"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

S/194/61/000/0[illegible]
D201/D307

AUTHORS: Pinsker, I. Sh. and Dorogov, A. Ye

TITLE: A rational choice of compensating sections and the influence of measurement errors on the [illegible] compensation

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika no. 12, 1961, [illegible], abstract 12B4[illegible] (Tr. In-ta mashinovedi. AN SSSR. Seminar po tochnosti v mashinostr. i priborostr., 1961, no. 15, 4[illegible]-[illegible]

TEXT: The problem of a rational choice of compensating sections reduces to that of choosing the least number of sections which would adjust a given branch junction. If the compensation is carried out for the minimum root mean square magnitude of error then the minimization of the number of sections consists of consecutive [illegible] of compensating sections until the effect of remaining sections on the input quantity becomes negligible. The rejection of little effective sections leads to linearization and speeding-up of the [illegible]

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A rational choice ... S/[illegible]/000/0[illegible] 0[illegible] 0[illegible]
D20[illegible]/D[illegible]0[illegible]

pensation process. The residual errors after the compensation are random quantities. The method is illustrated by an example of the circuit with 4 potentiometers and [illegible] compensating [illegible] forming the operation [illegible] $b^2 V_{lim} + \Delta V \sqrt{\frac{m}{N}}$ [illegible] figure, [illegible] references. [illegible] Abstract [illegible] note: Complete [illegible]

Card 2/2

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PINSKER, I. Sh.; DORGOV, A. Ye.

Efficient selection of adjusting elements and the effect of measurement errors on the precision of adjustment. Trudy Inst. mash.Sem.po toch.v mash.i prib. no.15:45-55 '61. (MIRA 14:5)
(Electronic calculating machines)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

L 44660-66 EWT(1)/EWT(m)/EEC(k)-2/T/EWP(k)/EWP(t)/ETI IJP(c) WG/JD

ACC NR: AP6030959 SOURCE CODE: UR/0181/66/008/009/2610/2615

AUTHOR: Basov, N. G.; Yeliseyev, P. G.; Ismailov, I.; Yakobson, S. V.; Nashel'skiy, A. Ya.; Pinsker, I. Z.

ORG: Physics Institute im. P. N. Lebedev, AN SSSR, Moscow (Fizicheskiy institut AN SSSR)

TITLE: Certain properties of InP lasers

SOURCE: Fizika tverdogo tela, v. 8, no. 9, 1966, 2610-2615

TOPIC TAGS: solid state laser, semiconductor laser, indium phosphide laser, infrared laser, INDIUM COMPOUND, PHOSPHIDE

ABSTRACT: Stimulated emission of InP diodes in the 9060—9080 Å region was compared with that of their GaAs counterparts (see Table 1). InP bars were prepared by the directed crystallization method in the form of large-size polycrystals grained in the direction of the bar axis. The bars were tellurium-doped with electron concentrations of $5 \cdot 10^{17}$ cm^{-3}. The diffusion of zinc from the gas phase into polished plates each containing 2—3 seeds took place at 750C over a 30-min period. The depth of the p-n junction was 35 μ. The electrical contacts were made of gold which was sputtered on plates at 400C. The bar ends were polished and the sides were roughly worked. The GaAs diodes were prepared in a similar manner with the following exceptions: diffusion of zinc into GaAs lasted 4 hr at 850C under excess As pressure, and the resonator

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ACC NR: AP6030959

Table. 1. Basic characteristics of InP and GaAs lasers

	InP	GaAs
Electron concentration in the n-region, cm^{-3}	$5 \cdot 10^{17}$	$5 \cdot 10^{17}$
Electron mobility in the n-region, $cm^2/v \cdot sec$	2000	3200
Concentration of zinc in the gaseous phase during diffusion, cm^{-3}	$3 \cdot 10^{18}$	$7 \cdot 10^{18}$
Diffusion temperature, °C	750	850
Diffusion time, hours	0.5	4
Length of Fabry-Perot resonator, mm	0.8	0.9
Wavelength of stimulated emission, Å	9070	8480
Threshold current density, amp/cm^2	7200	940
Threshold current density after one surface is silvered, amp/cm^2	4700	630
Loss factor α, cm^{-1}	8	8
Gain divided by current density, β, $cm \cdot amp^{-1}$	$8.7 \cdot 10^{-3}$	$2.5 \cdot 10^{-2}$

surfaces and diffusion plane were produced by cleavage along the contact plane. The diffusion depth in both cases was almost identical. As regards the width of directivity, InP lasers (5—7°) were shown to be superior to GaAs lasers (14—19°) by a factor of 3 or 4. InP laser diodes were characterized by a low loss factor (~ 7 cm^{-1})

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ACC NR: AP6030959

and a gain relatively lower than that of GaAs, expressed in a linear approximation as $k = 3.4 \times 10^{-3}\ j\ cm^{-1}$, where j (amp/cm^{-2}) is the current density. The latter can be due to a lower (than GaAs) quantum yield and to a thick active layer (8—10 μ). The differential efficiencies of the InP laser made it possible to deliver pulsed power of 7 watts at 75 amp at the liquid N temperature. Orig. art. has: 2 tables, 2 figures, and 3 formulas. [YK]

SUB CODE: 20/ SUBM DATE: 17Jan66/ OTH REF: 012/ ATD PRESS: 5078

Card 3/3

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

L 44601-66 EWT(1)/EWT(m)/EEC(k)-2/T/EWP(k)/EWP(t)/ETI IJP(c) WG/JD/JG

ACC NR: AP6030960 SOURCE CODE: UR/0181/66/008/009/2616/2622

72
B

AUTHOR: Basov, N. G.; Yeliseyev, P. G.; Zakharov, S. D.; Zakharov, Yu. P.; Orayevskiy, I. N.; Pinsker, I. Z.; Strakhov, V. P.

ORG: Physics Institute im. P. N. Lebedev, AN SSSR, Moscow (Fizicheskiy institut AN SSSR)

TITLE: Certain properties of GaAs laser diodes

SOURCE: Fizika tverdogo tela, v. 8, no. 9, 1966, 2616-2622

TOPIC TAGS: solid state laser, semiconductor laser, gallium arsenide, laser, semiconductor diode

ABSTRACT: Phenomenological methods were used in an experimental study of certain properties of GaAs laser diodes (loss factor, quantum yield, differential efficiency, gain). The specimens were prepared by the diffusion of zinc into n-type GaAs crystals with electron concentrations of 2×10^{18} cm^{-3}. The cavities consisted of silver mirrors sputtered on polished crystalline surfaces pre-coated with a thin layer of SiO, and the electrical contacts consisted of sputtered metal (Au, Ni, In, Sn) films and fused-in electrodes. The measurements were carried out at 77K and the pulsed output was recorded by a calibrated silicon photodiode. The lowest threshold currents occurred in diodes which were cleaved on all four sides. A threshold current of 25 mamp was attained at the liquid He temperature and at a density of 75 amp/cm^2. C-w operation was observed from diodes with I_{thr} < 0.5 amp at 4.2K. The results

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ACC NR: AP6030960

indicate that the transformation of electrical power into optical power occurs with a yield of the order of unity and that the greatest loss is due to absorption in the medium inside the cavity. The loss coefficient for the better diodes was 5—10 cm^{-1} at 77K, a value which had been theoretically predicted elsewhere. The highest differential efficiency at 77K was 67%, although it was much lower in the case of diodes with Fabry-Perot cavities under high threshold current densities and in four-sided diodes with low threshold current densities. The efficiency of the p-n junctions was 0.5—0.55 with a 25% gain, which took into account losses in series resistance. Efficiencies of 60% were achieved in the case of optimal reflectivity and cavity length. The optical gain in the subthreshold region was 3.10^{-2}, cm^{-1}. Orig. art. has: 2 tables, 6 figures, and 9 formulas. [YK]

SUB CODE: 20/ SUBM DATE: 17Jan66/ ORIG REF: 001/ OTH REF: 009/ ATD PRESS: 5078

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

LYSENKO, N.P.; PINSKER, M.I.; BERGEL'SON, N.B.; GUREVICH, M.S., red.; MORSKOY, K.L., red. izd-va.; STEPANOVA, E.S., tekhn. red.

[Technical and economic advantages of a consolidated territorial building organization; practices of the Main Administration for Housing and Public Construction in the City of Kiev] Tekhniko-ekonomicheskie preimushchestva ukrupnennoi territorial'noi stroitel'noi organizatsii; na opyte Glavkievstroia. Moskva, Gos. izd-vo lit-ry po stroit., arkhit. i stroitel'nym materialam, 1958. 58 p. (MIRA 11:12)

(Kiev--Construction industry)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PINSKER, M.

Mathematical Reviews
Vol. 15 No. 3
March 1954
Analysis

6-23-54

Yaglom, A. M., and Pinsker, M. S. Random processes with stationary increments of the nth order. Doklady Akad. Nauk SSSR (N.S.) 90, 731–734 (1953). (Russian)

The authors study continuous-parameter stochastic processes whose nth order differences are stationary in the wide sense, finding the spectral representation of such a process and the corresponding form of the covariance function. The case $n=1$ was treated by Kolmogorov [C. R. (Doklady) Acad. Sci. URSS (N.S.) 26, 6–9, 115–118 (1940); these Rev. 2, 220].

