S/123/60/000/017/004/016
A005/A001

Translation from: Referativnyy zhurnal, Mashinostroyeniye, 1960, No. 17, pp. 103 - 104, # 92277

AUTHORS: Shirokov, V.A., Barkagan, M.S.

TITLE: Series of Thread-Grinding Machines 56WC (ZVSh.S)

PERIODICAL: Vestn. tekhn. inform. Eksperim. n.-i. in-t metallorezh. stankov, 1959, No. 3, pp. 1 - 22

TEXT: The fundamental characteristics are presented for the series of thread-grinding machines; they were proposed by the plant for articles of 80-500 mm in diameter and 250-3,000 mm length. The machines of the types 5822, 5821, and 5823 are basic ones. The units and parts of the basic types were designed taking into account the possibility of maximum utilization in other machines of the series. The structural composition of the machines is horizontal. The carriage is moved in the front part of the frame. Behind, the grinding head is arranged which has a transverse feed. The control system is concentrated in the front wall of the frame. The machines are of the unit-head design. The varia-

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Series of Thread-Grinding Machines 36WC (ZV3nS)

S/123/60/000/017/004/016
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tion in the number of revolutions of an article is performed steplessly (electrically). The regulation of the numbers of revolution of the grinding disk can be performed stepwise (by changeable sheaves) in some machines. The pitch chain as well as the chains of backing off and of helical grooves are adjusted by changeable gear wheels. Errors in the pitch of the grinded article can be corrected by means of a correction ruler. The technical characteristics of the series are presented, as well as the requirements to the intermediate products and the requirements to the machined articles. There are 5 figures.

G.A.B.

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

SHIROKOV, V.A.

The 5820 universal thread-grinding machine. Biul.tekh.-ekon.inform.-Gos.nauch.-issl.inst.nauch. i tekh.inform. no.7:35-37 '62. (MIRA 15:7)

(Grinding machines)

GORDING, Lars [Garding, L]; PANEYAKH, B.P. [translator]; DEZIN, A.A., red.; SHIROKOV, V.F., red.; KHAR'KOVSKAYA, L., tekhn. red.

[Cauchy's problem for hyperbolic equations] Zadacha Koshi dlia giperbolicheskikh uravnenii. Pod red. A.A. Dezina. Moskva, Izd-vo inostr. lit-ry, 1961. 120 p. Translated from the English. (MIRA 14:8)

(Differential equations)

SOV-3-58-8-22/26

AUTHOR: Shirokov, V.I., Docent , Rector of the Gor'kiy University imeni N.I. Lobachevskiy

TITLE: A University Born by the Revolution (Universitet, rozhdennyy revolyutsiyey)

PERIODICAL: Vestnik vysshey shkoly, 1958, Nr 8, pp 83 - 85 (USSR)

ABSTRACT: In January 1916, the Nizhegorodskiy Municipal People's University was founded, (now the Gor'kiy University), but it was only in 1918 that the plan of establishing a complete university was realized. The author gives particulars on the opening of individual faculties on the basis of which, in 1930, the following independent institutes were organized: the Polytechnic Institute imeni A.A. Zhdanov, the Engineering and Construction Institute imeni V.P. Chkalov, the Medical Institute imeni S.M. Kirov, the Agricultural, the Pedagogical and the Chemical-Technological Institutes of Gor'kiy (formerly Nizhniy Novgorod). The Physico-Mathematical, the Chemical anu Biological departments were retained and subsequently the Radio-Physical and the Historical-Philological Faculties, 3 scientific-research institutes (GIFTI, NIIKh and NIRFI), as well as the Botanical Garden and a Biological Station were organ-

Card 1/2

SHIROKOV, V.I.

Pneumatic clamp designed by mechanic A.N. Nikolaev. Mashinostroitel' no.9:31 S '59. (MIRA 13:2)
(Foundry machinery and supplies)

SHIROKOV, V.I., red.; VIL'CHINSKAYA, L.P., red.; NOVIKOVA, A.M., red.; KUPTYREVA, Z.I., red.; DONETS, Ye.P., red.; KASTRYKINA, M.A., red.; DOLMATOVA, A.S., red.; BENEVOLENSKIY, I.I., red.; BOL'SHAKOVA, N.L., red.; BELYAKOV, P.V., red.; BADINA, L.S., tekhn. red.

