Regularities and Calculation Methods (Cont.) SOV/4043

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9.4720

AUTHORS: Lenderskiy, V. A., Orenshteyn, R. Y.

TITLE: Concerning Analysis of a Klystron in Automatic Frequency Control Circuit

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol 5, Nr 3, pp 503-507 (USSR)

ABSTRACT: Reflex klystrons are widely used for radiospectroscopic investigations. The necessary wide-range frequency stabilization is assured by supplying the modulating voltage directly to the reflector, and coupling the klystron frequency to the frequency of an external high-Q resonator. The selection of parameters is made experimentally, which consumes much time and does not always lead to optimum results. The present paper proposes a method of calculating such a circuit. 1. Determination of Critical Retardation of the System. The klystron frequency is a function of reflector voltage U and the summary destabilizing factor α :

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$$f = f(U, x). \qquad (1)$$

The klystron frequency instability is, per (1),

$$\delta f = S_k \delta U + \frac{\partial f}{\partial x} \delta x, \qquad (2)$$

where S_k is the slope of the frequency vs reflector voltage curve. After mistuning δf appears at the resonator output a variable voltage with amplitude proportional to the mistuning and phase corresponding to its sign. After amplification and synchronous detection this voltage is applied to the klystron reflector:

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$$\delta U_{reg} = k_c k_a k_d k_f \delta f. \qquad (3)$$

where k_r, k_c, k_d, k_f are transmission coefficients of the resonator, amplifier, phase detector, and RC-filter, respectively. Substituting (3) into (2) and solving for δf, the basic equation of the system of automatic frequency regulation of the klystron is derived as:

$$\delta f = \frac{\frac{\partial f}{\partial \alpha}\delta\alpha}{1 - k_r k_c k_d k_f S_{11}} \approx \frac{\frac{\partial f}{\partial \alpha}\delta\alpha}{1 - B} \qquad (4)$$

The stabilization coefficient is:

$$k = 1 - B. \qquad (5)$$

For excitation of the regulating system the phase shift must be a multiple of 2π, but the transmission coefficient at the assumed generation frequency must be greater than or equal to one. As the basic phase shift is

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caused by the RC-filter (θ_f), the phase shift caused by the circuits of resonator, resonance amplifier, and phase detector can be characterized by total time of delay τ_x. Then the condition for excitation of automatic frequency control system takes the aspect of:

$$|\overline{B}| = 1; \omega\tau_x + \theta_f = 2n\pi. \qquad (6)$$

The transmission coefficient for a two-stage filter is:

$$k_f = \frac{1}{1 + p(\tau_1 + \tau_2) + p^2\tau_1\tau_2}, \qquad (7)$$

where τ_1 and τ_2 are time constants of filter stages; p is differential operator. By substituting (7) into expression for $|\overline{B}|$, a biquadratic equation for the

determination of critical frequency of excitation is obtained:

$$\omega_{crit} = \frac{1}{\tau_1}\sqrt{\frac{S_D^2 K}{a} - \frac{a^2+1}{2a}} \qquad (9)$$

where $a = \tau_2/\tau_1 > 1$; $S_D = k_r k_a k_d$ is the slope of discriminator curve. The critical phase shift without filter is:

$$\theta_{crit} = \operatorname{arctg}\frac{a+1}{\sqrt{Ka}} \simeq \frac{a+1}{\sqrt{Ka}} \qquad (11)$$

After some simplifications and substitutions the critical delay time is found:

$$\tau_{crit} = \frac{\pi(x+1)}{k}. \qquad (12)$$

A comparison of the expressions for ω_{crit}, θ_{crit}, τ_{crit} is given for:

	ONE-STAGE FILTER	TWO-STAGE FILTER
ω_{crit}	$\frac{S_D S_H}{\tau}$	$\frac{1}{\tau_1}\sqrt{\frac{S_D S_H}{x}}$
θ_{crit}	$\frac{\pi}{2}$	$\frac{x+1}{\sqrt{x}}$
τ_{crit}	$\frac{\pi\tau}{2S_D S_H}$	$\frac{\pi\tau_1(x+1)}{k}$

(13)

From (13) it appears that besides the basic property--suppression of combined harmonics caused by pulsations of anode current in an automatic frequency control system--

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a two-stage filter shows a higher stability coefficient and no risk of self-excitation is obtained with a one-stage filter. A Calculation of Discriminator Characteristic Curve. With low power impressed on the resistor, the detection can be considered quadratic. The potential impressed at the amplifier input is:

$$U_c = \frac{\beta P R}{1 + \Omega^2 \tau^2 \cos^2 \varphi} \qquad (14)$$

where β is transmission coefficient of detector per current; R is resistance of the crystal barrier layer; Ω is modulation frequency, m is modulation index (ratio of deviation amplitude to resonator transmission band); x_0 is average initial mismatch. By expanding (14) into series and finding the amplitude of the first harmonic, which after amplification and synchronous detection is converted into a direct [illegible] controlling the klystron frequency.

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$$U_{cont} = 3pRk_a k_d k_f \frac{\Delta_{rom}}{(1+\varepsilon_0^2)^2} \qquad (15)$$

The discriminator slope and stabilization factor of the system may be determined using (15):

$$S_D = \frac{dU_{cont}}{df} = \frac{1}{\Delta f_0} \frac{dU_{cont}}{d\varepsilon_0} = \frac{1}{\Delta f_0} 3pRk_a k_d k_f \frac{2m(1-3\varepsilon_0^2)}{(1+\varepsilon_0^2)^3}, \qquad (16)$$

$$k = S_D S_u = \frac{S_u}{\Delta f_0} 3pRk_a k_d k_f \frac{2m(1-3\varepsilon_0^2)}{(1+\varepsilon_0^2)^3} \qquad (17)$$

From (17) it is possible to find the effective operation band of the automatic frequency control under conditions of constraint, as is the case in the radiospectroscope.

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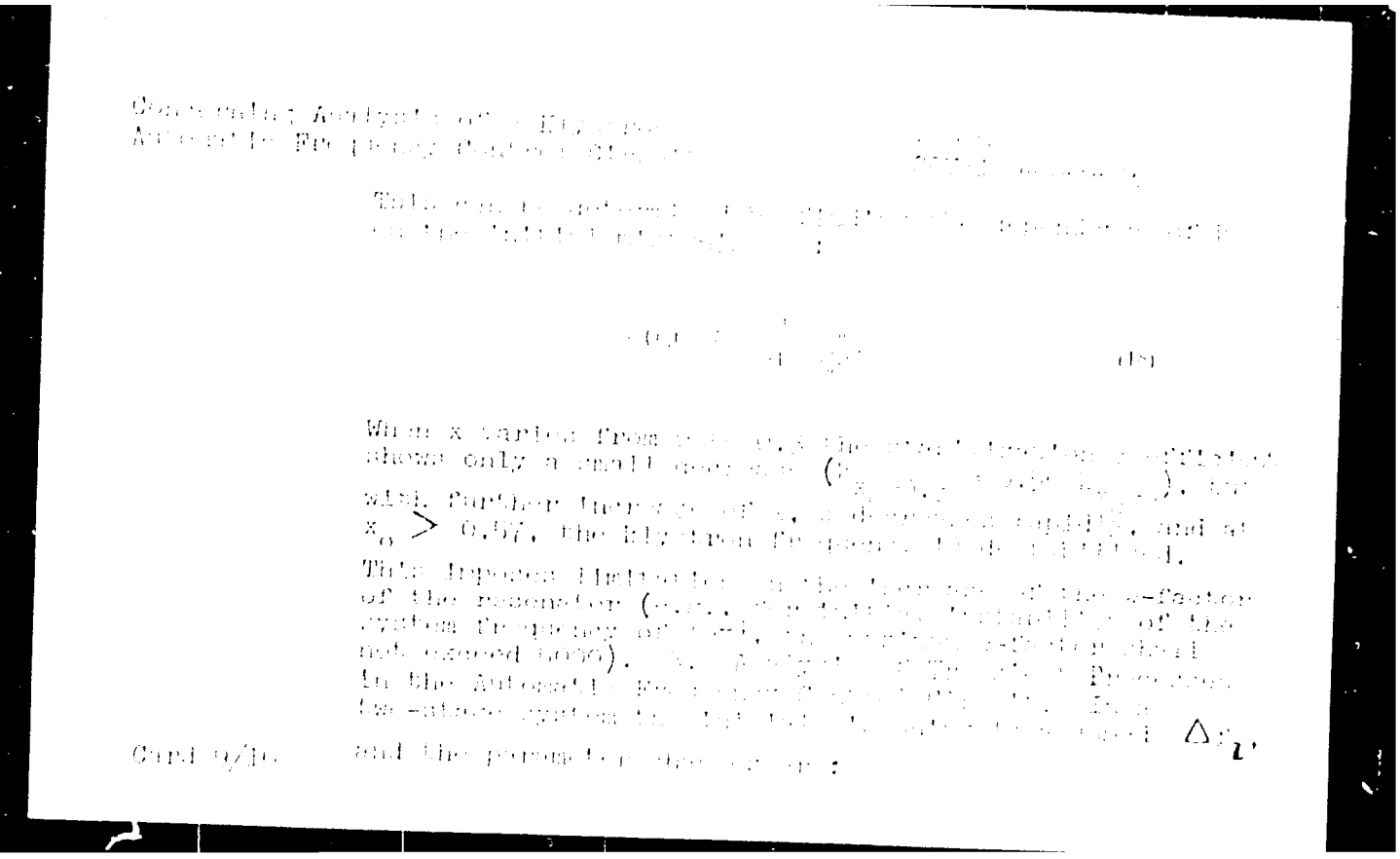

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Concerning Analysis of a Klystron
Automatic Frequency Control Circuit