J. L. Doob (Urbana, Ill.)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PINSKER, M. S.

Pinsker, M. S., and Yaglom, A. M. On linear extrapolation of random processes with stationary nth increments. Doklady Akad. Nauk SSSR (N.S.) 94, 385–388 (1954). (Russian)

The authors extend the usual criteria and classifications of linear least squares extrapolation (prediction) theory, continuous parameter case, from stationary (wide sense) stochastic processes to stochastic processes having stationary (wide sense) nth order increments. These processes were defined and discussed in a previous paper [same Doklady (N.S.) 90, 731–734 (1953); these Rev. 15, 238]. Proofs are omitted. *J. L. Doob* (Urbana, Ill.)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PINSKOR, M.S.

USSR/Mathematics

Card 1/1 Pub. 22 - 7/40

Authors : Pinskor, M. S.

Title : Amount of information concerning the Gauss stationary process contained in the secondary stationary process stationarily bounded with the prime (Gauss process)

Periodical : Dok. AN SSSR 99/2, 213-216, Nov 11, 1954

Abstract : A method is described for determination of a probability of Gaussian stationary incidental process $\xi(t)$ & $\eta(t)$, contained in another stationary incidental process bounded stationarily with the first Gaussian processes are defined. Five references; 4-USSR (1941-1952).

Institution : Moscow State University im. M. V. Lomonosov

Presented by: Academician A. N. Kolmogorov, September 24, 1954

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

Pinsker, M. S.

3

Pinsker, M. S. The theory of curves in Hilbert space with stationary nth increments. Izv. Akad. Nauk SSSR. Ser. Mat. 19 (1955), 319–344. (Russian)

The author and Yaglom developed independently the spectral and related properties of the curves described in the title, that is, in probability language, of processes with stationary nth increments. They outlined their results in two papers, one by Yaglom and Pinsker [Dokl. Akad. Nauk SSSR (N.S.) 90 (1953), 731–734; MR 15, 238] and one by Pinsker and Yaglom [ibid. 94 (1954), 385–388; MR 15, 806]. The present paper treats the topic by Hilbert-space methods, in non-probability language. Yaglom [Mat. Sb. N.S. 37(79) (1955), 141–196; MR 17, 167] treated the topic in probability language and corresponding methodology. The essential results are the extension of the spectral and prediction theories to the general case from the case $n=0$. *J. L. Doob.*

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Transactions of the Third All-union Mathematical Congress (C . Moscow, Jun-Jul '56, Trudy '56, V. 1, Sect. Rpts., Izdatel'stvo AN SSSR, Moscow, 1956, 247 pp.

Maniya, G. M. (Tbilisi). Standard Estimation of Normal Distribution Density According to Sample Data.

Mitropol'skiy, A. K. (Leningrad). Distribution Surfaces of A Type.

Mikhalevich, V. S. (Kiyev). Optimum Methods of Statistical Acceptance Control.

Pinkser, M. S. (Moscow). Amount of Information on a Random Stationary Process Contained in Another Random Stationary Process.

There are 2 references, 1 of which is USSR, 1 a translation into Russian.

Pugachev, V. S. (Moscow). On the Transformation of Entropy of Random Function During the Linear Transformation of Random Functions. 125-127

Card 40/80

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PINSKER, M.S.

1-FW

Pinsker, M. S. Computation of the velocity of communication formation by a stationary random process and the capacity of a stationary channel. Dokl. Akad. Nauk SSSR (N.S.) 111 (1956), 753–756. (Russian)

A totality of vectors (ξ, η) is called a channel if the conditional probability distribution of η, given ξ, is independent of (ξ, η). The capacity of the channel is the supremum of $J(\xi, \eta)$ where $J(\xi, \eta)$ is Shannon's definition of the amount of information in ξ relative to η. Similar definitions apply to processes $(\xi(t), \eta(t))$. Inequalities are given (without proof), in terms of the determinants of the covariance matrices and of the spectral densities, for the capacities of certain channels not readily describable here.

J. Wolfowitz (Ithaca, N.Y.)

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APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

FINKER, M. SH. ~~Doc~~ Cand Phys-math Sci -- (diss) "Calculation and evaluation of the quantity of information of ~~the~~ channel's passage capacity and the rate of formation of messages ~~according to the~~ (_ second moments of distribution." Mos, 1957. 6 pp 20 cm. (Moscow State Univ im M.V. Lomonosov), 100 copies

(KL, 21-57, 48)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

[illegible]

[illegible]

AUTHORS: [illegible]vseyevich, I.A., Pinsker, M.S., Ordinary Member of the Society

TITLE: The Evaluation of the Permeability of a Transmission Channel the Parameters of which are Random Functions of Time ([illegible] pro-pusknoy sposobnosti kanala svyazi, parametry koterogo yavlyaytsya sluchaynymi funktsiyami vremeni)

PERIODICAL: Radiotekhnika, [illegible], Vol. [illegible], Nr [illegible], pp. [illegible] (USSR)

ABSTRACT: The theory given here solves the problem of the evaluation from below of the permeability of a channel without imposing any essential restrictions on the properties of the channel or on the static. Though the reasons for the change of channel properties as well as of their character can be different, their influence on the signal transmitted can, in most cases, be uniformly regarded as modulation of a signal of a random function of time. The scheme of a transmission channel with linear quadripole which has parameters changing according to time, can be replaced by an equivalent scheme where the linear quadripole has fixed parameters and the multiplier arranges modulation. The necessary definitions for the number of informations for the transmission velocity of informations as well as for the per-

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108-10-5/11

The Evaluation of the Permeability of a Transmission Channel the Parameters of which are Random Functions of Time

meability of the channel are given. The results show that for the finding of the evaluation from below of the permeability of the channel it is necessary to find the upper limit of the formula deduced for the velocity of the transmission of informations by varying $f_{\xi\xi}(\omega)$-deduction of spectral function. This must be done under the additional conditions imposed on the initial signal $\xi(t)$, and in special for the limitation of the mean signal output, assuming that a spectral density of the signal exists which is equal to $f_{\xi\xi}(\omega)$. The formulae obtained only make sense if corresponding Fourier transforms are present and if the function $f_{\xi\xi}(\omega)$ found is not negative and has a limited mean power. Here the value found- $f_{\xi\xi}(\omega)$ - is really the spectral density of the extreme signal with limited oscillating power. There are 1 figure and 4 Slavic references

SUBMITTED: June 10, 1955

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi im. A.S. Popova

AVAILABLE: Library of Congress

Card 2/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

SUBJECT USSR/MATHEMATICS/Theory of probability CARD 1/1 PG - 869
AUTHOR PINSKER M.S.
TITLE Extrapolation of homogeneous random fields and the set of information about a Gaussian random field which is contained in another Gaussian random field.
PERIODICAL Doklady Akad. Nauk 112, 815-818 (1957)
reviewed 6/1957

The present paper is a generalization of the results of Kolmogorov (Bull. MGU 2, 6, (1941)) to the n-dimensional case. For the notions of regularity and singularity of a field a new definition is given which renounces to the favoured position of one of the directions in the space (time).

INSTITUTION: Laboratory of Information, Acad.Sci. USSR.

Lab Development of Scientific Problems of Wire Communications

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

AUTHORS: Ovseyevich, I.A. Member of the Society
Pinsker, M.S., Member of the Society

TITLE: The Evaluation of the Transmissivity of Some Real Communicating Channels (Otsenka propusknoy sposobnosti nekotorykh real'nykh kanalov svyazi)

PERIODICAL: Radiotekhnika, 1958, Vol 13, Nr 4, pp 15-25 (USSR)

ABSTRACT: The results previously obtained (Ref 4) are used and the transmissivity for the following cases is evaluated: 1.) For a real communication-channel with parameters fixed according to time ... equation (17). 2.) For a channel, the parameter modifications of which according to time have the form of white noise ... equation (31). 3.) For a real channel, the "transfer factor" modifications according to time of which have the form of white noise ... equation (36). It is shown on the strength of examples that the results obtained are generalizations of the well-known cases of E.D.Sunde (Ref 1) and J. Feinstein (Ref 3) The last chapter deals with the calculation of the approximated value for the transmissivity of the channel. The solution of this problem

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The Evaluation of the Transmissivity of Some Real Communicating Channels

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is here given for a special case, namely a case in which the parametric effect can be represented as a sequence of non-correlated random quantities which are distributed according to the normal law with a low degree of dispersion, whereas the noise in the channel is a Gaussian noise. There are 5 references 3 of which are Soviet.

SUBMITTED: June 10, 1957

AVAILABLE: Library of Congress

1. Communication systems—Applications 2. Channels—Transmission 3. Noise 4. Transmission—Mathematical analysis

Card 2/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

AUTHOR: Pinsker, M.S. SOV/20-121-1-[illegible]

TITLE: Extrapolation of Random Vector Processes and the Set of Information Contained in a Stationary Random Vector Process About an Other one Combined Stationarily With it (Ekstrapolirovaniye sluchaynykh vektornykh protsessov i kolichestvo informatsii, soderzhashcheyesya v odnom vektornom statsionarnom sluchaynom protsesse otnositel no drugogo, statsionarno s nim svyazannogo)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 121, Nr 1, pp 49-51 (USSR)

ABSTRACT: Let $\xi = (\{\xi(t)\}) = (\{\xi_1(t)\}, \{\xi_2(t)\}, \ldots, \{\xi_n(t)\})$ be a stationary random vector process (see Yaglom, A.M. [Ref 7]). Let $M\xi_i(t) = 0$, $D\xi_i(t) < \infty$, $i=1, \ldots, n$ Let H_t be the closed linear closure of the random variables $\xi_i(\tau)$, $\tau \leq t$, $i=1, \ldots, n$ (here $\zeta_i \to \zeta$ if $M|\zeta_i - \zeta|^2 \to 0$) Let $\hat{\xi}_i(s)$, $s > 0$ be the normals from $\xi_i(t+s)$ onto H_t.

