). Pure thianthrene m. 155° (from EtOH).  $CISO_2H$  (1950 g.) heated with 195 g.  $C_6H_6$ , 2 hrs. at 180-60°, cooled, and poured into ice, yielded 70.8%  $m-C_6H_4(SO_2Cl)_2$  (29.2% pure), m. 61-1.5° (from petr. ether). This (75 g.) added to 180 g. Zn dust and 200 ml.  $H_2O$  at 50°, then heated with 20 g. Zn 10 min. to 70°, cooled, treated with dil. HCl (1 kg. concd. HCl and 500 ml.  $H_2O$ ), then treated with 25 g. more Zn dust, stirred 2 hrs. at 20°, and the resulting ppt. extd. with  $Et_2O$  gave 77.7%  $m-C_6H_4(SH)_2$ , m. 28-3.5°, b<sub>10</sub> 128-8.5°. Passage of this (29 g.) over the catalyst at 300° gave 23.1% catalyzate contg.  $C_6H_6$  23.8, PhSH 11.9, 25.3% thianthrene, and 52.1%  $H_2S$ , along with  $CO_2$  0.26, O 1.8, and H 10.5% in the off-gases. Thianthrene passed over the catalyst at 400° yielded 22% catalyzate which gave 36%  $C_6H_6$ , some PhSH and 45% unchanged thianthrene. Addn. of 91 g.  $AlCl_3$  to 177 g.  $C_6H_6$ , then 85 g.  $S_2Cl_2$  and 81.5 g.  $C_6H_6$  at 10-13°, stirring 1 hr. without cooling and 1.5 hrs. at 30-40°, treatment with ice, filtration of the org. layer, evapn., soln. in MeOH, and refiltration from S gave 76.6%  $Ph_2S$ , b<sub>10</sub> 162.5°, n<sub>D</sub><sup>20</sup> 1.6312, d<sub>4</sub> 1.1100. This passed over the catalyst at 300° gave 80% catalyzate contg.  $C_6H_6$  8, thianthrene 13.7, and  $Ph_2S$  55.2%; at 350° the yield was 50% with 23.6%  $C_6H_6$ , 14.8% thianthrene, and a trace of  $Ph_2S$ ; at 450°, 45% with 35.3%  $C_6H_6$  and 14.7% thianthrene; at 500°, 55% with 64.5%  $C_6H_6$  and 11.3% thianthrene. PhSH was detected by odor in all cases.

G. M. Kosolapoff

LENOVA, A.I.  
A

USSR:

Catalytic transformations over aluminosilicate catalyst of  
phenol, dithiorescinol, bianthrene, and diphenyl  
sulfide. I. N. Tits-Skvortsova, A. I. Leonova, S. Ya.  
Kvina, and B. A. Karaseva. *J. Gen. Chem. U.S.S.R.* 23,  
317-23 (1953) (Engl. translation).—See C.A. 48, 2037i.  
H. L. H.

*Leonova, A. I.*

9

Transformations of benzyl mercaptan, 2-phenylethyl mercaptan and dibenzyl sulfide over aluminosilicate catalyst. I. N. Tily-Skyortsova, A. I. Leonova and S. Yb. Levin (M. V. Lomonosov State Univ., Moscow), *Doklady Akad. Nauk S.S.S.R.* 88, 1007-10 (1953); cf. *Uchenye Zapiski Mosk. Gosudarst. Univ.* 132, 234 (1950).—PhCH<sub>2</sub>SH (3.1 g.) passed over aluminosilicate catalyst at 300° gave 0.5 g. catalyzate, contg. 11.7 g. PhMe, along with low mol. wt. cracking products and 81.4% H<sub>2</sub>S. At 200° the result was similar. Thus the reaction is that of destructive hydrogenation with PhMe and H<sub>2</sub>S being formed. PhCH(SH)Me (21.2 g.) passed over the catalyst at 300° gave 12.2 g. catalyzate free of S, identified largely (5.9 g.) as EtPh; neither styrene nor polystyrene was found and 85.6% H<sub>2</sub>S was detd. (PhCH<sub>2</sub>SH passed over the catalyst at 300° gave a low yield of PhMe and (PhCH<sub>2</sub>)<sub>2</sub>, along with 60% H<sub>2</sub>S; the reaction thus proceeds through PhCH<sub>2</sub> radicals, which are partly reduced and partly coupled.

G. M. Kosolapoff

5(3)

AUTHORS:

Gostunskaya, I. V., Gusev, N. I., SOV/20-123-5-23/50  
Lecnova, A. I., Kazanskiy, B. A., Academician

TITLE:

The Reduction of Diene Hydrocarbons With a Conjugate System of Double Bonds by Hydrogen at the "Instant of Its Liberation" (Vosstanovleniya diyenovykh uglevodorodov s sopryazhennoy sistemoy dvoynnykh svyazey vodородom "v moment vydeleniya")

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 5, pp 853-856 (USSR)

ABSTRACT:

Hydrogen at the instant of its liberation is capable of attaching itself to the diene hydrocarbons, not only in the 1.4-position, but also in the 1.2- and 3.4-positions (Refs 1-6). The sequence of the attachment depends on the structure of the diene. The attachment in the 1.2- and 3.4-positions is favored by the larger number of alkyl groups in the 1st and 4th terminal carbon atoms (di-isocrotyl and 2-methyl-hexadiene-2.4): the alkyl groups at the 2nd and 3rd atoms of the conjugate system have the same effect with regard to the 1.4-position (isoprene and di-isopropenyl). By the reduction with sodium solution in liquid ammonia (Refs 1-4) or with calcium-hexa-ammoniate (Refs 5-6), metal amides are formed

Card 1/3