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$$[illegible]\frac{d^2\Delta f}{dt^2} + ([illegible] + [illegible])\frac{d\Delta f}{dt} + [illegible] = \Delta f_1 \qquad (21)$$

which is easily solved taking initial conditions into consideration:

$$\Delta f_{t=0} = \Delta f_1 ; \quad \left.\frac{d\Delta f}{dt}\right|_{t=0} = 0 \qquad (22)$$

$$\Delta f = \Delta f_1 \left[\frac{1}{[illegible]} [illegible] \sin \chi t \right] \qquad (23)$$

where

$$\zeta = [illegible] \chi = \omega_{crit} \qquad (24)$$

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From (23) the setting time can be determined as the time during which the mistuning still reach 0.1 of its minimum:

$$e^{-\frac{t_{set}}{\tau_1}} = 0.1; \quad t_{set} = \frac{2.3\tau_1}{\alpha + 1}. \qquad (24)$$

4. Schematic of Calculations and Its Experimental Verification. The following sequence of calculations is suggested: (1) From (11) and (25) τ_1 and τ_{crit} as functions of stabilization factor and setting time:

$$\tau_1 = \frac{t_{set}(\alpha + 1)}{4.6\alpha}, \quad \tau_{crit} = \frac{t_{set}(\alpha + 1)^2}{4.6\alpha k}. \qquad (26)$$

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(2) Knowing the slope of the reflector characteristic, the slope of the discriminator characteristic is found

from $S_D = k/S_k$. (3) Knowing S_D we find the sought-for coefficient of the resonant amplifier k_a. (4) For a better stability reserve, a transmission band for the amplifier is selected in accordance with:

$$[illegible] \; \overset{2}{\Delta\Omega} . \qquad (27)$$

The table below gives parameters of an automatic frequency control system with initial parameters $Q = 5 \times 10^3$, $\beta R = 1$ mv/μw ; $p = 5$ μw; $S_k = 1.5$ mc/v; and asymmetry parameter a equals 2.5. For verification of the proposed method a system was built as shown on Fig. 1. The system is designed for a stabilization coefficient of 200, modulation frequency is 1100 kc, and amplifier transmission band is 15 kc. A three-stage amplifier with type 6 K3 pentodes was used. The stabilization factor is 180. The help of V. G. Veselago and A. G. Semenov is acknowledged. There is 1 table;

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Table 1. Parameters of automatic frequency control system.

k	$t_{set} \cdot 10^3$, sec	$\tau_1 \cdot 10^3$, sec	$\tau_2 \cdot 10^3$, sec	$T_{rit} \cdot 10^3$, sec	S_θ, v/mc	$k_\theta \cdot 10^4$	$\Delta\omega$, kc
50	2,0	6	1,5	4,2	33	3,3	4,8
100	2,0	6	1,5	2,1	67	6,7	9,6
150	2,0	6	1,5	1,4	100	10,0	14,3
200	2,7	8	2,0	1,4	134	13,4	14,3
250	4,0	12	3,0	1,7	167	16,7	11,8

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Concerning Analysis of a Klystron
Automatic Frequency Control Circuit

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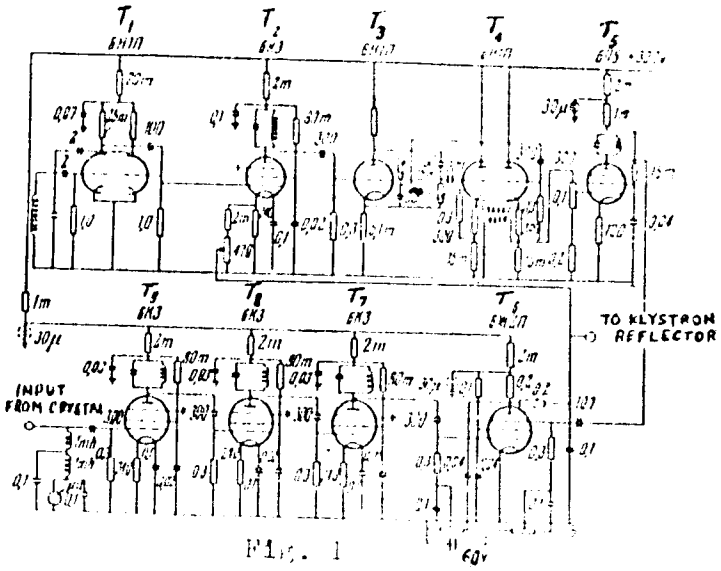

Fig. 1

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Concerning Analysis of a Klystron
Automatic Frequency Control Circuit

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Caption to Fig. 1. Layout of automatic frequency control of a klystron: (T_1) oscillator, 1100 kc; (T_2) buffer amplifier; (T_3, T_4) broad-band phase inverters; (T_5) support voltage amplifier; (T_6) phase detector; (T_7, T_8, T_9) resonance amplifiers.

1 figure; and 3 Soviet references.

SUBMITTED: July 8, 1959

Card 16/16

BLYUMENFEL'D, L.A.; EENDRIKSKIY, V.A.

Magnetic and dielectric properties of highly-organized macromolecular structures. Dokl.AN SSSR 133 no.6: 1451-1454 Ag '60. (MIRA 13:8)

1. Institut khimicheskoy fiziki Akademii nauk SSSR. Predstavleno akad. N.N.Semenovym.
(Polymers--Magnetic properties)
(Polymers--Electric properties)

BLYUMENFEL'D, L.A.; BENDERSKIY, V.A.; KALMANSON, A.E.

Possibility of various interpretations of anomalous magnetic properties of macromolecular compounds. Biofizika 6 no.6:631-637 '61. (MIRA 15:1)

1. Institut khimicheskoy fiziki AN SSSR, Moskva.
(MACROMOLECULAR COMPOUNDS--MAGNETIC PROPERTIES)

BENDERSKIY, V.A.; NIKITIN, N.S. [deceased]; TATEVSKIY, V.M.

Regularities in the physicochemical properties of alkylcyclohexanes. Zhur. fiz. khim. 36 no.1:63-71 Ja '62. (MIRA 16:8)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Cyclohexane)

S/020/62/144/004/017/024
B101/B138

AUTHORS: Benderskiy, V. A., and Blyumenfel'd, L. A.

TITLE: States involving charge transfer in organic systems

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 4, 1962, 813-816

TEXT: A hypothesis is developed regarding the magnetic and electrical properties of organic polymers with conjugate bonds, crystals of low-molecular compounds which have such bonds, and donor-acceptor crystals made up of two components. The local states which determine these properties involve charge transfer either between molecules or between conjugate sections of a molecule. Following L. E. Lyons (J. Chem. Soc., 1957, 5001) it is assumed that carriers are formed by dissociation of charge transfer complexes (CTC). The determination of the dissociation energy E_d of the local state involving charge transfer and the formation of a central ion at the defect and of a free carrier can be reduced to determining the polarization energy E of the crystal with the aid of quantum-field theory. The motion of the electron was found to be accompanied by an adiabatic wave of electronic polarization which

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States involving charge transfer ...

diminishes the self-energy of the conduction electron. The polarization energy E of the crystal is represented by: $E = (-DK_{nn}/v_o)\sum_i (f_i/\varepsilon_i^2)$, where D = a numerical coefficient depending on the shape of the crystal, v_o = volume of a molecule in the crystal, K_{nn} = integral of Coulomb interaction between two electrons in the uppermost occupied molecular orbit, f_i = oscillator strengths, and ε_i = energy of the excited states. E_d of the polar states is given by $E_d = -\left[1 - (2D/v_o)\sum_i (f_i/\varepsilon_i^2)\right] W(R_o^i)$, where $W(R_o^i)$ = energy of Coulomb interaction in the polar state. Calculations of E and E_d for aromatic hydrocarbons gave respectively (in ev): 1.08 and 1.47 for naphthalene; 1.39 and 1.08 for anthracene; 1.76 and 0.78 for naphthacene; 1.95 and 0.48 for pentacene. On the basis of this model of local centers with charge transfer, an additional formation of carriers is possible if CTC are dissociated by excitons (Fig. 2). The carrier concentration is given by $p = N_o \exp(-\varepsilon_u/2kT) + n \exp(-E_d/2kT) + n\left[N_o/1 + W_1/W_2\right] \exp(-\varepsilon_o/2kT)$, where N_o = concentration of the pairs;

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W_1 and W_2 = probability of deactivation and decay of excitons, respectively, > 1; ε_0 = singlet-singlet transfer energy. There are 2 figures.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences USSR)

PRESENTED: January 8, 1962, by V. N. Kondrat'yev, Academician

SUBMITTED: December 30, 1961

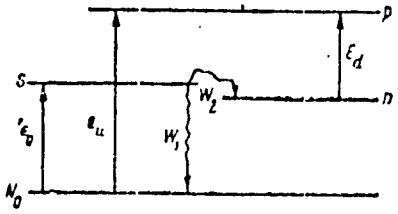

Fig. 2. Diagram showing model of an organic semiconductor. p = conduction band; n = local level caused by CTC; S = exciton singlet band.

ACCESSION NR: AT4020715 S/0000/63/000/000/0253/0259

AUTHOR: Benderskiy, V. A.; Kogan, B. Ya.; Gachkovskiy, V. F.; Shlyapnikova, I. A.