Theorem: Let ξ be a stationary random vector process with a discrete argument t (running only through integral values) and $\hat{r}_{ij} = M\hat{\xi}_i(1)\hat{\xi}_j(1)$. Then

$$(\det \|\hat{r}_{ij}\|_{i,j=1,\ldots,n})^{1/2} =$$

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Extrapolation of Random Vector Processes and the Set of Information Contained in a Stationary Random Vector Process About an Other one Combined Stationarily With it SOV/20-121-1-12/55

$$= (2\pi)^{n/2} \exp \frac{1}{4\pi} \int_{-\pi}^{\pi} \log \det \left\| f_{\xi_i \xi_j}(\lambda) \right\|_{i,j=1,\ldots,n} d\lambda$$

where $f_{\xi_i \xi_j}(\lambda) = F'_{\xi_i \xi_j}(\lambda)$ and $F_{\xi_i \xi_j}(\lambda)$ are the different spectral functions of the processes ξ_i and ξ_j

From the theorem there follows the former result of Zasukhin [Ref 6]. In the usual manner the author introduces the velocities of the establishment of information about a process η for a consideration of the process ξ. Moreover the author proposes two further variants for the definition of this notion. In a theorem it is asserted that the two usual and the two new variants form a monotone sequence. Two further theorems are generalizations of earlier results of the author [Ref 8]

There are 8 references, 7 of which are Soviet, and 1 American

PRESENTED: March 1, 1958, by A.N Kolmogorov, Academician

SUBMITTED: February 26, 1958

1. Mathematics

Card 2/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

SV/24-[illegible]-1-[illegible]

AUTHORS: Ovseyevich, I.A., and Pinsker, M.S., Moscow

TITLE: The Channel Capacity of a Multi-Channel Communication System (O propuskney sposobnosti mnogoputevoy sistemy informatsii)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, Energetika i Avtomatika, 1959, Nr 1, pp 133-135 (USSR)

ABSTRACT: It is assumed that a signal $\xi(t)$ is a stationary process and that it is transmitted by means of n different linear channels. At the output of the i-th channel the signal is in the form of:

$$\eta_i(t) = \Phi_i \xi(t) + \zeta_i(t) \qquad (1)$$

where Φ_i is a linear operator corresponding to the transfer function $\varphi_i(\omega)$ of the i-th channel and $\zeta_i(t)$ is a stationary random process representing the noise in the i-th channel. The noise and the signal are not cross-correlated. The average rate of transmission of the information contained in a n-dimensional vector process $\eta(t)$ is given by Eq (2) (Ref 1 and 2); here, $f(\omega)$ denotes the spectral and reciprocal spectral

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The Channel Capacity of a Multi-Channel Communication System

densities of the process. Eq (6) can be used to determine the information-carrying capacity of a multi-channel system operating under the condition of the average power limitation. This capacity can be determined from Eq (5) where k is a constant which can be evaluated from Eq (4). It is assumed that the output signals of the channels are combined linearly in accordance with:

$$\vartheta(t) = \sum_{i=1}^{r} \psi_i \eta_i(t) \qquad (6)$$

where ψ_i is a linear operator corresponding to the transfer function $\Psi_i(\omega)$ of the filter which terminates the output of the i-th channel. By means of three theorems it is shown that for the Gaussian system of signals, the operation defined by Eq (5) yields the optimum results [illegible] system. The transfer functions of the filters [illegible] power by Eq (9). If the channels are independent, the transfer functions of

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SOV/24-59-1-26/27

The Channel Capacity of Multi-Channel Communication Systems

the terminating filters are expressed by Eq (10). The authors thank A.A.Kharkevich for his interest in this work and his advice. There are 4 Soviet references one of which is translated from English.

SUBMITTED: 7th August 1958

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SOV/24-59-[illegible]/30

AUTHORS: Ovseyevich, I. A., Pinsker, M. S. (M[illegible])

TITLE: Optimum Linear Prediction and Correction for Signals Transmitted Via a Multiple-Path Route (Optimal'noye lineynoye predyskazheniye i korrektirovaniye signala pri peredacha yego po mnogoputevoy sisteme)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1959, Nr [illegible], pp [illegible]-59 (USSR)

ABSTRACT: The multiple paths may include entirely different transmission channels. The first section deals with systems optimal as regards the mean-square deviations, when the signal is a stationary random function and [illegible] channels are used. The noise is also assumed to be random, stationary, and uncorrelated with the signal. The transmission systems and shaping circuits are assumed to be linear. Eq (1.1) gives the power of the input signals (whose mean values are assumed fixed). Eq (1.2) is the mean square deviation. Berkowitz's method of finding the minimum of the mean square deviation is adopted, the result of Eq (1.[illegible]) and (1.6). (Special cases of the general problem are considered subsequently). The argument leading to Eq (1.[illegible]) is a condensed form of one given by the same [illegible]; it gives the transfer coefficient of the shaping circuit in

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Optimum Linear Predi[illegible]
Via a Multiple-Path R[illegible]

the i-th channel. [illegible] with [illegible] there is the [illegible] to all channels; Eq ([illegible]) then [illegible] Eq [illegible]. It is then shown that this makes the [illegible] single-channel system, whose predicting unit [illegible] for its transfer coefficient given by Eq ([illegible]), [illegible] constant θ is defined by Eq ([illegible].10). [illegible] with the more general case in which each channel [illegible] own predictor. The mean power at the input [illegible] be the same for each channel, and certain reasonable assumptions are made about the mutual spectral density of the noise in the various channels. Then Eq ([illegible]) takes the form given at the foot of p. [illegible]. The minimum is then found by finding the least value of [illegible] corresponding to a fixed value of the sum in Eq ([illegible]); the value of [illegible] then varied to find the absolute minimum [illegible]. The result is the same as for a single-channel system if the [illegible] takes the form given by the equation appearing immediately below

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Optimum Linear Prediction and Correction for Signals Transmitted Via a Multiple-Path Route

Eq (1.14). In subsection 3 the noise in the different channels is assumed to be entirely independent. In a special subcase, which is one not likely to occur in practice, the condition at the top of p 53 will be fulfilled. At this point the rigorous argument is abandoned (on account of mathematical difficulties), and resort is made to arguments such as that it is best to locate the major signal frequencies in spectral regions where the noise is minimal; a three-path system is dealt with in general terms in this way (Fig 2). Subsection 2 deals with a two-path system, to which many of the restrictions encountered in the general argument do not apply. The second section deals with a system that is optimal as regards signal-to-noise ratio. The treatment resembles closely that used in standard treatments of signal-to-noise ratio; the effect of the predicting and shaping

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Optimum Linear Prediction and Correction for Signals Transmitted Via a Multiple-Path Route

units on the signal-to-noise ratio is in general slight, and each particular case must be considered on its merits. The paper contains 5 figures and 5 references, of which 3 are Soviet and 2 are English.

SUBMITTED: August [illegible], [illegible].

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PHASE I BOOK EXPLOITATION SOV/5719

Pinsker, Mark Semenovich

Informatsiya i informatsionnaya ustoychivost' sluchaynykh velichin i protsessov (Information and Information Stability of Random Magnitudes and Processes) Moscow, Izd-vo AN SSSR, 1960. 201 p. (Series: Akademiya nauk SSSR. Laboratoriya sistem peredachi informatsii. Problemy peredachi informatsii, vyp. 7) Errata slip inserted. 3000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Laboratoriya sistem peredachi informatsii.

Resp. Ed.: A. M. Yaglom; Deputy Resp. Ed.: V. G. Solomonov; Ed. of Publishing House: I. P. Sorokin; Tech. Ed.: V. V. Volkova.

PURPOSE: This book is intended for readers familiar with the theory of measurements and the theory of stationary random processes. A large number of calculation formulas are included which may be useful to specialists lacking sufficient mathematical background.

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COVERAGE: The book presupposes a basic knowledge in its field. In almost all the basic studies (references 1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 18), the case of discrete time and space of states was considered. However, situations are frequently encountered in application where the continuity of time and space of states is essential. Particularly important is the case of Gaussian processes. Under actual conditions the noise limiting the speed of transfer of information is, as a rule, well described by such processes. The book also provides a mathematical basis for the application of the ideas of the information theory to similar situations and also to obtain effective solutions of a number of information problems. Investigations of stationary random processes are also discussed. Chs. I and II deal with the properties of information density and with information and the speed of production of information for random quantities and processes. Attention is given to the criteria of information stability which play an important role in proving the basic theorems of information theory. The necessary and sufficient conditions for information stability and the convergence of distribution of information density to normal are established. The concepts

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of information density, information, speed of production of information, and information stability are shown to be particular cases of the more general concepts of entropy density, entropy, speed of production of entropy, and entropy stability, etc. Some properties of entropy density, entropy, speed of production of entropy, and entropy stability of random quantities and processes are formulated. General formulas are given for Gaussian random quantities and processes which permit the finding of the distribution of entropy density, the calculation of the entropy, speed of production of entropy, and of secondary moments of entropy density, and also the establishment of the entropy stability and convergence of distribution of entropy density to the normal distribution. These results may be used in solving problems of mathematical statistics of random processes, in particular the problem of detecting a signal against the background of Gaussian noise. The author thanks A. N. Kolmogorov, A. A. Kharkevich, and I. A. Ovseyevich. There are 40 references: 26 Soviet, 12 English, 1 French, and 1 translation from the German.