[The economy of Ivanovo Province; statistical abstract] Narodnoe khoziaistvo Ivanovskoi oblasti; statisticheskii sbornik. Ivanovo, Gosstatizdat, 1962. 227 p. (MIRA 16:6)

1. Ivanovo (Province)Statisticheskoye upravleniye. 2. Nachal'nik Statisticheskogo upravleniya Ivanovskoy oblasti (for Belyakov). 4. Statisticheskoye upravleniye Ivanovskoy oblasti (for all except Badina).

(Ivanovo Province--Statistics)

A SHIRIKOV, V.I.

7

Electrode reactions in the spectral analysis of low carbon steels V. I. Shirikov. *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 12, 412-15(1948). By micrographic and x-ray studies, electrodes of low-C steel with 0.30% C, enriched or not up to 0.80% C by surface cementation, suffer in an a.-c. elec. arc or in a condensed spark a change from pearlite + ferrite to austenite structure. As a result of interaction with N_2 of the air, lines of Fe_4N appear in the x-ray patterns. N. Thon

SHIROKOV, V.I.

CA

Microphotometer on a microscope base. V. I. Shirokov (Saratov State Univ., Saratov). Zavodskaya Lab. 16, 49-50 (1950).—Details of construction. A table with movable carriage and photoplate replaces the microscope table. The projecting system of the microphotometer consists of a microobjective and a pivoting prism. With the aid of the microobjective, the image of the spectral line is projected on the screen of the slit of the photoelec. cell. The prism changes the direction of the light. The microobjective is secured in the usual place in the head of the microscope and the prism in the place of the ocular. The app. was used satisfactorily in analysis of alloys. Four illustrations.

H. Z. Kamish

SHIROKOV, V.I.

USSR/Physics - Technical physics

Card 1/1 Pub. 22 - 16/40

Authors : Gruzin, P. L.; Noskov, B. M.; and Shirokov, V. I.

Title : Effect of Mn on the self-diffusion of Fe

Periodical : Dok. AN SSSR 99/2, 247-250, Nov 11, 1954

Abstract : Eight Fe-Mn alloys were investigated to determine the effect of Mn on the self-diffusion of the Fe in austenite. The thermal dependence of the self-diffusion coefficients of Fe in the gamma-phase of Fe-Mn alloys was investigated by the method of radioactive indicators through the utilization of the artificially-radioactive Fe^{59} isotope. The self-diffusion coefficients were calculated on the basis of data obtained by measuring the integral radioactivity of the sample. It was found that the bond between the atoms of the basic alloy during the addition of the second element increases. The energy of activation of Fe self-diffusion at an Mn content of 8% was established as greater than the activation energy of pure iron self-diffusion. Seven references; 6-USSR and 1-USA (1938-1954). Tables; graphs.

Institution : Central Scientific Research Institute of Ferrous Metals, Institute of Metallurgy and Physics and State University, Institute of Chemistry, Gorkiy

Presented by: Academician G. V. Kudryumov, June 5, 1954

GRUZIN, P.L.,kand.fiz.-mat.nauk; NOSKOV, B.M.,kand.fiz.-mat.nauk; SHIROKOV, V.I.,kand.fiz.-mat.nauk.

Effect of manganese on the self-diffusion of iron. Probl. metalloved. i fiz. met. no.4:503-508 '55. (MIRA 11:4)
(Diffusion) (Iron) (Manganese)

BONCH-BRUYEVICH, A.M.; SHIROKOV, V.I.