TITLE: Electrical and magnetic properties of polymers with conjugated bonds. I. Polyphenylacetylenes

SOURCE: Karbotsepnyye vysokomolekulyarnyye soyedineniya (Carbon-chain macromolecular compounds); sbornik statey. Moscow, Izd-vo AN SSSR, 1963, 253-259

TOPIC TAGS: polymer, conjugated polymer, polymer electrical property, polymer magnetic property, polyphenylacetylene, paramagnetic resonance, phenylacetylene polymerization

ABSTRACT: This work initiates a study of the nature of paramagentic centers, the mechanisms of conductivity and the relationship between the two characteristics in conjugated polymers. The electron paramagentic resonance spectra, the electrical conductivity and the optical centers were investigated in fractions of the product of thermal polymerization of phenylacetylene (atomic weight 670). The benzene- and toluene-soluble fractions, with atomic weights ranging from 340 to 1870, were obtained by successive sedimentation. In the tests conducted in nitrogen at 90-370 K and, in part, in a $2 \cdot 10^{-5}$ mm vacuum, a 975 kcps IKhF-2 paramagnetic resonance spectrometer was used. The paramagnetic center concentration and the saturation

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ACCESSION NR: AT4020715

factor determined from the electron paramagnetic resonance spectra, were found to increase as the molecular weight increases. The duration T_1 of spin-lattice relaxation and its dependence on temperature were determined. The signal intensity in unsaturated electron paramagnetic resonance absorption strictly follows the Curie law, the line center having the Lorentz form and the line wings being described by the Gaussian curve. A form analysis showed that a paramagnetic center contains at most 11 equivalent protons. It is concluded that the paramagnetism of the polymers stems from small local centers rather than from molecules of the basic substance, the activation energy of dark conductivity is independent of molecular weight, and the carriers' birth results from the thermal ionization of luminescent centers. "In conclusion, we would like to thank L. A. Blyumenfel'd for discussion of our work." Orig. art. has: 4 graphs and 14 formulas.

ASSOCIATION: INSTITUT KHIMICHESKOY FIZIKI AN SSSR (Institute of Chemical Physics, AN SSSR)

SUBMITTED: 18Jul62 DATE ACQ: 20Mar64 ENCL: 00

SUB CODE: OC NO REF SOV: 012 OTHER: 004

Card 2/2

BLYUMENFEL'D, L.A.; [redacted]

States with charge transfer in organic systems. Part 1. Zhur.-strukt.khim. 4 no.3:405-414 My-Je '63. (MIRA 16:6)

1. Institut khimicheskoy fiziki AN SSSR.
(Aromatic compounds) (Electrons) (Crystals—Electromagtic properties)

BENDERSKIY, V.A.

States with charge transfer in organic systems. Part 2: Transfer excitons and conduction electrons in molecular crystals. Zhurn. strukt.khim. 4 no.3:415-423 My-Je '63. (MIRA 16:6)

1. Institut khimicheskoy fiziki AN SSSR.
(Crystals) (Electrons) (Organic compounds)

ACCESSION NR: AP4010958

S/0051/64/016/003/0467/0474

AUTHOR: Benderskiy, V.A.; Shevchenko, I.B.; Blyumenfel'd, L.A.

TITLE: Electric and magnetic properties of donor-acceptor crystals. 1. Complexes formed by strong donors and acceptors

SOURCE: Optika i spektroskopiya, v.16, no.3, 1964, 467-474

TOPIC TAGS: EPR spectrum, absorption spectrum, dark conductivity, donor acceptor crystal, donor acceptor complex, complex crystal, chloranil, tetra-chloroquinone, para-phenylenediamine, benzidine, iodine, charge exchange, polar crystal model

ABSTRACT: The electric and magnetic properties of complexes with charge transfer in the solid phase have attracted the attention of many investigators. (A review of recent research in the field has been published by L.A.Blyumenfel'd and V.A.Benderskiy, Strukturnaya khimiya,4,405,1963.) The present work was devoted to investigation of the EPR spectra, the absorption spectra in the visible and infrared regions, and the dark conductivity, as well as the temperature dependences of these parameters, of complexes of chloranil (tetrachloroquinone) with para-phenylenediamine (1) and benzidine with iodine (2). The EPR spectra were recorded by means of a standard

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ACCESSION NR: AP4020958

EPR spectrometer with provision for maintaining the sample at temperatures from 90 to 380°K. The dark conductivity was investigated by the potentiometric method. Most of the measurements were made on compacted powder pellets, but some were made using single crystals (complex 1 only). The absorption spectra were measured using SF-4 and IKS-14 spectrophotometers with the specimens in the form of sublimated layers. The EPR spectrum of complex 1 was also obtained in methyl alcohol solution. The results are presented in the form of curves. Single crystals of complex 1 exhibit a single narrow EPR peak (0.4 Oe) with a complex exponential temperature dependence. The activation energy for exchange interaction agrees with the energy for excitation of the host to the magnetic state. The activation energy is not connected with singlet-triplet splitting. In the case of complex 2 the anisotropy of the EPR signal depends on temperature. The peaks in the absorption spectra agree with the values of the activation energy for dark conduction: 1.17 and 0.48 eV for complexes 1 and 2, respectively. The infrared absorption spectra of the complexes differ markedly from the spectra of the constituent components. The results are discussed from the standpoint of the crystal model with low-lying polar states. Orig.art.has: 5 figures and 2 tables.

Card 2/3

BENDERSKIY, V.A.; SHEVCHENKO, I.N., [illegible], L.A.

Electric and magnetic properties of donor - acceptor crystals. Part 1. Opt. i spektr. 16 no.3:467-474 Mr '64. (MIRA 17:4)

ACCESSION NR: AP4034942

S/0181/64/006/005/1542/1544

AUTHORS: Bendersk:ly, V. A.; Blyumenfel'd, L. A.; Shevchenko, ::. B.; Al'tshuler, T. S.

TITLE: Electrical and magnetic properties of donor acceptor crystals

SOURCE: Fizika tverdogo tela, v. 6, no. 5, 1964, 1542-1544

TOPIC TAGS: electric property, magnetic property, donor acceptor crystal, organic semiconductor, aromatic amine, aromatic hydrocarbon, chloranil, bromanil

ABSTRACT: So many theories have been proposed for the generation of carriers in organic semiconductors that the authors sought to weigh the evidence and uncover the proper theory. They compared the activation energies of conduction with the position of the band of carrier displacement in weak donor-acceptor systems in both solid and liquid phases. They examined complexes of chloranil and bromanil with aromatic amines (o-aminophenol, n-bromanalid, and diphenylamine) and aromatic hydrocarbons (pyrene and stilbene). In all these complexes the absorption bands of the films proved to be identical to the spectra of the solutions. Change in the aggregate state did not lead to expansion of the band, and the shift in the band did not exceed 0.07 ev. For the hydrocarbons the band

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ACCESSION NR: AP4034942

shifted toward the red end of the spectrum, for the aromatic amines toward the short-wave end. All these facts indicate that the processes of optical excitation are identical in both liquid and solid phases. Measurements show that the activation energies and the maxima in the carrier-transfer band are identical. It thus appears that carriers are generated in these complexes in the same way as in one-componont molocular crystals. Orig. art. has: 1 table and 2 formulas.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR, Moscow (Institute of Chemical Physics AN SSSR)

SUBMITTED: 18Nov63 DATE ACQ: 20May64 ENCL: 00

SUB CODE: SS,OC NO REF SOV: 006 OTHER: 006

Card 2/2

ACCESSION NR: AP4040490 S/0190/64/006/006/1104/1110

AUTHOR: Benderskiy, V. A.; Stunzhas, P. A.

TITLE: Electrical and magnetic properties of polymers with conjugated bonds. II. Fluorescence of polyphenylacetylenes

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 6, 1964, 1104-1110

TOPIC TAGS: conjugated polymer, polyphenylacetylene, fluorescence quantum, fluorescence lifetime, fluorescence quenching, magnetic property, molecular structure, molecular weight, energy transfer mechanism

ABSTRACT: A study has been made to clarify the nature of the luminescence of polyphenylacetylenes, the correlation of luminescence with magnetic properties, and the molecular structure of these polymers. The absorption and fluorescence spectra, quantum yields, and lifetimes of the fluorescent states have been determined for thin films and solutions of polyphenylacetylenes of molecular weight from

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ACCESSION NR: AP4040490

500 to 1700, which are efficient scintillators and phosphors with quantum yields of about 22% and lifetimes of about 10^{-9} sec. It has been shown that the growth of the polymer chain is not accompanied by an increase in the length of the conjugated chain and the conjugated regions are of about the same structure and length for all specimens independent of the molecular weight. The study of the concentration, temperature, and external (chloranil) quenching of fluorescence demonstrated the the existence of an effective dipole mechanism of energy transfer in concentrated solutions and in the solid phase, leading to fluorescence of the absorbed energy on local centers. The concentration of the fluorescence and paramagnetic centers increases linearly with an increase in molecular weight and is proportional to the number of unpaired electrons. The results are in agreement with the mechanism of electroconductivity of these polymers described in the previous communication (Karbotsepnyaye vysokomolekulyarnyaye soyedineniya, Izd. AN SSSR, 1963, 283). Orig. art. has: 6 figures and 10 formulas.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AN SSSR)

ACCESSION NR: AP4040490

SUBMITTED: 18Jul63

DATE ACQ: 06Jul64

ENCL: 00

SUB CODE: OC, NP

NO REF SOV: 003

OTHER: 009

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P. 12

ACCESSION NR: AP4041157 S/0020/64/156/004/0897/0900

AUTHORS: Benderskiy, V. A.; Kogan, B.Ya.; Abramov, Yu.Yu.; Kapranova, L. Ye.

TITLE: Study of the sticking levels in organic photoconductors

SOURCE: AN SSSR. Doklady*, v. 156, no. 4, 1964, 897-900

TOPIC TAGS: organic photoconductor, electronic paramagnetic resonance, electron sticking, sticking level

ABSTRACT: The efficiency of the photoconducting organic materials depends on the drift velocity of the carriers. The latter has been found by A. Bree and W. G. Schneider, (Confer. Elect. Conduct. Organic Solids, 1961) to be affected by the electron sticking which leads to a greater inertia and low quantum yield. In order to eliminate the effect of sticking, the present authors have measured the photoconductivity and the spectra of the electronic paramagnetic resonance at a high intensity of illumination. The material investigated was triphenyl-methane dyes. The measurements were conducted at continuously changing temperature (100 to 350K).

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ACCESSION NR: AP4041157

The results indicate that the quantum yield is considerably higher than found by other authors, and that the inertia of the process is due to sticking. Orig. art. has: 2 figures

ASSOCIATION: Institut khimicheskoy fiziki, Akademii nauk SSSR (Chemical Physics Institute, Academy of Sciences SSSR)

SUBMITTED: 03Feb64 ENCL: 00

SUB CODE: NP, IM NR REF SOV: 011 OTHER: 005

Card 2/2

L 34383-66 EWT(l)/EWT(m)/T IJP(c) WW/AT/RM

ACC NR: AP6011434 SOURCE CODE: UR/0020/66/167/004/0848/0851

AUTHOR: Bendersky, V. A.; Usov, N. N.