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AUTHORS: Ovseyevich, I.A. and Pinsker, M.S. (Moscow)

TITLE: Predistorter and Correction in a Channel with Fading

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye tekhnicheskikh nauk. Energetika i avtomatika, 1960, Nr 3, pp 145-156 (USSR)

ABSTRACT: Previous studies of optimal linear predistortion and correction (Ref 1 to 5) have assumed fixed channel parameters. However, in short and medium waves, long-distance UHF scatter propagation etc, the signal suffers from fading. Many channels of this type may be described as a simple single-ray channel with variable absorption. The fading frequency is very low compared with signal frequency. The random fading process is substituted by a random quantity with distribution coinciding with the one-dimensional distribution of real fading. Although this substitution causes a loss of ergodicity of the output signal, it is balanced by considering the random quantity representing the fading not as a simple random quantity but as an ergodic process. This model does not correspond to a general physical model of the channel although its results are valid even for more general

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Predistorter and Correction in a Channel with Fading

channels. It is assumed that the fading distribution is Rayleigh which corresponds to physical models of single-ray and multi-ray channels where the amplitudes and delays are independent random quantities. Various types of optimization are then considered. Optimization for minimum mean-square deviation of transmitted message from that received with fixed predistortion and corrector. Linear coding of the messages is assumed. The linear coding network is termed redistorter. The output signal is decoded into the output message by a linear circuit termed corrector. For a given mean output signal power the problem is to find the predistorter and corrector which minimize the mean-square deviation of the received message from the transmitted one. Next optimization with a variable corrector as in Price and Green (Ref 8) is considered. The corrector parameters are varied in accordance with data on fading obtained during the course of operation. A system with a feedback channel from the receiver to the transmitter is then considered where adjustment of

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Predistorter and Correction in a Channel with Fading

the predistorter is made possible. It is pointed out that this information requires a vanishingly small bandwidth for its transmission. Finally, optimization with respect to maximum signal/noise ratio at the channel output is considered. It is shown that the only way that this can be accomplished is by varying the parameters of the predistorter. The fading distribution character has no influence on this process. At high signal-to-noise ratios, a substantial gain is obtained using the complex system with variable predistortion and correction. Acknowledgments are made to E.L.Blokh for his interest and valuable advice. There are 3 figures and 9 references 5 of which are Soviet and 4 English

SUBMITTED: March 3, 1960

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B010/B059

69000 (also 1344)

AUTHORS: Ovseyevich, I. A., Member of the Society, Pinsker, M. S., Member of the Society

TITLE: Throughput* of Channels With Plain and Selective Fading

PERIODICAL: Radiotekhnika, 1960, Vol. 15, No. 12, pp. 3 - 9

TEXT: The authors calculated the throughput of channels for the cases of strong and weak frequency-independent fading. The results may be generalized to selective fading and to fed-back channels. In contrast to previous publications, restriction to white background is not necessary. The throughput C of an ordinary channel with $\eta(t) = a_0 \xi(t-\tau_0) + \sum_{i=1}^{n} a_i \xi(t-\tau_i)$ ($\xi(t)$ denotes the input signal; a_0, τ_0, a_i, and τ_i are constants characterizing direct and indirect waves, respectively) is, according to B. S. Tsybakov, calculated from (2):

* Propuskna'ya sposobnost': carrying capacity

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Throughput of Channels With [illegible] and Selective Fading

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$$C = \sup_{\{f_{\xi\xi}(\omega)\}} \frac{1}{2\pi} \int_{\omega_0}^{\omega_0+W} d\omega \int_R p(\vec{r}) \log\left[1+h^2(\omega,\vec{r}) f_{\xi\xi}(\omega)/f_{\xi\xi}(\omega)\right] d\vec{r}$$

($p(\vec{r})$ is the distribution density of the vector $\vec{r} = (a_1, a_2, \ldots, a_n, \tau_1, \tau_2, \ldots, \tau_n)$; $f_{\xi\xi}(\omega)$ is the spectral background density; $W = 2\pi$ is the bandwidth; $h^2(\omega,\vec{r}) = \left|a_0 \exp(i\omega\tau_0) + \sum_{i=1}^{n} a_i \exp(i\omega\tau_i)\right|^2$) The distribution function of the quantity $h^2(\omega,\vec{r})$, $p(\vartheta) = \frac{\vartheta}{\sigma^2} \exp\left(-\frac{\vartheta^2 + a_0^2}{2\sigma^2}\right) I_0(a_0\vartheta/\sigma^2)$ (I_0 denotes the zero-order modified Bessel function of the first kind; σ^2 is the mean intensity of the indirect signals) may, in the case of strong (Rayleigh) fading, (i.e. for $\sigma^2 \gg a_0^2$) be restricted to $p(\vartheta) \approx \frac{\vartheta}{\sigma^2} \exp(-\vartheta^2/2\sigma^2)$, and to $p(\vartheta) \approx \frac{1}{\sqrt{2\pi}\sigma} \sqrt{\frac{\vartheta}{a_0}} \exp\left(-\frac{(\vartheta - a_0)^2}{2\sigma^2}\right)$ in the case of weak fading (Gaussian

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Throughput of Channels With Plain and Selective Fading

fading), i.e., for $\sigma^2 \ll a_0^2$. Equation (4), $x\left[1 + xe^x Ei(-x)\right] = \lambda f_{\xi\xi}(\omega)/\sigma^2$ ($x = f_{\xi\xi}(\omega)/\sigma^2 f_{\xi\xi}(\omega)$; $-Ei(-x) = \int_x^{+\infty} (e^{-z}/z)dz$; and λ is an indeterminate constant), which was given by B. S. Tsybakov, is solved by graphical approximation according to I. A. Ovseyevich and M. S. Pinsker, in order to determine the optimum spectral density, $f_{\xi\xi}(\omega)$, of the input signal in the case of strong fading. For the throughput, $C = -\sum_{i=0}^{m-1} F_i e^{x_i} E_i(-x_i)$ is obtained. F_i denotes the bandwidth of the i-th section and m the number of sections into which the channel is divided. Because of $\sigma^2 \ll a_0^2$ in the inner integral of (2), one may omit the $|\vartheta - a_0|$ terms of higher than second order when calculating the optimum $f_{\xi\xi}(\omega)$ in the case of weak fading. Thus $C = \frac{1}{2\pi}\int_W \left\{\log\frac{\lambda(a_0^2+\sigma^2)}{f_{\xi\xi}(\omega)} - 2a_0^2\sigma^2\left[\frac{\lambda(a_0^2+\sigma^2)-f_{\xi\xi}(\omega)}{\lambda a_0^2(a_0^2+\sigma^2)+\sigma^2 f_{\xi\xi}(\omega)}\right]^2\right\} d\omega$ is

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Throughput of Channels With Plain and Selective Fading

obtained where $\lambda = (P_\xi + P_\zeta / (a_c^2 + \sigma^2))/W$, $P_\xi = \int_W f_{\xi\xi}(\omega)d\omega$. All these formulas may be generalized to selective fading by substituting $a_c(\omega)$, $\tau_1(\omega)$, $\sigma(\omega)$ for a_1, τ_1, σ. In calculating C of fed-back channels the optimum $f_{\xi\xi}(\omega)$ is chosen for a given ϑ, because of the respective optimum conformity of the spectral signal density with the channel situation. This is in contrast to (2).

$$C = \frac{1}{2\pi}\int_R p(\vartheta)d\vartheta\left\{\sup_{f_{\xi\xi}(\omega)}\int_W \log\left[1 + \frac{\vartheta^2 f_{\xi\xi}(\omega)}{f_{\zeta\zeta}(\omega)}\right]d\omega\right\}$$

is obtained. Calculation of the optimum $f_{\xi\xi}(\omega)$ is analogous to the case of non-fedback channels. The following relation results for optimum $f_{\xi\xi}(\omega)$:

$$C = \frac{1}{2\pi}\int_\vartheta p(\vartheta)d\vartheta\sum_i\int_{W_i}\log\frac{\lambda\vartheta^2}{f_{\zeta\zeta}(\omega)}, \quad \lambda = \frac{P_\xi + P_\zeta/\vartheta^2}{W}.$$

There are 1 figure and 14 references: 12 Soviet and 2 US

SUBMITTED: March 28, 1960

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81711
S/020/60/133/01/06/069
C 111/ C 333

AUTHOR: Pinsker, M. S.

TITLE: The Information Stability of Gaussian Random Quantities and Processes

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 133, No 1, pp 28-30

TEXT: A sequence of random quantities $\{(\xi^t, \eta^t)\}$, $t = t_1, t_2, \ldots$, $\lim_{n\to\infty} t_n = \infty$ is called information stable if

$$\lim_{t\to\infty} \frac{i(\xi^t, \eta^t)}{I(\xi^t, \eta^t)} = 1,$$

where $i(\xi, \eta)$ and $I(\xi, \eta)$ are information density and information of the pair of random quantities (ξ, η).