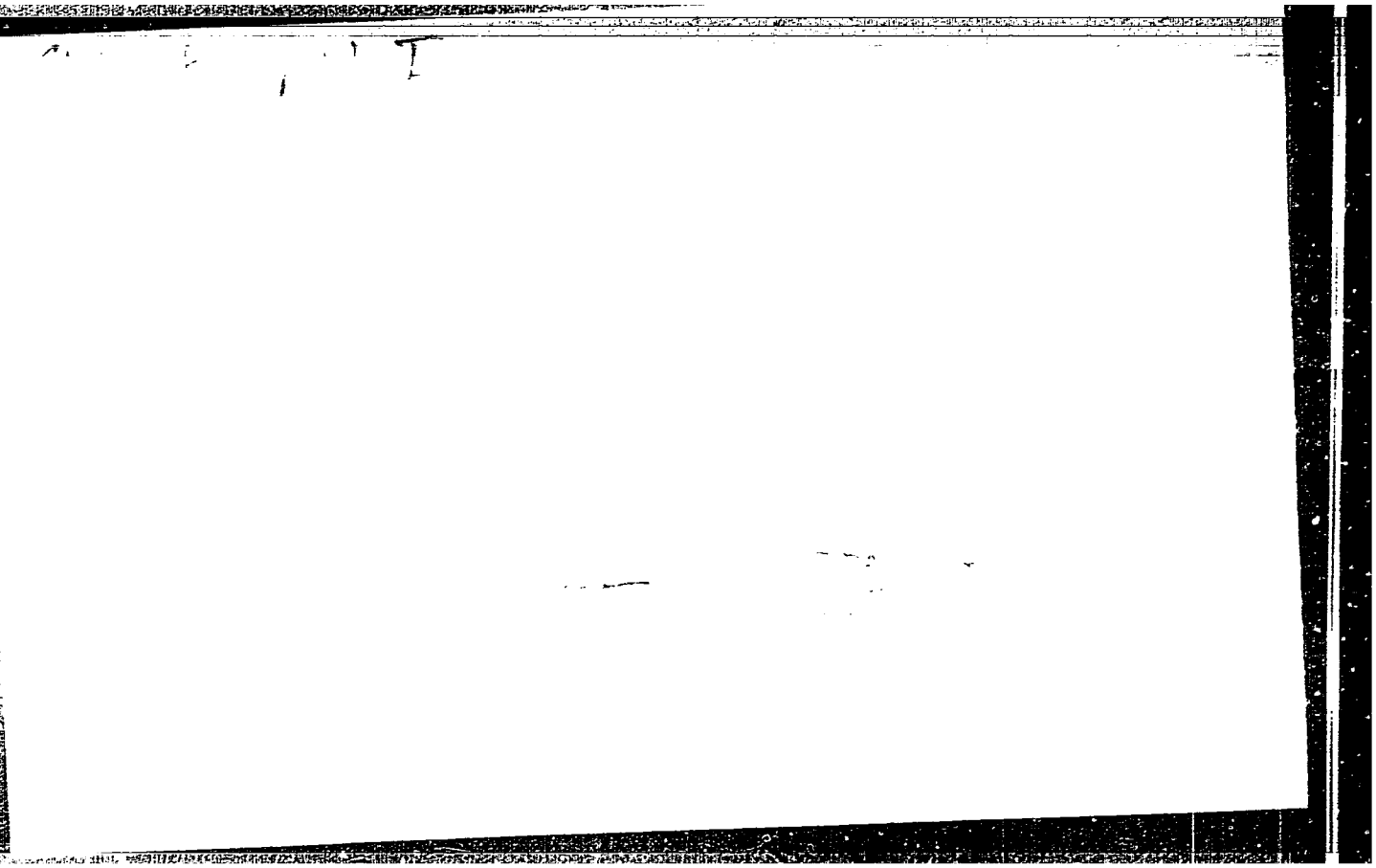
Topics on phase measurements. Zhur.tekh.fiz. 25 no.10:1825-1842 S '55. (MIRA 9:1)
(Electron-tube circuits) (Fluorometry)

BONCH-BRUYEVICH, A.M.; MOLCHANOV, V.A.; SHIROKOV, V.I.

A new phase fluorometer. Izv.AN SSSR Ser.fiz.no.5:596-600 '56.
(Fluorometer) (MLRA 9:9)

SHIROKOV, V.I.

Light emission stabilization of gaseous discharge sources. Izv. AN SSSR.Ser.fiz.no.5:605-607 '56. (MLRA 9:9)
(Electric discharges through gases)



APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549530001-3"

SHIROKOV, V.I.

51-5-5/26

AUTHORS: Kuznetsova, L.A., Sveshnikov, B.Ya. and Shirokov, V.I.