ORG: Institute of Chemical Physics, Academy of Sciences, SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: The influence of acceptors on the photoelectric properties of metal-free phthalocyanine

SOURCE: AN SSSR. Doklady, v. 167, no. 4, 1966, 848-851

TOPIC TAGS: phthalocyanine, photoelectric property, photoconductivity, photoconducting film

ABSTRACT: Films of metal-free α-form of phthalocyanine (0.03 to 4 μ thick), obtained by vacuum sublimation, were analyzed in a vacuum type surface cell with gaps of 0.03 — 0.05 and 1 mm. The kinetics of the initial photoflux buildup were determined from oscillograms (buildup period, 5 μsec; pulsed photoexcitation period, 40 μsec; and peak level, $5 \cdot 10^{19}$ photon/sec on the sample surface). Stationary photoconductivity was measured. Acceptor coatings were deposited by vacuum sublimation. The results indicate that the carrier generation rate constant should be high (i.e. greater than 10^{-7} sec$^{-1} \cdot$ cm^2 at $\tau_e \leq 10^{-8}$ sec),

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ACC NR: AP6011434

whereas the low quantum yield in pure phthalocyanine is due to extensive fill-in of the radiation centers. High quantum yields in acceptor-treated phthalocyanine films indicate that carrier generation can furnish a basic method of converting absorbed energy. The paper was presented by Academician N. N. Semenov 8 July 65. Orig. art. has: 1 figure, 1 table, and 1 formula.

SUB CODE: 07/ SUBM DATE: 08Jul65/ ORIG REF: 006/ OTH REF: 011

Card 2/2

L 05207-67 EWP(j)/EWT(m)/T RM
ACC NR: AP7000756

SOURCE CODE: UR/0192/66/007/003/0370/0379

BENDERSKIY, V. A., BLYUMENFEL'D, L. A. and POPOV, D. A., Institute of Chemical Physics, Academy of Sciences SSSR (Institut khimicheskoy fiziki AN SSSR)

Charge Transfer Conditions in Organic Systems. III. Conductivity Zone and the Excited Status of Molecules in Organic Semiconductors"

Moscow, Zhurnal Strukturnoy Khimii, Vol. 7, No 3, 1966, pp 370-379

Abstract: In organic semiconductors the relative position of the levels of the polar and nonpolar excitations can be arbitrary. It is shown that the levels of the former should lay close to the lower levels of excitation of the isolated molecule. The spectrum and wave functions of the polar states are found in the approximation of a strong bond for a uni-dimensional model. With a weak intramolecular interaction the lower levels of this branch corresponds to electron transfer between molecules with a definite relative distance, and with its increase the wave functions are diffused upon capturing several molecules and

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UDC: 541.67

L 05207-67

ACC NR: AP7000756

O

approaching the s-functions of the hydrogen atoms. The greater the intramolecular interactions and the lower the levels of the free carriers, the more the transfer is described as a hydrogen-like model at lower relative distances of the exciton. The probabilities of the optical transitions into the polar states are low and rapidly decrease with growth of their number so that they do not appear in the absorption spectrum. Orig. art. has: 1 figure, 2 formulas and 1 table. [JPRS: 37,177]

TOPIC TAGS: organic semiconductor, wave function

SUB CODE: 20 / SUBM DATE: 06Dec65 / ORIG REF: 010 / OTH REF: 016

Card 2/2 gd

ACC NR: AP7011815

SOURCE CODE: UR/0192/66/007/005/0686/0693

AUTHOR: Blyumenfel'd, L. A.; Benderskiy, V. A.; Stunzhas, P. A.

ORG: Institute of Chemical Physics, Academy of Sciences USSR (Institut khimicheskoy fiziki AN SSSR)

TITLE: States with charge transfer in organic systems. 4. Paramagnetism and conductivity of organic semiconductors

SOURCE: Zhurnal strukturnoy khimii, v. 7, no. 5, 1966, 686-693

TOPIC TAGS: organic semiconductor, paramagnetism, semiconductor carrier, semiconductor conductivity, forbidden zone width

SUB CODE: 20

ABSTRACT: The realtionship between concentration of unpaired electrons and free carriers in semiconductors with different widths of forbidden zone is examined. Organic semiconductors are classified by position of the level of polar states. For large forbidden zone widths, conductivity is intrinsic, and paramagnetism is related to the different kinds of structural perturbances that are differently related to carrier formation. When the zone width is reduced, the levels of polar states are also lowered, and for small zone widths paramagnetism and conductivity are related to thermal excitation of the molecules of the principal compound. In conductive ma-

Card 1/2

UDC: 537.311.33

ACC NR: AP7011815

terials EPR signals are due to free carriers, and the energy of activation of conductivity is associated with the surmounting of internal barriers in the specimens. The regularities obtained have been experimentally confirmed for the example of the tetracene-water complex. Orig. art. has: 4 figures and 9 formulas. [JPRS: 40,351]

Card 2/2

ZAV'YALOV, V.D.; BENDERSKIY, V.I.

Seismic methods: controlled beam receptor, plane front, and transverse seismic profiling. Sbor.luch.rats.predl. pt. 2: 29-30 '63. (MIRA 17:5)

1. Trest "Ukrgeofizrazvedka".

BENDERSKIY, V.Ya.; GUREVICH, B.L.; RAPOPORT, M.B.; [illegible], I.P.; CHERVINSKIY, M.I.

Using seismic prospecting in the study of cobalt deposits in the Dnieper-Donets Lowland. Izv.vys.ucheb.zav.; geol. i razv. 8 no.1: 109-117 Ja '65. (MIRA 18:3)

1. Ukrainskiy nauchno-issledovatel'skiy geologorazvedochnyy institut.

RAYKHER, L.D.; BENDERSKIY, V.Ya.; VASIL'YEV, Yu.A.; KHARAZ, I.I.

Increasing the geological efficiency of seismic prospecting in the inner zone of the cis-Carpathian trough and the southwestern part of the Russian Platform. Neft. i gaz. prom. 3:12-14 Jl-S '65.
(MIRA 18:11)

L 21703-66 EWT(1)/EWA(h) GW
ACC NR: AP6002919 (N) SOURCE CODE: UR/0286/65/000/024/0082/0082

AUTHOR: Jaykher, L. D.; Benderskiy, A. Ya.; Anikiyev, Yu. A.; [illegible], M. B.; [illegible], A. I.; Chervonskiy, M. I.

ORG: none

TITLE: A method for seismic exploration. Class 42, No. 177103 [Announced by Ukrainian Scientific Research Geological Exploration Institute (Ukrainskiy nauchno-issledovatel'skiy geologorazvedochnyy institut)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1965, 82

TOPIC TAGS: seismograph, seismology

ABSTRACT: This Author Certificate presents a method for seismic exploration with the use of controlled directional excitation systems (operating along any specified principle) and systems of vibration reception. The method increases the effectiveness of exploration and provides a unique selection of seismic waves from the irradiated objects. The interference systems in the vibration reception are coordinated with interference systems of the vibration excitation. This is accomplished by summing up displacements of any number of recordings based on a previously specified relationship which agrees with the vibration excitation principle.

SUB CODE: 08/ SUBM DATE: 20Jul64

Card 1/1

UDC: 550.834

ACC NR: AT6028965 SOURCE CODE: UR/0000/65/000/000/0049/0058

AUTHOR: Benderskiy, V. Ya.; Chervonskiy, M. I.; Rapoport, M. B.

ORG: Ukrainian Scientific Research Institute of Geological Prospecting (Ukrainskiy nauchno-issledovatel'skiy geologo-razvedochnyy institut)

TITLE: Use of directional interference systems in generation and reception of vibrations in the Dnieper-Don basin

SOURCE: Vsesoyuznyy seminar po novoy metodike seysmorazvedki. Seysmorazvedka s primeneniyem gruppirovaniya vzryvov na dlinnykh bazakh i sposoba tsentral'nykh luchey (Seismic prospecting using the grouping of shots on long bases and the method of central rays); trudy seminara. Moscow, Izd-vo Nedra, 1965, 49-58

TOPIC TAGS: seismology, seismic exploration, seismic prospecting, seismic wave, salt dome, seismic record

ABSTRACT: A practical methodology of seismic exploration for investigating the structure of deposits below salt domes in the central Dnieper-Don basin is described. The first stage of seismic exploration consisted of continuous symmetric profiling with controlled grouping during reception, i.e., first correlated modification of controlled directional reception (RNP) and automatic plotting of records. Subsequent use of the directed plane wave-front method (UPF) made it possible

Card 1/2

ACC NR: AT6028965

to detect reflected waves previously not recorded. Greatest efficiency was achieved by combining UPF and controlled grouping of apparatus for automatic plotting of seismic records. A cross section was constructed from the field data using this method, which shows several boundaries within and below the salt domes. Orig. art. has: 5 figures and 2 formulas.

SUB CODE: 08/ SUBM DATE: 30Apr65/ ORIG REF: 005

Card

ACC NR: AP6021459 SOURCE CODE: UR/0413/66/000/011/0080/0080

INVENTOR: Ryabinkin, L. A.; Raykher, L. D.; Rapoport, M. B.; Benderskiy, V. Ya.; Chervonskiy, M. I.

ORG: None

TITLE: A method for adding seismic signals. Class 42, No. 182352

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 11, 1966, 80

TOPIC TAGS: seismology, light modulation, nonelectric signal equipment, signal processing

ABSTRACT: This Author's Certificate introduces a method for adding seismic signals by synchronous storage on a light sensitive layer exposed by a long writing line with successive brightness modulation by signals which are reproduced channel by channel. The procedure is designed for addition of reflected signals with hyperbolic cophase axes. During reproduction of each channel, the writing line is rotated through an angle which is determined by the time of arrival of the waves, their rate of propagation and the distance from the point of the explosion to the point of reception.