Theorem 1: The condition

$$(5) \qquad \lim_{t\to\infty} I(\xi^t, \eta^t) = \infty$$

is necessary and sufficient that a sequence of gaussian random quantities

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The Information Stability of Gaussian Random Quantities and Processes

(ξ^t, η^t), $t = t_1, t_2$, be information stable. If moreover

(4) $\lim_{t \to \infty} D\, i(\xi^t, \eta^t) = \lim_{t \to \infty} M\,(i(\xi^t, \eta^t) - I(\xi^t, \eta^t))^2 = \infty$

then the distribution of the information density $i(\xi^t, \eta^t)$ converges to a normal one

Then the author defines and investigates the information stability of random processes. Theorem 2 states that a pair of random processes ξ and η which form a gaussian random process (ξ, η) is always information stable. Theorem 3 treats the case where unidimensional random processes ξ and η form a two-dimensional gaussian random process. Theorem 4 considers an $(n + m)$ - dimensional gaussian stationary random process which is formed by an n- and by an m-dimensional process. The author gives conditions for the applicablility of the central limit distribution theorem for the information density of such processes.

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The Information Stability of Gaussian Random Quantities and Processes

There are 4 references: 2 Soviet and 2 American

ASSOCIATION: Laboratoriya sistem peredachi informatsii AN SSSR (Laboratory of Information Transmission Systems AS USSR)

PRESENTED: March 7, 1960, by A N Kolmogorov, Academician

SUBMITTED: March 7, 1960

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AUTHOR: Pinsker, M S

TITLE: The Entropy, Rate of its Establishment and Entropic Stability of Gaussian Random Quantities and Processes

PERIODICAL: Doklady Akademii nauk SSR, 11/1960, Vol 133, N 3, pp 531-534

TEXT: Entropy and entropy density are defined as in (Ref 1-3)

If $\xi = \{\xi_1, \xi_2, \ldots, \xi_n\}$ and $\eta = \{\eta_1, \eta_2, \ldots, \eta_n\}$ are n-dimensional Gaussian random variables, then according to Ya Gayek (Ref 5) the calculation of the entropy $H_\eta(\xi)$ can be carried out with the aid of a certain linear transformation. The author shows that this method can be generalized to arbitrary Gaussian random variables. Let the random variable

$$\Theta(\beta) = \sum_{j=1}^{n} c_j \xi_{tj}$$

correspond to the random variable $\beta = \sum_{j=1}^{n} c_j \eta_{tj}$. The entropy $H_\eta(\xi)$ is finite if and only if: 1) $\Theta(\beta)$ can be continued to a

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The Entropy, Rate of its Establishment and Entropic Stability of Gaussian Random Quantities and Processes

linear operator which maps one-to-one the unitary space B_ξ (closed linear hull of ξ_t, $t \in N$) onto the unitary space B_η (closure of η_t, $t \in N$); 2.) there exists an at most denumerable sequence of independent $\eta'_1, \eta'_2, \ldots \in B_\eta$ so that the sequence $\xi'_1 = \Theta(\eta'_1)$, $\xi'_2 = \Theta(\eta'_2)$, is also a sequence of independent random variables and that

$$(2) \quad H_\eta(\xi) = \sum_j H_{\eta'_j}(\xi'_j), \quad h_\eta(\xi) = \sum_j h_{\eta'_j}(\xi'_j)$$

(h is the entropy density)

Let $\xi = \{\xi(\cdot)\}$, $\eta_T = \{\eta_T(\cdot)\}$ be generalized or not generalized random processes; ξ_0, η_0 be the sections of these processes which are formed from the random magnitudes $\xi(t)$, $\eta(t)$, $0 \leq t \leq T$, if ξ, η are not generalized processes, and which consist of $\xi(\varphi)$, $\eta(\varphi)$, $\varphi(t) \in \Phi$, $\varphi(t) = 0$ for $t \notin [0, T]$, if ξ, η are generalized

The magnitude

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The Entropy, Rate of its Establishment and Entropic [illegible] Gaussian Random Quantities and Processes

(3) $$\bar{H}_{\eta}(\xi) = \lim_{T \to \infty} \frac{1}{T} H_{\eta_0 T}(\xi_0^T)$$

is denoted as the rate of the establishment of the entropy of ξ to η. Let $\xi = \{\xi(\cdot)\}$, $\eta = \{\eta(\cdot)\}$ be unidimensional stationary random processes in the wide sense. Let

(4) $$\exists_{\xi\eta} = \frac{1}{2\pi}\int\left(\frac{f_{\xi\xi}(\lambda)}{f_{\eta\eta}(\lambda)} - 1 - \ln\frac{f_{\xi\xi}(\lambda)}{f_{\eta\eta}(\lambda)}\right)d\lambda$$

where $f_{\xi\xi}(\lambda) = F'_{\xi\xi}(\lambda)$, $f_{\eta\eta}(\lambda) = F'_{\eta\eta}(\lambda)$; $F_{\xi\xi}(\lambda)$, $F_{\eta\eta}(\lambda)$ are spectral functions of ξ, η and the integral is extended for discrete argument from 0 to π and for continuous argument and generalized processes from 0 to ∞. In the theorems 1 and 2 the author gives conditions that

(6) $$\bar{H}_{\eta}(\xi) = \exists_{\xi\eta}$$

(for one- and for multidimensional Gaussian stationary processes

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The Entropy, Rate of its Establishment and Entropic Stability of Gaussian Random Quantities and Processes

Let ξ^t, η^t be random variables with values in the same measurable (X^t, S_{X^t}). The sequence

$\{\xi^t\}$, $t = t_1, t_2, \ldots$ $\lim_{n \to \infty} t_n = \infty$ is called entropic stable relative to the sequence

$\{\eta^t\}$, $t = t_1, t_2, \ldots$ if $\lim_{t \to \infty} (H_{\eta^t}(\xi^t) / H_{\eta^t}(\xi^t)) = 1$

Theorem 3: In order that the sequence of Gaussian random variables $\{\xi^t\}$ be entropic stable relative to the sequence $\{\eta^t\}$, it is necessary and sufficient that

(3) $\lim_{t \to \infty} H_{\eta^t}(\xi^t) = \infty$, $\lim_{t \to \infty} (D_{\eta^t}(\xi^t) / H_{\eta^t}(\xi^t)) = 0$

Moreover: If

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The Entropy, Rate of its Establishment and Entropic Stability of Gaussian Random Quantities and Processes

(10) $$\lim_{t \to \infty} Dh_{\eta t}(\xi^t) = \infty ,$$

then the information density $h_{\eta t}(\xi^t)$ for $t \to \infty$ is asymptotically normal with usual normalization

There are 6 references: 2 Soviet, 2 Czech and 2 American

PRESENTED: March 7, 1960, by A. N. Kolmogorov, Academician

SUBMITTED: March 7, 1960

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16.2800

AUTHOR: Pinsker, M.S.

TITLE: Dynamic Systems With Completely Positive or Zero Entropy

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol.133, No.5, pp.1025-1026

TEXT: The terminology used in the present paper was proposed by A.N. Kolmogorov, V.A.Rokhlin and Ya.G.Sinay. In the Lebesgue space M with the Boolean algebra α of measurable subsets of M and the measure $\mu(\cdot)$ defined on α let be given a dynamic system $\{S_t\}$ (i.e. a one-parametric family of automorphisms of M, cf (Ref.1)). If ξ is a decomposition of M invariant with respect to $\{S_t\}$, then in the factor space M/ξ a dynamic system $\{S'_t\}$ is indiced which is denoted as the factor system of $\{S_t\}$.

Definition 1: $\{S_t\}$ is a system with a completely positive entropy if every non-trivial factor system has a positive entropy (cf.(Ref.2-4)).

Definition 2: $\{S_t\}$ is regular according to A.N.Kolmogorov (Ref.2) if there exists a closed subalgebra α_0 of α the translations $\alpha_t = S_t\alpha_0$ of which have the property:

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C111/C222

Dynamic Systems With Completely Positive or Zero Entropy

(1) $\alpha_t \subseteq \alpha_{t'}$ for $t < t'$,

(2) $\bigvee_t \alpha_t = \alpha$,

(3) $\bigwedge_t \alpha_t = \mathfrak{N}$,

where $\mathfrak{N}$ is a trivial subalgebra of α.

Definition 3: $\{S_t\}$ is called singular according to Kolmogorov if every closed subalgebra α_0 which satisfies (1)+(2) is identical with α.

Definition 4: A closed subalgebra α_0 of α is called a generator of $\{S_t\}$ if $\bigvee_t \alpha_t = \alpha$.

Definition 5: The factor systems $\{S'_t\}$ and $\{S''_t\}$ defined on factor spaces $M|\xi'$ and $M|\xi''$ are called mutually independent if for all $K' \in \xi'$, $K'' \in \xi''$ (the decomposition of M and the σ algebra generated by this decomposition are denoted by Greek letters) it holds

$$\mu(K' \cdot K'') = \mu(K') \cdot \mu(K'').$$

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Dynamic Systems With Completely Positive or Zero Entropy

For finite subalgebras β_0 of α and $h>0$ let $\beta^{(h)} = \bigvee_n S_{nh}\beta_0$. $\bar{\beta}^{(h)} = \bigwedge_n \bigvee_{m\leq n} S_{mh}\beta_0$ and $\bar{\alpha} = \bigvee_{\substack{h>0 \\ \beta_0 \leq \alpha}} \bar{\beta}^{(h)}$. Let $\{\bar{S}_t\}$ be the factor system of $\{S_t\}$ corresponding to the factor space $M|_{\bar{\alpha}}$. Let $\{S_n(\beta^{(h)})\}$ and $\{S_n(\bar{\beta}^{(h)})\}$ be factor systems of the system $\{S_{nh}\}$ generated by the automorphism S_h, which correspond to the factor spaces $M|\beta^{(h)}$ and $M|\bar{\beta}^{(h)}$

Theorem 1: Every factor system of a system $\{S_t\}$ with completely positive or zero entropy has a completely positive or zero entropy too.