TITLE: On a Diffusion Theory of Fluorescence Quenching in Solutions by Foreign Substances (O diffuzionnoy teorii tusheniya fluorestsentsii rastvorov postoronnimi veshchestvami)

PERIODICAL: Optika i Spektroskopiya, 1957, Vol.2, Nr 5, pp.578-586 (USSR)

ABSTRACT: S.I.Vavilov and his co-workers developed a diffusion theory of fluorescence quenching in solutions by foreign substances. This theory is here applied to study: (a) the dependence of the fluorescence yield and lifetime on the concentration of the quenching substance and the viscosity of the solvent, and (b) the fluorescence decay law of quenched solutions. In the theoretical part the authors, starting from a non-exponential law of fluorescence decay, show that both the yield (B) and the average lifetime (τ) of fluorescence are not proportional to the concentration of the quenching substance. This result does not contradict the Perrin-Vavilov relationship since the latter applies strictly only to the average lifetime of the excited state τ', which is, in general, different from the average lifetime of emission τ. The non-

Card 1/2

SHIROKOV, V. I.

51-5-25/26

AUTHOR: Shirokov, V.I.

TITLE: Effect of Temperature on the Duration of Emission (Luminescence) of Solutions of Certain Dyes. (O vliyanii temperatury na dlitel'nost' svecheniya rastvorov nekotorykh krasiteley)

PERIODICAL: Optika i Spektroskopiya, 1957, Vol.2, Nr 5, pp.678-679 (USSR)

ABSTRACT: This is a complete translation. In 1936 Cram published (Ref.1) results of direct measurements of the lifetime of the excited state (τ) of alcohol solutions of uranin which showed a decrease of τ (by about 25%) on increase of temperature from 0 to 30°. A. N. Sevchenko and T.V. Timofeyeva (personal communication) did not find such a variation in τ determined from yield and polarisation of luminescence quenched by KI. In 1941 L.A.Tumerman (2) published results of direct measurements of τ of alcohol solutions of fluorescein, uranin, eosin, rhodulin orange and rhodamin -G-extra in a wide range of temperatures (room to -107°C).(2)For the first four substances on decrease of temperature Tumerman found a strong increase in phase lag of luminescence with respect to exciting light. In individual cases such lag was greater than 90° (fluorescein at -95°), which is incompatible with an exponential law of luminesc-

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Effect of Temperature on the Duration of Emission (Luminescence) of Solutions of Certain Dyes.

ence decay. To explain these results Tumerman suggested a "dark pause", preceding exponential emission, whose duration increases with lowering of temperature. Tumerman also showed that addition of KI, in quantities which do not cause any noticeable quenching, strongly decreases the "dark pause". This could explain the negative results of Sevchenko and Timofeyeva. From polarisation measurements Tumerman showed that increase of the mean emission lifetime at the expense of the "dark pause" is not accompanied by an increase of concentration depolarization; it follows from this that during the "dark pause" resonance transfer of excitation energy does not occur. Importance of the consequences of the "dark pause" makes it necessary to carry out careful studies of the temperature dependence of luminescence duration in substances in which such a "dark pause" was observed. Absence of observable changes in τ of alkaline solutions of fluorescein in water, glycerin and ethyl alcohol was reported by M.D.Galanin in the temperature range from 0 to 40°C (Ref.3). Rau (Ref.4) obtained practically identical values of τ for alcohol solutions

Card 2/3

SOV/51-5-4-18/21

AUTHOR: Shirokov, V.I.

TITLE: On the Problem of the Nature of Non-Active Absorption on Anti-Stokes Excitation of Fluorescence (K voprosu o prirode neaktivnogo pogloshcheniya pri antistoksovom vozbuzhdenii fluorestsentsii)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 4, pp 478-479 (USSR)