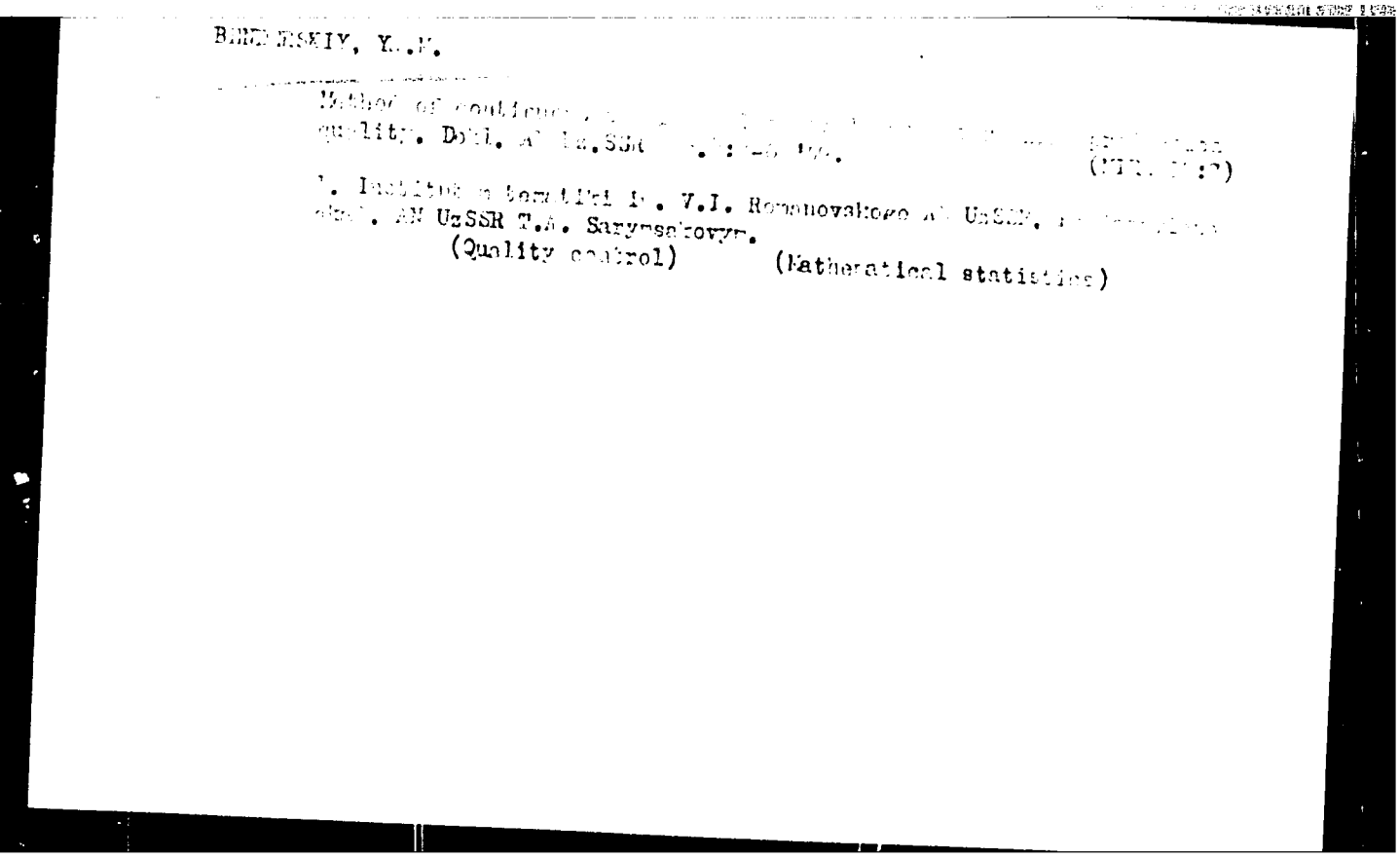
SUB CODE: 09 08/ SUBM DATE: 17Apr65

Card 1/1 UDC: 550.340.12

F

M

12 9). NEW PORTABLE STEAM ENGINE FOR SUPPLYING HEAT AND POWER.
Smerskii, V.N. and Kripets, E.S. (Za Ekon Toplivo (Fuel Econ.), July 1955, 24-33). Though described as a "Locomobile" this plant is intended for stationary mounting. It has a reciprocating steam engine mounted on top of a fire-tube boilers. It produces 125 h.p. exhausting to atmosphere, or 85 h.p. plus 1,200 kg/h of process steam at 3.5 atm. back pressure. (L).



BARO[illegible]SKIY, Y.M.

Method of continuous [illegible] quality. Dokl. AN Uz.SSR [illegible]. (MIRA 17:7)

1. Institut matematiki im. V.I. Romanovskogo AN UzSSR. [illegible] AN UzSSR T.A. Sarymsakovym.
(Quality control) (Mathematical statistics)

BENDERSKIY, Ya.N.

Statistical determination of the average price of an item. Dokl. AN Uz.SSR no.6:6-10 '59. (MIRA 12:9)

1. Institut matematiki im. V.I.Romanovskogo AN UzSSR. Predstavleno akademikom AN UzSSR T.A.Sarymsakovym.
(Prices)

BENDERSKIY, Ya.M.

Selective determination of the average price of two varieties of items. Dokl. AN Uz. SSR no.9:3-6 '59. (MIRA 13:1)

1. Institut matematiki im. V.I. Romanovskogo AN UzSSR. Predstavlyno akademikom AN UzSSR T.A. Sarymsakovym.
(Mathematical statistics) (Prices)

22287

S/168/59/000/011/001/003
A110/A133

16.9000

AUTHOR: Bendersky, Ya. M.

TITLE: Consecutive method of statistical estimation of average prices of products at unknown variance of the delivery volume

PERIODICAL: Doklady Akademii Nauk UzSSR, no. 11, 1959, 3 - 5

TEXT: Based on the article of Steinhaus and under conditions observed by the latter the author establishes the quantity to be selected with a view to obtaining the average price of a produced unit by the following formula:

$$n = \left(\frac{Nd}{5\gamma}\right)^{\frac{2}{3}} \qquad (1)$$

where n = the selected out quantity, N = the total volume, γ = the cost of controlling one unit, d = b - a (a - the lowest marginal cost of one unit and b - the corresponding highest marginal cost). Formula (1) is obtained on the basis of the "minimax" principle and from this equation (2) is developed. The cost estimations arrived at by using this method are not very accurate especially for small quantities (n). In order to establish the

Card 1/3

optimum volume to be selected under the same presumptions, but having simultaneously in view a certain dispersion of the grand total σ_0^2 and calculating exactly the cost of the controlled lot, the optimum relative volume of the selected lot was determined as the root of the equation $\lambda^3(1-\lambda) = M$. From this another equation (3) is developed:

$$M = \frac{\sigma_0^2}{2\pi\gamma^2 N}, \quad \lambda = \frac{n}{N},$$

which is to be applied whenever the value σ_0^2 can be established a priori. If this is not possible another equation can be used. Several examples are given how equation (3) has to be applied under various conditions. This calculation method is based on the supposition of a normal distribution of the grand total. If this condition does not prevail, the volume of the selected lot, following the theory of Lyapunov, can be divided into several groups, each of which with a determined number of pieces. After calculating the average of each group in accordance with the "minimax" method equations (1) and (3) can be applied with respective corrections. [illegible] are 4 Soviet bloc references.

Card 2/3

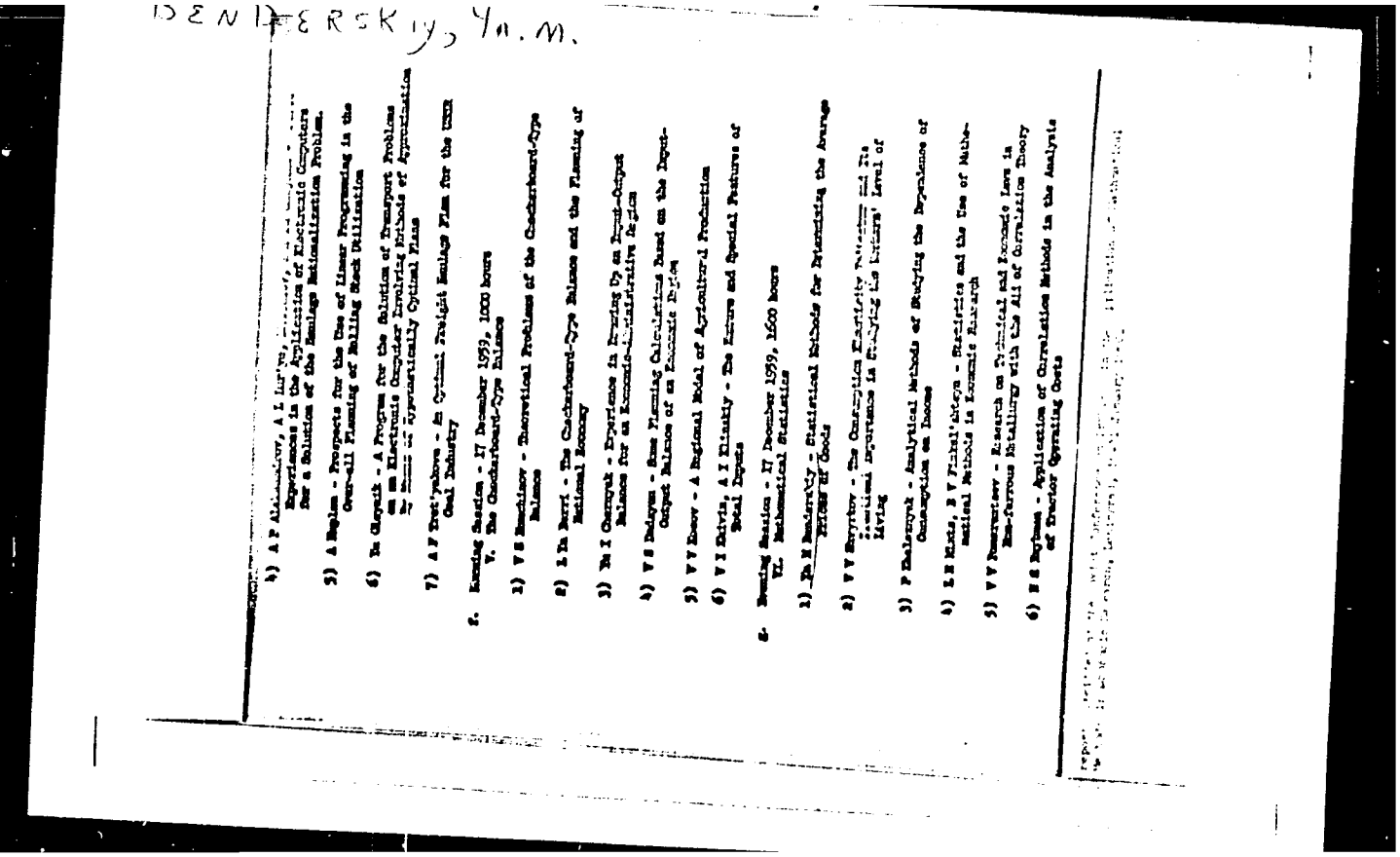
Consecutive method of statistical estimation... S/[illegible]/59/000/011/001/002
A110/A133