Theorem 2: In order that $\{S_t\}$ is a system with completely positive or zero entropy it is necessary and sufficient: for every finite subalgebra β_0 and every admissible $h>0$. $\{S_n(\beta^{(h)})\}$ is regular or singular according to Kolmogorov.

Theorem 3: A system regular according to Kolmogorov has a completely

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Dynamic Systems With Completely Positive or Zero Entropy

positive entropy; a dynamic system with zero entropy is singular according to Kolmogorov

Theorem 4: $\{\bar{S}_t\}$ has zero entropy. Every factor system with zero entropy is a factor system of $\{\bar{S}_t\}$.

Theorem 5: If the factor systems $\{S'_t\}$ and $\{S''_t\}$ have completely positive and zero entropy, then they are mutually independent.

Theorem 6: A dynamic system generated by a multidimensional Gaussian random process with absolutely continuous spectral functions, is a system with completely positive entropy. A dynamic system generated by a multidimensional stationary random process with singular spectral functions, has zero entropy.

There are 4 Soviet references

PRESENTED: April 6, 1960, by A.N Kolmogorov, Academician

SUBMITTED: April 7, 1960

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

27666
S/024/61/000/004/024/025
E140/E135

18.6000 (1031, 1132, 1329)

AUTHORS: Ovseyevich, I.A., and Pinsker, M.S. (Moscow)

TITLE: The transmission capacity of a multi-path system

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1961, No.4, pp.208-210

TEXT: The capacity of a system in which a single message is transmitted over n paths is calculated on the basis of output signal formation by a mechanism similar to that in multi-ray transmission of radio waves. For n = 1 the problem was investigated in detail by B.S. Tsybakov (Ref.1: Radiotekhnika i elektronika, 1959, Vol.IV, No.9). The fading in each channel is assumed dependent on that in the other channels, while the respective noises are independent. The rate of transmission of information over a channel with random fading is equal to the rate of transmission of information for a channel with fixed fading, averaged for all possible values of fading. Assuming Rayleigh fading and Gaussian input signal, an expression is found which can be expressed in simple form only for white noise. The solution can be modified to express uncorrelated fading

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87565

The transmission capacity of a ... S/024/61/000/004/024/025
E140/E135

The present paper is an abridged version of part of a paper presented at the Conference on the Theory of Probabilities held in Vil'nyus (September 1960).
There are 1 figure and 5 references: 4 Soviet and 1 English.
The English language reference reads as follows:
Ref.4: J.N. Pierce, S Steins. Multiple Diversity with Nonindependent Fading. P.I.R.E., 1960 Vol.48 No.1.

SUBMITTED: April 11, 1961

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

OVSEYEVICH, I.A. (Moskva); PINSKER, M.S. (Moskva)

Optimum linear pre-emphasis and compensation. Izv. AN SSSR. Tekh. kib. no.5:54-61 S-O '63. (MIRA 16:12)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PINSKER, M.S.

Sources of communications. Probl. pered. inform. no.14: 5-20 '63.

Gaussian sources. Ibid.:59-100 (MIRA 16:12

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L 58548-65 EWT(d)/FSS-2/EEC-4/EEC(t) Pn-4/Pp-4/Pac-4

ACCESSION NR: AP5012878 UR/0280/65/000/002/0081/0087

27
27
B

AUTHOR: Ovseyevich, I. A. (Moscow); Pinsker, M. S. (Moscow)

TITLE: Matching an information source with a channel by the method of transposition of spectra

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 2, 1965, 81-87

TOPIC TAGS: information transmission, information transmitting system

ABSTRACT: A procedure is theoretically considered for frequency-band transposing in such a way that the mean-square deviation of the received message from that transmitted approaches a minimum which corresponds to Shannon's optimal conditions. The information and noise spectra are broken up into bands within which the spectral densities are quasiconstant. The number of bands and their widths are selected depending on the general conditions, required accuracy, and technical facilities. All noise bands are arranged in the order of increasing noise

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spectral density, and all information bands, in the order of decreasing information spectral density. Thus, the noisiest band will pass the lowest information-spectral density, and vice versa. At the receiving end, the reverse transposition of the spectrum bands is envisaged. In practical terms, the system consists of a transmitter transposition unit; an encoder which inserts a linear pre-emphasis, a channel, a decoder (linear corrector), and a receiver reverse transposition unit. The transposition unit may include a set of bandpass filters, balanced modulators, and high- or low-pass filters. "The authors wish to thank A. A. Kharkevich and B. S. Tsybakov for their valuable advice." Orig. art. has: 1 figure and 42 formulas.

ASSOCIATION: none

SUBMITTED: 28Jul64 ENCL: 00 SUB CODE: DP, EC

NO REF SOV: 005 OTHER: 000

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

CZECHOSLOVAKIA

PINSKER, P.; BULTASOVA, H.; Internal Department, Institute for Postgraduate Medical Training, and Research Institute of Experimental Therapy (Interni Katdera Ustavu pro Doskolovani Lekaru a Vyzkumny Ustav Experimentalni Terapie), Prague - Krc, Director (Reditel) Prof Dr O. SMAHEL

"Unusually High Values of Tetrahydrocortexolon in the Urine of 2 Patients Suffering from the Central Form of Cushing's Syndrome."

Prague, Casopis Lekaru Ceskych, Vol 106, No 7, 17 Feb 67, pp 196 - 197

Abstract: The authors investigated a group of 11 patients with the classical clinical picture of Cushing's syndrome. 2 women in the group showed values of THS in the urine exceeding 1 mg per 24 hours. Neither of these cases resulted from a malignant cause. The reason for the high THS occurrence can be a chronic case with an increased steroidogonesis. 1 Table, 16 Western references.

1/1

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PINSKER,P.; HORAK,M.; BULTASOVA,H.

Contribution to the laboratory diagnosis of Cushing's syndrome in a malignant tumor of the adrenal cortex. Cas. lek. cesk. 99 no.25:772-776 17 Je '60.

1. I. interni klinika lekarske fakulty KU v Hradci Karlove, prednosta prof. MUDr. Jan Rehor, Ustredni biochemicke laborator fakultni nemocnice KUNZ v Hradci Kralove, prednosta MUDr. Josef Jicha, Interni katedra UDL Praha, prednosta doc. MUDr. Otakar Smahel.
(ADRENAL CORTEX neopl.)
(CUSHING'S SYNDROME diag.)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PINTAR, Ivan

Surname (in caps); Given Names

Country: Yugoslavia

Academic Degrees: Docent Dr.

Affiliation: not given

Source: Ljubljana, Zdravstveni vestnik, No 3-4, 1961, pp 92-93.

Data: "Freiburg's Professor Dr. Jurij Karol Starovasnik."

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PINSKER, P

[illegible]

Country: Czechoslovakia

Academic Degrees: [not given]

Affiliation:

Source: Brno, Vnitrni Lekarstvi, Vol VII, No 8, August 1961, pp 863-874

Data: "Obesity in Gynecological Endocrinology"

Authors:

PINSKER, P, Degrees not given, Internal Department UDL (Interni katedra UDL), Research Institute of Experimental Therapy (Vyzkumny ustav experimentalni terapie); Director (Reditel): Doc MUDr O Smahel [abbreviation not identified]

SLADOCHOVA, Z, Degrees not given, Institute of Research on Human Nutrition (Ustav pro vyzkum vyzivy lidu); Director (Reditel): Doc MUDr J Masek

BULTASOVA, H, Degrees not given, Affiliation [presumed]: Institute of Research on Human Nutrition; Director: Doc MUDr J Masek

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

BULTASOVA,H.; PINSKER,P.

Effect of corticotropin on the peripheral (extra-adrenal) metabolism of cortisol. Cas.lek.cesk. 103 no.11:30[illegible]-30[illegible] ; 1[illegible]

1. Vyzkumny ustav experimentalni terapie a interni katedra UDL v Praze; reditel: doc.dr. O. Smahel, DrSc.

*

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PETR, Rudolf, prof. MUDr. ; PINSKER, Premysl; NADVORNIK, Pavel; DVORAK, Karel.

Partial stereotaxic radiation hypophysectomy in the central form of Cushing's syndrome. Sborn. ved. prac. lek. fak. Karlov. Univ. 9 no.1:253-260 '64.

1. Neurochirurgicka klinika (prednosta: prof. MUDr. R. Petr), Karlovy University v Hradci Kralove; Ustav experimentalni terapie, Praha (prednosta: doc. MUDr. O. Smahel), a Radiologicka klinika (prednosta: prof. MUDr. J. Bastecky, DrSc.) Lekarske fakulty Karlovy University.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PINSKER, P.; ERBEN, J.

Laboratory diagnosis of primary hyperparathyroidism. Cas.lek.cesk. 99 no.29:909-919 15 Jl'60.