ABSTRACT: The paper was read at the Sixth Conference on Luminescence (Leningrad, February '58). One of the possible reasons for the decrease of fluorescence yield on anti-Stokes excitation is non-active vibrational absorption which competes with absorption by electrons. This reason was suggested by V.L. Levshin (Ref 1) and S.I. Stepanov (Refs 2, 3). The present paper reports a qualitative test of the above suggestion in the case of rhodamine B and uranin solutions. Vibrational absorption in the visible spectrum may only increase with increase of wavelength. Consequently the total (vibrational and electronic) absorption should not decrease more than 50% compared with the absorption at the wavelength ($\lambda_{\frac{1}{2}}$) at which the fluorescence yield has decreased by 50%. Figs 1 and 2 show the absorption spectra of rhodamine B in ethyl alcohol and of two solutions of uranin. Since in each case the absorption at $\lambda > \lambda_{\frac{1}{2}}$ falls by a

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On the Problem of the Nature of Non-Active Absorption on Anti-Stokes Excitation of Fluorescence

factor of 100 or more compared with the value at $\lambda_{\frac{1}{2}}$, the Levshin--Stepanov hypothesis must be abandoned. Jablonski (Ref 6) assumes that the fall in the fluorescence yield is caused by superposition of the fundamental absorption band and the absorption of non-luminescing dimers. In this case absorption in the region of small yields should depend strongly on the concentration of the solutions. Fig 3 shows the absorption spectra of uranin solutions of concentrations 5×10^{-4} and 1×10^{-4} mole/litre. The two absorption curves are practically identical and, therefore, Jablonski's suggestion has to be abandoned as well. The author thanks B. Ya. Sveshnikov for his advice. There are 3 figures and 7 references, 5 of which are Soviet and 2 Polish.

ASSOCIATION: Gosudarstvennyy opticheskiy institut im. S.I. Vavilova (State Optical Institute imeni S.I. Vavilov).

SUBMITTED: March 20, 1958.

Card 2/2 1. Dyes--Fluorescence 2. Dyes--Spectra 3. Fluorescence--Analysis

SOV/120-59-2-15/50

AUTHORS: Bonch-Bruyevich, A.M., Karazin, I.V., Molchanov, V.A., and Shirokov, V.I.

TITLE: An Experimental Model of a Phase Fluorometer (Eksperimental'nyy obrazets fazovogo fluorometra)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 2, pp 53-56 (USSR)

ABSTRACT: This paper was read at the VI Conference on luminescence in Leningrad. The instrument was exhibited at the Brussels Exhibition in 1958. A finalized laboratory model of a new phase fluorometer is described. The phasemeter section has a resolution of 0.1°, which corresponds to 2x10-11 sec at the modulation frequency used. The sensitivity to light is high, and is such that emissions many orders of magnitude weaker than that of fluoresceine in alkali can be measured. Several laboratory fluorometers have been described for measuring fluorescence decay times in the 10-8 - 10-10 sec range, (Refs 1-5). The methods are based on measuring the phase difference φ between the emission and the exciting light. The exponential decay constant τ is related to φ by $2\pi F\tau = \tan \varphi$

Card 1/8

An Experimental Model of a Phase Fluorometer

where F is the modulation frequency. In 1954 the authors designed a phase fluorometer in which many sources of error were eliminated; a phase detector, and other devices to facilitate the measurements, were incorporated (Refs 6-8). The instrument described here has been designed on the basis of four years' experience with the 1954 instrument, and in certain respects differs considerably from that instrument. The instrument consists of two main parts, both of which are built into the same console, namely the optical section and the phasemeter system (Fig 1). The apparatus includes units that supply the phasemeter, control the modulator, feed the amplifiers, etc. The optical system is fitted on a horizontal table and is divided into three sections closed by light-tight covers. The phasemeter system is installed in the vertical rear section; the stabilized supplies (rectifiers, etc) and the modulator unit are fitted in the base of the console. The resolution is about 0.1°. The minimum error of a single measurement of τ for a bright emission (for low noise levels) is less than 2% (apart from systematic errors); the general

An Experimental Model of a Phase Fluorometer

errors are

5% at τ = 10^{-9} to 10^{-8} sec;

10% at τ = 5.10^{-10} to 5.10^{-8} sec;

20% at τ = $2.5.10^{-10}$ to 10^{-7} sec.