ASSOCIATION: Institut matematiki AN UzSSR (Institute of Mathematics of the AS UzSSR)

PRESENTED: by Sarymsakov, T. A., Academician of the AN UzSSR (Academy of Sciences of the UzSSR)

SUBMITTED: April 2, 1950

Card 3/3



DENVER SKY, Y.M.

MATHEMATICAL STATISTICS

Transactions of the 6th Conf. on Probability Theory and Mathematical Statistics and of the Symposium on Distributions in Infinite-Dimensional Spaces held in Vil'nyus, 5-10 Sep '60. Vil'nyus Gospolitizdat Lit SSR, 1962. 493 p. 2500 copies printed

BENDERSKIY, Ya.M., kand. fiziko-matematicheskikh nauk

Evaluation of the reliability and durability of articles. Standartizatsiia 28 no.6:23-26 Je '64. (MIRA 17:9)

1. Tashkentskiy institut narodnogo khozyaystva.

BENDERSKIY, Z.V.

Using large blocks in building schools. Trudy MIBI no.8:57-63 '57.
(MIRA 10:12)

1. Starshiy proizvoditel' rabot stroitel'nogo uchastka No.78 tresta Mosstroy No.17.

(Moscow--Schoolhouses)

BENDES, T.; VAJTA, M.

The Hungarian Scientists listed above are scheduled to colloborate on the following paper to be delivered at the 16th Convention of the International Electrical High-Tension Conference (CIHRE) to be held in Paris, 30 May--9 June 1956:

"Factory (or workshop) results with single-pole short breaks (in current) in the Hungarian 120-kilivolt electrical grid (net)".

SO: ETZ, 1 March 1956, Unclassified.

BENDET, S.I.

25(5) PHASE I BOOK EXPLOITATION

Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Kiyevskoye oblastnoye pravleniye

Mekhanizatsiya i avtomatizatsiya v mashinostroyenii; (sbornik statey) (Mechanization and Automation in Machine Manufacturing; Collection of Articles) Moscow, Mashgiz, 1959. 286 p. 8,000 copies printed.

Sponsoring Agency: Nauchno-tekhnicheskoye obshchestvo priborostroitel'noy promyshlennosti. Ukrainskoye respublikanskoye pravleniye.

Ed. of Publishing House: M.S. Soroka; Chief Ed. (Southern Division, Mashgiz): V.K. Serdyuk, Engineer; Editorial Board: M.M. Gal'ko, S.Sh. Zaslavskiy, A.Ya. Lopeta, E.M. Lyuh, M.L. Orlikov, I.D. Fayerman, Ye.M. Khaymovich (Resp. Ed.), and S.I. Kharagorgiyev.

PURPOSE: This book is intended for engineering and technical personnel in machine and instrument-manufacturing plants and scientific research institutes.

COVERAGE: This book contains reports made by workers of machine and instrument-manufacturing plants, scientific research institutes, and educational institutions at the 2nd Kiyev Scientific and Technical Conference devoted to problems of mechanization and automation of production processes. The Conference was sponsored by the Kiyev Oblast Administration of the NTO Mashprom (Scientific and Technical Division of the Machine-Manufacturing Industry) and the Ukrainian Republic Administration of the NTO Priborprom (Scientific and Technical Division of the Instrument Manufacturing Industry). These reports describe current problems encountered in automation of equipment, technological and control operations, and progressive work practices in manufacturing machines and instruments. I.I. Greben', S.M. Zamanskiy, A.G. Ivakhnenko, V.L. Meeshalkov, N.G. Mosesakis, and A.M. Farber participated in preparing the book. There are no references.

GESZTI, P.Otto, a muszaki tudomanyok doktora, mueg/etemi tanar; BENDES, Tibor

Effectiveness of protective arc fittings on transmission lines. Elektrotechnika 53 no.7:310-314 '60

1. Eromu Troszt OVRAM vezetoje (for Bendes).

BENDES, Tibor, okleveles gepeszmernok

Protection of power systems and their automatic control in case of breakdowns. Villamossag 12 no.10:289-296 O '64.

1. Head, National Electric Relay Protection Automation and Measurement Service, Hungarian Electric Works, Budapest.

POZEN, S.I., podpolkovnik med. sluzhby; BARDOV, A.N., podpolkovnik med. sluzhby; BENDET, Ya.A., kapitan med. sluzhby; OHYAZNOV, A.A., leytenant med. sluzhby

Prevention of minor injuries. Voen. med. zhur. no.3:79 Mr '58.
(MILITARY MEDICINE) (MIRA 12:7)

BENDET, Ya.A. (Kiyev, ul.Gor'kogo, d.8,kv.15); FEDOTOV, A.F.

Clinical morphological observation of the results of ligation of the right pulmonary artery in a tuberculosis patient. Grud. khir. 2 no.5:95-99 S-O '60. (MIRA 16:5)

1. Iz kliniki torakal'noy khirurgii (zav. - prof. N.M.Amosov) i patologoanatomicheskogo otdela (zav. - starshiy nauchnyy sotrudnik V.F.Yur'yeva) Ukrainskogo nauchno-issledovatel'skogo instituta tuberkuleza imeni akademika V.G.Yanovskogo (dir. - dotsent A.S. Mamolat).

(PULMONARY ARTERY--LIGATURE)

BENDET, Ya.A., kand. med. nauk

Therapeutic technique in lung resections in tuberculosis.
Vrach delo No.2:78-82 F'64 (MIRA 17:4)

1. Klinika torakal'noy khirurgii (zav. - chlen-korrespondent AMN SSSR, prof. N.M. Amosov) Ukrainskogo nauchno-issledovatel'skogo instituta tuberkuleza i grudnoy khirurgii imeni akademika F.G. Yanovskogo.

AKSEL'ROD, M.E., inzh.; BENDETOVICH, B.T., inzh.

Advanced technology of cold stamping of tractor parts. Mashinostroitel' no.10:22-24 O '57. (MIRA 10:11)

1.Minskiy traktornyy zavod.
(Sheet-metal work) (Punching machinery)

AKSEL'ROD, M.E.; BENDETOVICH, B.T.

Advanced techniques and dies for deep drawing of cylindrical parts. Kuz.-shtam.proizv. 1 no.1:8-10 Ja '59.
(MIRA 12:10)

(Deep drawing (Metalwork))

BENDETSKIY, K.M.; SHADMANOV, R.K.

Methods of paper electrophoresis. Biokhimiia 29 no.3:439-444 My-Je '64. (MIRA 18:4)

1. Glavnyy botanicheskiy sad AN SSSR, Moskva.

BENDETSKIY, K.M.

Inactivation of plant arginase in the process of enzymatic hydrolysis of arginine. Biokhimiia 30 no.4:853-857 Jl-Ag '65. (MIRA 18:8)

1. Glavnyy botanicheskiy sad AN SSSR, Moskva.

BENDETSKIY, K.M.