1. Interni klinika fakultni nemocnica KUNZ v Hradci Kralove, prednosta prof. MUDr. Jan Rehor.
(PARATHYROID GLAND dis)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

CERNOCH, Zdenek; HAVA, Otakar; PINSKER, Premysl

Roentgen-diagnosis of parathyroid adenomas by means of pneumomediastinography and peristrumography. Cas.lek.cesk 99 no.29: 919-920 15 Jl'60.

1. Radiologicka, chirurgicka a I. interni klinika LF KU, Hradec Kralove.

(ADENOMA radiog)
(PARATHYROID GLANDS neopl)
(PNEUMOMEDIASTINUM)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

EHREN, Josef; PINSKER, Premysl

Renal complications of hyperparathyroidism. Cas.lek.cesk 99 no.29: 921-924 15 Jl'60.

1. Interni klinika fakultni nemocnice KUNZ v Hradci Kralove, prednosta prof.MUDr. Jan Rehor.
(PARATHYROID GLANDS dis)
(KIDNEY DISEASES etiol)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PINSKER, P.; KORAN, M.; BULTASOVA, H.; HORNACEK, J.

Cortisol metabolism in postnatal adrenal hyperplasia. Cesk. fysiol. 8 no.3: 234 Apr 59.

1. I. interni klinika a Ustredni biochemicka laborator fakultni nemocnice, Hradec Kralove, Interni katedra Ustavu pro doskolovani lekaru, Praha. Vyzkumny ustav pro farmacii a biochemii, Praha. Predneseno na III. fysiologickych dnech v Brne dne 14. 1. 1959.

(ADRENAL CORTEX, dis.
hyperplasia, hydrocortisone metab. (Cz))
(HYDROCORTISONE, metab.
in adrenal hyperplasia (Cz))

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PINSKER, P.; HORAK, M.; BULTASOVA, H.; HORNACEK, J.

Accelerated breakdown of cortisol in postnatal adrenocortical hyperplasia. Cas. lek. cesk. 98 no.23:705-707 5 June 59.

1. I. interni klinika a Ustredni biochemicka laborator fakultni nemocnice v Hradci Kralove, interni katedra Ustavu pro doskolovani lekaru v Praze-Krci a Vyzkumny ustav pro farmacii a biochemii v Praze P.P., Hradec Kralove, I. Interni klinika.

(ADRENAL CORTEX, dis.
postpartum hyperplasia, accelerated breakdown of hydrocortisone in (Cz))
(HYDROCORTISONE, metab.
accelerated breakdown in postpartum adrenocortical hyperplasia (Cz))

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

1119. PINSKER P. and HUB M. Odd. pro Chor. ženské a Prosektury krajské nemocn., Pardubicích. Feminisující mesenchymom ovaria a sarkom endometria. Rozbor případu se zřetelem ke genesi nádoru *Feminizing ovarian mesenchymoma and endometrial sarcoma. (Analysis of one case with regard to the genesis of tumours.)* Čas. Lek. čes. 1955, 94:19, 500-506. Illus. 9

In a woman of 57 with signs of rejuvenation a sarcoma of the hyperplastic endometrium was found, and at operation an ovarian thecoma. After the operation the patient rapidly went downhill, and died within 6 months. Reviewing the literature, the authors explain the origin of this case as follows: the menopause with its decline of oestrogenic activity led to a disturbance of ovarian-hypophyseal-diencephalic relations with overproduction of gonadotrophins. These stimulated the specially sensitive ovarian mesenchyma to neoplastic proliferation. The resulting thecoma, in its turn, stimulated the endometrium to malignant growth, though it is pointed out that so far no single case of pure endometrial sarcoma, and only one case of endometrial carcino-sarcoma in combination with a feminizing ovarian mesenchymoma has been reported.

Rohan - Valašské Meziříčí

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PINSKER, P.; BULTASOVA, H.; HORAK, M.

21-desocycorticosteroids in postnatal adrenal virilism and hirsutism. Cas.lek.cesk.99 no.40:1280-1281 30 S'60.

1. Interni katedra UDL, oddeleni experimentalni terapie, prednosta doc. MUDr. O.Smahel. Ustredni biochemicka laborator fakultni nemocnice v Hradci Kralove, prednosta MUDr. J.Jicha.
(ADRENOGENITAL SYNDROME urine)
(ADRENAL CORTEX HORMONES urine)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PIESKER, Premysl; BULTASOVA, Helena; HORNACEK, Jaroslav; HORAK, Miroslav

Pathogenesis of adrenal hyperplasia. Cas. lek. cesk. 96 no.42:1325-1333 18 Oct 57.

1. I. interni klinika VLA v Hradci Kralove. Interni katedra Ustavu pro doskolovani lekaru v Praze. Vyzkumny ustav pro farmacil a bichemii v Praze. Ustredni zdravotnicka laborator VLA v Hradci Kralvoe.
P. P., Hradec Kralove, VLA

(ADRENAL GLANDS, dis.
hyperplasia, etiopathogen. (Cz))
(HYPERTROPHY AND HYPERPLASIA, etiol. & pathogen.
of adrenal hyperplasia (Cz))

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SOV/24-59-1-4/35

AUTHOR: Pinsker, P.N., (Saratov)

TITLE: The Derivation of the Basic Equation of the Hydrodynamic Theory of Heat Exchange (O vyvode osnovnogo uravneniya gidrodinamicheskoy teorii teploobmena)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, Energetika i Avtomatika, 1959, Nr 1, pp26-32 (USSR)

ABSTRACT: The basic equation of the hydrodynamic theory of heat exchange is

$$S = \frac{1}{2} C_f E \quad \left(S = \frac{N}{RP}\right) \qquad (1.1)$$

where S, N, R and P are the Stanton, Nusselt, Reynolds and Prandtl numbers respectively; C_f is the coefficient of friction and E is a function depending on the structure of the flow and the physical properties of the moving fluid. The equations governing the heat exchange in the turbulent region, the turbulent boundary layer and the laminar sub-layer are derived (Eq 1.5). On the basis of the assumption that: (1) the tangential stress and the heat flow are constant across the boundary layer; (2) the velocity and temperature distributions throughout

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The Derivation of the Basic Equation of the Hydrodynamic Theory of Heat Exchange

the turbulent boundary layer and the laminar sub-layer are similar within the limits of the dynamic boundary layer; (3) the physical constants of the gas mixture are independent of temperature, the equations are integrated to give the value of E in Eq 1.1

$$E = \left[\Phi(\zeta) + aP^{2/3}\right]^{-1}$$

where $\Phi(\zeta)$ and a take the following values in terms of R

R	$\Phi(\zeta)$	a
10^5	0.280	0.666
4×10^5	0.343	0.635
1.5×10^6	0.395	0.615
6×10^6	0.470	0.592

Card 2/3 The values of E obtained in this way are compared

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The Derivation of the Basic Equation of the Hydrodynamic Theory of Heat Exchange

graphically in Fig 2 and 3 with the values obtained from the expressions due to Taylor and Leybenzon (Ref 2) Prandtl (Ref 3), Karman (Ref 1) and Colburn (Ref 8). The present equation for E gives satisfactory agreement with experiment over wide ranges of the values of R and P. There are 3 figures, 1 table and 9 references of which 7 are Soviet and 2 English.

SUBMITTED: 7th June 1958

Card 3/3

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PINSKER, P.N. (Saratov)

Derivation of the basic equation of the hydrodynamic heat exchange theory. Izv. AN SSSR. Ot.tekh.nauk. Energ. i avtom. no.1:26-[illegible]. (MIRA 1[illegible])

(Heat--Transmission) (Fluid dynamics)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PINSKER, P.Z.

PHASE I BOOK EXPLOITATION SOV/2105

Podkolzin, Pavel Semenovich and Petr Zinov'yevich Pinsker

Hirnycha promyslovist' Ukrainy; vydobutok vuhillya rudy i nafty, 1917-1957 (Mining Industry of the Ukraine; Coal, Ore, and Oil Production from 1917-1957) Kiyev, Derzh. vyd-vo tekhn. lit-ry URSR, 1957. 108 p. 3,000 copies printed.

Ed.: H. Afonina; Tech. Ed.: P. Patsalyuk.

PURPOSE: This book is intended for the general reader interested in the development of the mining industry in the Ukraine.

COVERAGE: After outlining the state of the mining industry in the Ukraine as it existed during the prerevolutionary period, this book describes the changes made in both the extraction techniques and the organization of production under the Soviets. It discusses plans for the further development of the mining industry as well as aspects of the mechanization and automation of operations. Photographs accompany the text. No personalities are mentioned. No references are given.

Card 1/4

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Mining Industry (Cont.)

SOV/2105

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PODKOLZIN, P.S.; PINSKER, P.Z.; GOLOVKO, Ya.S.; GAVRISH, V.I.

Mining industry in the Ukraine on the 40th anniversary of the Great October. Nauch. trudy KHGI no.6:15-29 '58. (MIRA 14:4)

(Ukraine—Mines and mineral resources)

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PINSKER, P.Z., dotsent; kandidat tekhnicheskikh nauk; PAVLOV, K.V., redaktor; NADEINSKAYA, A.A., tekhnicheskiy redaktor; ALADOVA, Ye.I., tekhnicheskiy redaktor

[The blaster furing the sinking of vertical mine shafts] Vzryvnik pri prokhodke vertikal'nykh stvolov shakht. Moskva, Ugletekhizdat, 1954. 125 p. (MLRA 8:4)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PODKOLZIN, Pavel Semenovich; PINSKER, Petr Zinov'yevich; AFONINA, G., red.; PATSALYUK, P., tekhn.red.