The high sensitivity to light enables one to use emissions that are 3-4 orders of magnitude weaker than the emission from a 10^{-4}M solution of fluorscein in alkali. The error increases as the brightness decreases. The light source is a high-pressure mercury arc SVDSh-250 (Fig 2). A diffraction modulator is used to modulate the light flux, for which purpose we have used standing waves generated by a barium titanate plate, (Ref 9) in aqueous ethanol (17%). The plane of the exit slit can be projected in magnified form on a special fluorescent screen (Fig 2) during adjustments; the modulator can thereby be adjusted for visible or ultra-violet light. Instability caused by incorrect beam-splitting (Ref 10) is avoided by inserting filters separately in the two channels. The light entering the sample channel (some 95% of the total output from the

An Experimental Model of a Phase Fluorometer

modulator) enters the middle section of the instrument and strikes either a scatterer or the specimen. The scattered exciting light is used in setting-up; normally the fluorescence is recorded by a photomultiplier (FEU-18, FEU-19, FEU-22 or FEU-25), whose output feeds the specimen channel. The scatterer and the sample are fixed to a moving table. A filter is fitted between the sample and the multiplier to cut out the exciting light. The table is driven by a motor, and can turn or reciprocate. Twelve stops give positions where the table comes to rest. At each stop position a neutral filter is automatically inserted in the exciting beam. These filters are used to match the intensities of the exciting and fluorescence beams roughly, in order to avoid amplitude-dependent phase errors caused by the photomultiplier (Ref 8). These neutral platinum filters are contained in a special holder, and any appropriate number of them can be introduced with the cover of the section closed. The filters are such as to give a maximum attenuation of about 10^4, and to match the intensities to about 20%. The phasemeter system is a symmetrical

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An Experimental Model of a Phase Fluorometer

two-channel one (Fig 3). The signals are amplified at two frequencies (436 and 25 kc/s). The system enables one to select the best operating frequency (6.5±0.15 Mc/s) and to keep it constant within the stability of a quartz oscillator. To this end the frequency of a tunable oscillator (F_1 = 4.018±0.150 Mc/s) is heterodyned with quartz oscillators (F_2 = 2.5 Mcps and F_3 = 2.282 Mc/s) in two mixers. The output from one mixer (F_1+F_2) is fed to the modulator, whilst the output from the second mixer is doubled in frequency (because the light is modulated at a frequency double that of the supply voltage) and is fed to the first mixers in the two channels. The first working frequency is thus $2(F_2-F_3)$, which does not depend on F_1; its stability is determined by the stabilities of F_2 and F_3 only. The second working frequency is correspondingly stable. Any change in phase at one of the inputs is accompanied by an equal change of phase difference at the outputs of the amplifying channels. The quartz oscillators increase the stability of the phase reading and of the calibration of the phase shifters (which work at 25 kc/s) without

Card 5/8

An Experimental Model of a Phase Fluorometer

substantially increasing the complexity. Bridge-type phase-shifters are used; the output voltage is not affected by changes in the phase shift. One channel has an uncalibrated phase-shifter with a total range of 360° (it is used to set the zero on the exciting light); the other channel has three standard decade shifters, with steps of 10°, 1° and 0.1° respectively. These three units provide a shift of 180° in equal steps. A phase-shift cutout is fitted, to remove the shift introduced by these units. The cutout is operated manually or automatically when the zero is being set. In this way ϕ can be measured repeatedly without disturbance to the knobs on the phase-shifters; this improves the convenience and the accuracy. The automatic gain control keeps the signal level constant in parts of the circuit where amplitude-dependent phase errors are most likely (Ref 6). The AGC stages are designed not to produce parasitic phase shifts for input signals within the range 50 μv (threshold) to 50 mV, (Ref 8). The control coefficient of the AGC system is about 5000. The manual gain control is used to prevent overloading

Card 6/8

An Experimental Model of a Phase Fluorometer

on bright emissions. Electronic voltmeters in the AGC circuits indicate the signal levels; these meters are used to equalize the signals in the two channels roughly. There are two output indicators, namely an oscilloscope and a phase-sensitive detector with a meter. The oscilloscope is used only for rough measurements, and to indicate the noise level. The phase-sensitive detector is used as a null indicator. The time-constant and sensitivity of this detector are adjustable; the values are chosen in accordance with the noise level. So far as we are aware, this is the first fluorometer to have reached a finalized laboratory form. D.N. Kaydinov and M.S. Gitman helped in building the apparatus and in designing the phase-meter sections; to them we offer our thanks. We also wish to thank V.P. Kovalev, who did much to help in finalizing the phasemeter design.
This is a complete translation, apart from Fig 3.
There are 3 figures and 10 references, of which 2 are English, 1 is German and 7 are Soviet.