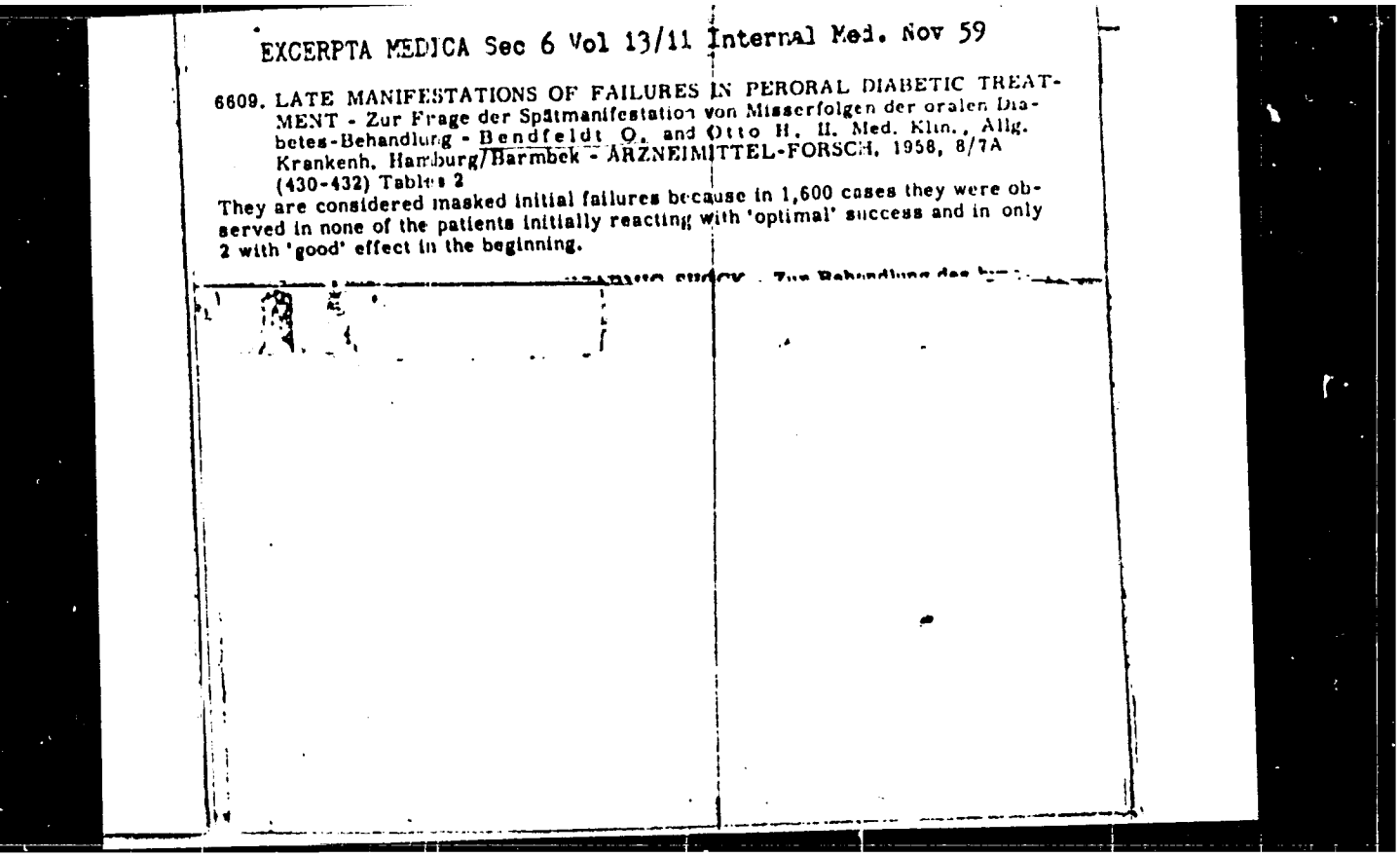
Ionophoretic method of studying the decomposition of cellulose.
Biul. Glav. bot. sada no.54:89-93 '64.
(MIRA 17:11)

1. Glavnyy botanicheskiy sad AN SSSR.

M.N. Ellis, A.M.

"Activity of arginase in the germinating seeds of [illegible]."
Biul. Glav. bot. sada no.56:65-67 '64. (MIRA 17:8)

1. Glavnyy botanicheskiy sad AN SSSR.



EXCERPTA MEDICA Sec 6 Vol 13/11 Internal Med. Nov 59

6609. LATE MANIFESTATIONS OF FAILURES IN PERORAL DIABETIC TREATMENT - Zur Frage der Spätmanifestation von Misserfolgen der oralen Diabetes-Behandlung - Bendfeldt O. and Otto H. II. Med. Klin., Allg. Krankenh. Hamburg/Barmbek - ARZNEIMITTEL-FORSCH. 1958, 8/7A (430-432) Tables 2

They are considered masked initial failures because in 1,600 cases they were observed in none of the patients initially reacting with 'optimal' success and in only 2 with 'good' effect in the beginning.

BENDI, Z.; PLEJTAC, L.

New type of splitting machine. p. 73

KOVAŘSTVI, Praha Czechoslovakia, Vol. 9, no. 3, Feb. 1959

Monthly List of East European Accessions (EEAI) LC, Vol. , No. 10
Oct. 1959
Uncl.

ACC NR: AP6033551 SOURCE CODE: UR/0181/66/008/010/2919/2924

AUTHOR: Bendiashvili, N. S.; Buishvili, L. L.; Zviadadze, M. D.

ORG: Institute of Cybernetics, AN GruzSSR, Tbilisi (Institut kibernetiki AN GruzSSR)

TITLE: Contribution to the theory of dynamic polarization and relaxation of nuclei in the case of strong saturation

SOURCE: Fizika tverdogo tela, v. 8, no. 10, 1966, 2919-2924

TOPIC TAGS: nuclear polarization, spin lattice relaxation, nuclear spin, electron spin, electron spin, quantum statistics, paramagnetic relaxation, electron polarization

ABSTRACT: The relaxation and dynamic polarization of nuclei, resulting from paramagnetic impurities, are investigated on the basis of quantum statistics in the case when a strong radio-frequency field is applied to a system of electron spins. The interaction between the electron and nuclear spin subsystems is regarded as a small perturbation. The analysis is based on the construction of the nonequilibrium density matrix by the method developed by D. N. Zubarev (DAN SSSR v. 140, p. 2, 1961). The analysis is limited to the quasistatic case, with the dispersion of the kinetic coefficients neglected. The correlators of the spin operators are calculated. It is shown that the relaxation time increases near resonance, for then exchange of energy between the electron and nuclear systems is greatly reduced. The results indicate

ACC NR: AP6033551

that with increasing amplitude of the radio-frequency field the degree of polarization increases (the temperature of the nuclear subsystem decreases), goes through a maximum, and then decreases. A relation is established between the spin-lattice relaxation time and the position of the maximum. Orig. art. has: 45 formulas.

SUB CODE: 20/ SUBM DATE: 14Feb66/ ORIG REF: 005/ OTH REF: 007

Card 2/2

BENDIASHVILI, S. V.

Bendiashvili, S. V. -- "The Problem of Using as Traction Motors, Double-Winding Multi-Speed Asynchronous Machinery with Short-Circuited Rotors." Min Ways USSR. Leningrad Order of Lenin Inst of Railroad Transport Engineers imeni Academician V. N. Obraztsov. Leningrad, 1956. (Dissertation for the Degree of Candidate in Technical Science)

So: Knizhnaya Letopis', No. 1, 1956

BENDIG, Laszlo, dr.; VASKO, Janos, dr.

Experience with the treatment of rheumatic fever in children. Orv.hetil. 101 no.44:1560-1561 30 O '60.

1. Orszagos Testnevelesi es Sportegeszsegugyi Intezet, Gyermekosztaly.
(RHEUMATIC FEVER ther)

HUNGARY

KAMARAS, Janos, Dr, [illegible], Laszlo, Dr; National Institute of Cardiology (director: GABOR, Gyorgy, Dr), Department of Pediatrics (chief physician: KAMARAS, Janos, Dr) (Orszagos Kardiologiai Intezet, Gyermekosztaly), Budapest.

"Observations Concerning the Mechanism of development of the Protosystolic Click and Its Diagnostic Importance in Pulmonary Stenosis,"

Budapest, Orvosi Hetilap, Vol 107, No 44, 30 Oct 66, pages 2071-2074.

Abstract: [Authors' Hungarian summary] In a total of 68 patients examined, a protosystolic click originating from the pulmonary artery was noted in 46. According to the results of the study, the protosystolic click is considered to be the sound of opening of the semilunar valves in valvular pulmonary stenosis. The protosystolic click is considered to be a valuable symptom by which differentiation between a mild pulmonary stenosis or a defect of the atrial septum and idiopathic pulmonary dilatation, or between the valvular and infundibular forms of pulmonary stenosis is possible and the severity of a given valvular pulmonary stenosis can be evaluated. 1 East German, 25 Western references.

1/1

BENDIG, Ya.I.

Excretion of ascarids from a perforated strangulated Meckel's diverticulum. Khirurgiia no.7:74 Jl '55. (MLRA 8:12)

1. Iz khirurgicheskogo otdeleniya Yeniseyskoy rayonnoy bol'nitsy Krasnoyarskogo kraya.
(ASCARIDS AND ASCARIASIS) (ILEUM--DISEASES)

BENDIG, Ya.I.

Traumatic rupture of the spleen simulating a rupture of the pregnant uterus. Akush. i gin. 32 no.6:77-78 N-D '56. (MIRA 10:11)

1. Iz khirurgicheskogo otdeleniya (zav. Ya.I.Bendig) Yeniseyskoy rayonnoy bol'nitsy.
(SPLEEN--RUPTURE)

SOV/136-59-9-2/25

AUTHORS: Mironov, S.S. and Bendik, A.I.

TITLE: Our Friendship with the Chinese Peoples Republic

PERIODICAL: Tsvetnyye metally, 1959, Nr 9, pp 4-10 (USSR)

ABSTRACT: There has been close cooperation between "Giprotsvetmetobrabotka" and Peking Institute of Non-Ferrous Metallurgy of the Chinese Peoples Republic. Equipment for rolling and tube pressing of aluminium was made in the Soviet Union for use in China. An air-circulating electric furnace (Fig 1) was used for homogenization of D1 and D16 ingots. Each furnace will take four ingots, 200 x 1400 x 6010 mm and is 720 kv. Its accuracy is ± 5°C. For hot rolling aluminium strip a reversing hot mill "2000" (Fig 2) was constructed with the help of the Novo-Kramatorsky Machine-Construction Works. For cold rolling a 4-high mill from Uralmashzavod was used (Fig 3). It has a maximum rate of 5 to 6 m/second. A high rate production line for continuous finishing of strip was worked out with Giprotsvetmetobrabotka and prepared at the Staro-Kramatorsky Machine-Construction Works. It was used with great success by the Chinese (Fig 4 and 5). The equipment for the two main mills -

Card 1/2

Our Friendship with the Chinese Peoples Republic

rolling and tube pressing - was ready within one year. 50,000 m^3 of concrete was used as a base and 50 Soviet specialists were involved in setting up the mills and starting production. New systems of homogenising duralumin ingots were worked out which gave optimum plasticity. This enabled Wei Ch'ih-hsiang and Chia Ming-kuang, under the leadership of A.I.Kolpashnikov, to increase strip production of D1 and D16 by 7 to 8%. There are 6 figures.