[Mining industry of the Ukraine; coal, ore, and oil extraction in 1917-1957]. Hirnycha promyslovist' Ukrainy; vydobutok vuhillia, rudy i nafty, 1917-1957. Kyiv, Derzh. vyd-vo tekhn.lit-ry URSR, 1957. 108 p. (MIRA 12:2)

(Ukraine--Mines and mineral resources)
(Ukraine--Petroleum industry)
(Ukraine--Coal mines and mining)

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PINSKER, P. Z.

664
.97

HIRNYCHA PROMYSLOVIST' UKRAYINY; VYDOBUTOK VUHILLYA, RUDY I NAFTY
(THE MINING INDUSTRY OF THE UKRAINE; COAL, MINERALS AND PETROLEUM, BY)
P. Z. PINSKER (1) P. S. PODKOLZIN. KYYIV, DERZHTEKHVYDAV URSR, 1957.
108 P. ILLUS.
RUSSIAN TITLE: GORNAYA PROMYSHLENNOST' UKRAINY.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

DVOROVENKO, D. (g.Kemerovo); PINSKER, R. (g.Kemerovo)

Four thousand suggestions. Okhr.truda i sots.strakh. 3 no.2:30 F '60. (MIRA 13:6)

1. Zamestitel' predsedatelya zavkoma Kemerovskogo ordena Lenina azotno-tukovogo zavoda (for Dvorovenko). 2. Starshiy tekhnicheskiy inspektor Oblsovprofa (for Pinsker).
(Fertilizer industry--Hygienic aspects)

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[illegible], [illegible]

[illegible] [illegible]

"[illegible]
[illegible]." [illegible]
[illegible] Academy of Sciences, [illegible]

ABSTRACT AVAILABLE

D-[illegible]

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L 52787-65 EWT(1)/EWT(m)/EWP(i)/T/EWP(t)/EWP(b)/EWA(h) Pz-6/Peb IJP(c)
JD/AT

ACCESSION NR: AP5010739 UR/0181/65/007/004/1228/1230

42
41
B

AUTHOR: Pinsker, T. N.; Sandomirskiy, V. B.

TITLE: Electric conductivity of films in strong electric fields

SOURCE: Fizika tverdogo tela, v. 7, no. 4, 1965, 1228-1230

TOPIC TAGS: size effect, thin film, electric conductivity, electron density, electron heating field

ABSTRACT: To determine the size effect in a semiconductor film in moderately strong fields (for "warm" electrons), the authors calculate the distribution function for a film of thickness much smaller than the mean free path of the electrons, of infinite length, and of finite width. The dispersion law is assumed quadratic and isotropic, and the reflection on the surfaces of the film is assumed to be diffuse. The results show that the electrons are heated up to a lower temperature in a film than in a bulky specimen in the same field. An estimate is presented for the applicability of the electron-temperature approximation and it is shown that the minimum electron density for which this approximation holds is $\simeq 10^{13} + 4 \times \times 10^{10} \gamma$ cm^{-3}, where γ is a phenomenological parameter characterizing the rates of

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L 52787-65

ACCESSION NR: AP5010739

energy release on the surface. Orig. art. has: 23 formulas.

ASSOCIATION: Institut radiotekhniki i elektroniki AN SSSR, Moscow (Institute of Radio Engineering and Electronics, AN SSSR)

SUBMITTED: 09Jul64 ENCL: 00 SUB CODE: SS, EM

NR REF SOV: 001 OTHER: 003

Card 2/2

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[illegible], V.[illegible], [illegible].

Physical basis of the [illegible] and the firmness of [illegible]. [illegible] Ag '6[illegible].

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PINSKER, V. G.

AID P - 2580

Subject : USSR/Hydraulic Engineering

Card 1/1 Pub. 35 - 3/20

Author : Pinsker, V. G., Eng.

Title : Some instances of the use of precast reinforced concrete in hydraulic engineering construction

Periodical : Gidr stroi, 4, 10-12, Ap 1955

Abstract : The article discusses various dams built in the USSR and abroad on pervious and impervious soil with precast reinforced concrete parts. The Dnepr, Lower Svir' and several rural power plants are mentioned. Sand is used to fill in the vacuum created between the blocks. A drainage system running from the upstream slope to the tailwater is deemed necessary. Three diagrams.

Institution : None

Submitted : No date

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PINSKER, V.G., inzhener

Examples of the use of precast reinforced concrete in hydraulic structures. Gidr. stroi. 24 no. 4:10-12 '55. (MLRA 8:6)
(Precast concrete construction) (Hydraulic engineering)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

GUBENKO, A.B., ZUBAREV, G.N., PANFEROV, K.V., PINSKER, V.G.; NESOV, V.D., red.; VORONIN, K.P., tekhn. red.

[Prefabricated sectional wooden buildings for temporary use at construction sites] Derevianny inventarnye sborno-razbornye zdaniia proizvodstvennykh predpriiatii i skladov na stroitel'nykh ploshchadkakh. Moskva, Gos. energ. izd-vo, 1958. 62 p. (MIRA 11:11)
(Construction industry)
(Buildings, Prefabricated)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

GUPALO, P.Ya.; PINSKER, V.L.

New hemp carding machine for the manufacture of rope. Tekst. prom. 19 no.6:71-72 Je '59. (MIRA 12:9)
(Hemp) (Carding machines)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

PINSKER, V.L., inzh.

Conservation of yarn for the manufacture of tarred rope. Tekst. prom. 22 no.4:32-35 Ap '62 (MIRA 15:6)
(Kharkov—Rope)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

The processes of aging and hysteresis in disperse systems. Sedimentation hysteresis of charcoal suspensions in dye solutions. B. V. Ilyin and Z. G. Pinskii. *J. Gen. Chem.* (U. S. S. R.) 1, 560-83 (1931). *Kolloid Z.* 59, 326-31 (1932). — The sedimentation velocity (in centrifuge) of blood charcoal suspensions with particles 1 [illegible] diam. was detd. for H_2O and for methyl violet solns. 0.025-0.2%. Hysteresis is the change in sedimentation velocity on standing of the suspension. The relative stabilization varies from 32 to 22%.

Arthur Fleischer

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

A 548

3641. Diffraction of Fast Electrons by Crystallized Rock-Salt. S. Pinsker. *Phys. Zeits. d. Sowjetunion*, 7: 4, pp. 484-487, 1935. *In German.* Various diffraction patterns formed when electrons of energy about 60 kV are incident on crystallized rock-salt are discussed and a few are reproduced. A remarkable point interference pattern is also observed. The physical phenomena responsible for the results, *i.e.*, the mosaic structure of the crystals, the deformation of the single crystals, divergence of the incident electron beam and the degree of fulfilment of the third Laue condition, are in progress of further examination.

F. C. C.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

A 53

3a

dd

... is used.

1947. Diffraction of Fast Electrons by Rock-Salt. S. G. Pinsker and L. I. Tatarinova. *Phys. Zeits. d. Sowjetunion*, 8, 6, pp. 602–625, 1935. *In German.*—By investigation of the diffraction of fast electrons by NaCl preparations, crystallized from solutions of different concentrations (1 %, 0·5 %, 0·2 %), it is found possible to observe the transition from the normal Debye pattern (1 %) to the point electronogram, which corresponds to single crystal diffraction. Intermediate types show the Debye rings, with single points irregularly distributed over the pattern. Discussion of the point interference patterns enables an explanation to be given of a number of the principal questions relative to the geometrical development of electron refraction. [See also Abstract 3641 (1938).]

A. W

METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

SA

A 53
AA

5683. Electron Diffraction Analysis of Organic Films. S. Fischer and L. Tatarinowa. *Acta Physiochimica*, 5. 3. pp. 301–309, 1936. *In German.*—"Extra" rings and spots are observed in electron diffraction patterns, and it is shown that these diffractions are identical with those of paraffin. An orthorhombic structure is assumed and the estimated parameters are $a = 7 \cdot 48$, $b = 4 \cdot 97$, $c = 2 \cdot 5$ Å, in good agreement with the X-ray results for paraffin. Further, structure amplitude considerations predict an intensity distribution coinciding with that observed in the diffraction patterns. The observed spacings are also compared with the theoretical values for cellulose, but comparison with cellulose derivatives is not possible owing to lack of published results on the subject. Where possible, the spacings for the impurity are referred to the known lattice constants of the specimen material. The orientations of paraffin are investigated and a tendency for the basal *ab* plane to lie parallel to the plane of the film is found. A. G. Q.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920010-1

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

BC

A-1

Diffraction of rapid electrons in crystallized [illegible] [illegible] and L. I. TATARINOVA Physikal. Z. Sovietunion, [illegible]; cf. A., [illegible]—In the investigation of the scattering of rapid electrons at NaCl crystals obtained from solutions of different concn. (1%, 0.5%, 0.2%) the type of diagram obtained varied with the concn. of the solution. The normal Debye pattern was obtained from crystals from the 1% solution, but those from the more dil. solutions gave mainly point diagrams, corresponding with single crystals. Intermediate types of pattern, consisting of Debye rings and irregularly placed spots, were also obtained. The theory is discussed, and the application of the results to the study of thin crystal sheets is described.

A. J. M.

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