ASSOCIATION:Giprotsvetmetobrabotka

Card 2/2

68-58-2-8/21

AUTHORS: Benlik, A.T. and Eydel'man, A.Ye.

TITLE: Testing of an Automatic Gas Analyser for the Determination of Benzole Hydrocarbons in Coke Oven Gas (Ispytaniye avtomaticheskogo gazoanalizatora dlya opredeleniya benzol'nykh uglevodorodov v koksovom gaze)

PERIODICAL: Koks i Khimiya, 1958, Nr 2, pp 38-40 (USSR)

ABSTRACT: A gas analyser of the type OP-3301, developed by the GSKB PGA (Leningrad State Union Design Bureau for Instruments) was tested. The instrument was based on the ability of benzole hydrocarbons to absorb ultra-violet radiation (230 - 270 mμ) proportionally to their concentration. The principle of operation of the instrument is shown in Fig.1. It was found during testing that an extremely careful purification of the gas is necessary otherwise the indications of instruments are considerably too high. Despite most careful purification of gas, a continuous shift of zero point to higher values was observed, caused by hydrocarbons precipitating on the windows of the absorption vessel. There are 3 figures and 2 tables.

ASSOCIATION: Zaporozhskiy koksokhimicheskiy zavod (Zaporozh'ye Coke Oven Works)

AVAILABLE: Library of Congress

Card 1/1 1. Gas analyzers - Design 2. Gas analyzers - Test results 3. Gases - Analysis - Equipment

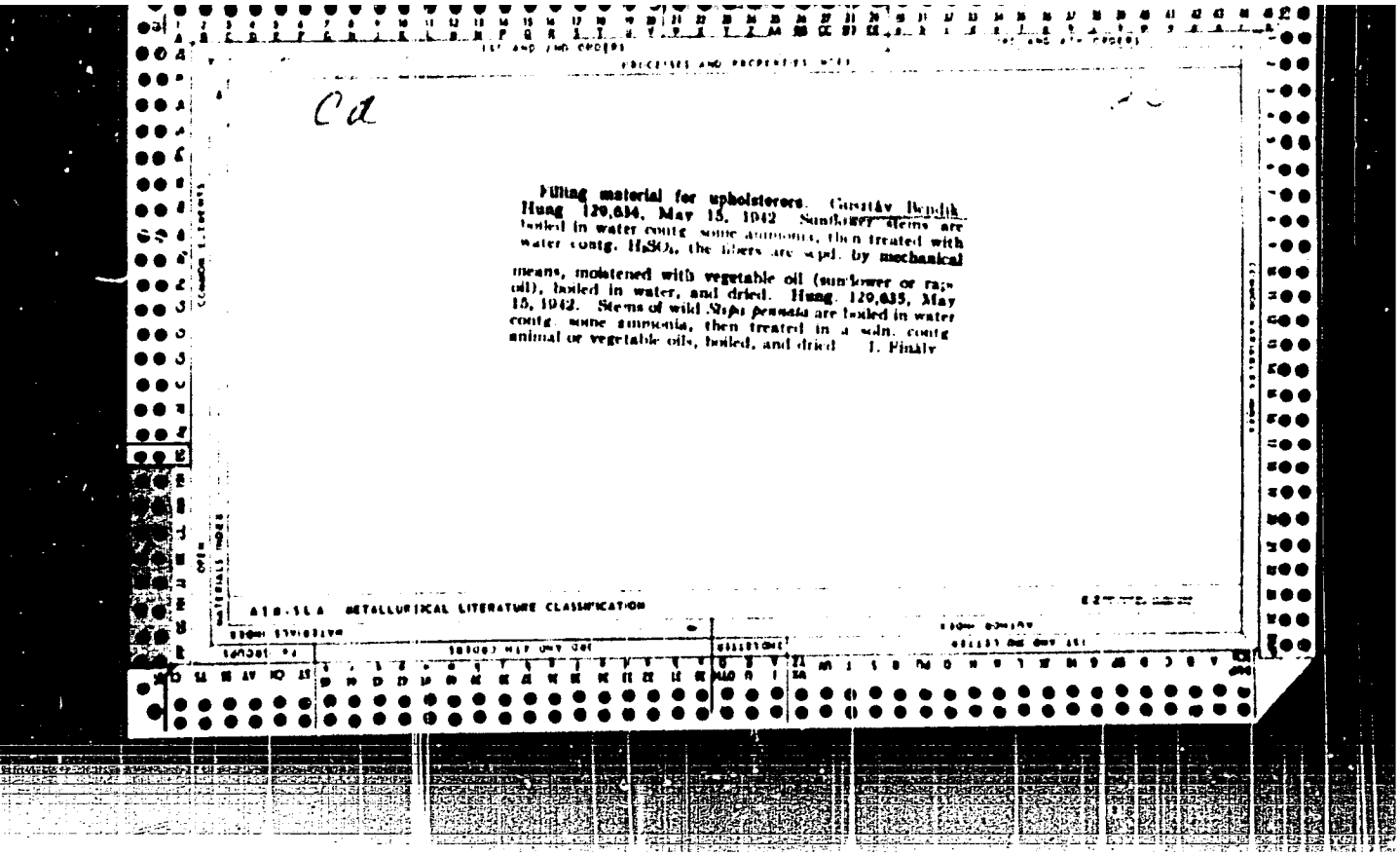
BENDIK, A.T.

Nomograph for calculating the measuring diaphragms of gas and water meters. Izm.tekh. no.5:59-60 My '63. (MIRA 16:10)

[redacted]

BENDIK, A.T.

"Nomogram for the calculation of control th[illegible] gas pipelines." Gaz. prom. 8 no.12:29 '63 (MIRA 17:2)



Cd

Filling material for upholsterers. Gusztáv Bendik Hung 129,634, May 15, 1942. Sunflower stems are boiled in water contg some ammonia, then treated with water contg. H_2SO_4, the fibers are sepd. by mechanical means, moistened with vegetable oil (sunflower or rape oil), boiled in water, and dried. Hung. 129,635, May 15, 1942. Stems of wild *Stipa pennata* are boiled in water contg. some ammonia, then treated in a soln. contg animal or vegetable oils, boiled, and dried. I. Pinaly

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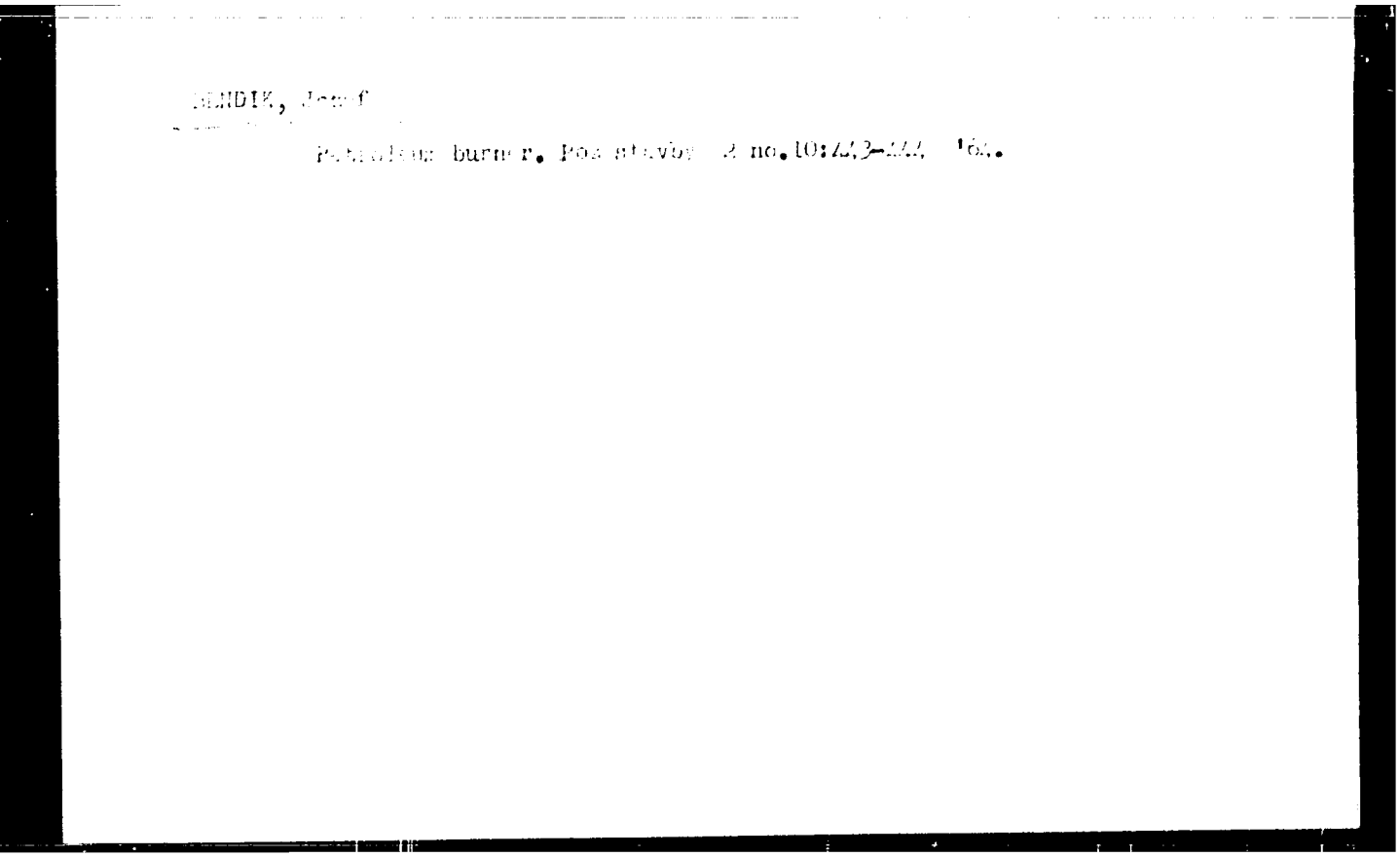

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