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Figure captions are: Fig 1, general view of the fluorometer. Fig 2, 1) SVDSh-250 lamp, 2) condenser

An Experimental Model of a Phase Fluorometer

system, 3) entrance slit, 4) exit slit, 5) condenser lens, 6) exit lens, 7) modulation cell, 8) fluorescent screen, 9) mirror used to observe diffraction pattern, 10) filter to select exciting wavelength, 11) stop, 12) beam-splitter, 13) scatterer, 14) photomultiplier in channel II, 15) scatterer or specimen, 16) photomultiplier in channel I (sample), 17) moving stage, 18) filter, 19) lens, 20) set of neutral filters.

Card 8/8

ASSOCIATION: Gosudarstvennyy opticheskiy institut (State Optical Institute)

SUBMITTED: June 2, 1958

CHERKASOV, A.S.; Prinimal uchastiye SHIRCKOV, V.I.

Effect of fluorescence quenchers on fluorescence spectra of solutions containing certain derivatives of anthracene and phthalimide in mixed solvents. Dokl. AN SSSR 139 no.3:658-661 Jl '61. (MIRA 14:7)

1. Predstavleno akademikom A.N. Tereninym.
(Anthracene--Spectra) (Phthalimide--Spectra)

S/051/62/012/005/006/021
E075/E136

AUTHORS: Sveshnikov, B.Ya., and Shirokov, V.I.

TITLE: On the dependence of changes of average duration and yield of luminescence in the quenching process on the law of molecular interaction

PERIODICAL: Optika i spektroskopiya, v.12, no.5, 1962, 576-581.

TEXT: The changes in the yield and mean duration of luminescence, during quenching by different types of molecular interaction, were investigated to discover new cases of quenching in solid solutions, connected with the forces manifested at the concentration quenching. The investigation was limited to the case for which the probability of molecular interaction from time t to $t + dt$ is expressed by $kr^{-n} dt$, where n and k are constants, n being the number of excited molecules and r intermolecular distance. It was assumed that all the interaction forces are additive. For the concentration of the quenching molecule $C \rightarrow 0$, the change of the luminescence yield was given by:

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$$\frac{d\frac{B}{B_o}}{dC} : \frac{d\frac{\tau}{\tau_o}}{dC} = \frac{n}{3} \qquad (22)$$

where τ, τ_o, B and B_o respectively are the duration and yields of luminescence in the non-quenched and quenched solutions. For $C \longrightarrow \infty$ the relation is:

$$\frac{\tau}{\tau_o} : \frac{B}{B_o} = \frac{3}{n} \frac{2\frac{n}{3}}{2\frac{n}{3}} \qquad (23)$$

Abstractor's note: the significance of not given .

Using equations (22) and (23) the unknown relations were calculated for different values of n. It was found that with increasing n there is increasing divergence between the values for the mean duration and yield of luminescence and the relation between the tangents of the angles of the slopes for the yield and duration of luminescence curves at the origin of the

Card 2/3

coordinates. Assuming that the intermolecular interaction can be expressed by kr^{-n}, Eq.(22) gives a possibility of determining n from experimental data. Although this cannot be done for a general case, the data given are useful for an approximate evaluation of the molecular interaction law. There is 1 table.

SUBMITTED: April 8, 1961

Card 3/3

45076

S/051/63/014/001/008/031
E039/E192

AUTHORS: Sveshnikov, B.Ya. (deceased), Selivanenko, A.S., Shirokov, V.I., and Kiyanskaya, L.A.

TITLE: Dependence of the quenching of fluorescence by foreign substances on the viscosity of the solution. I. (Theoretical part)

PERIODICAL: Optika i spektroskopiya, v.14, no.1, 1963, 45-48

TEXT: If instead of M. Smoluchowski's hypothesis (Zs. phys. Chem., v.92, 1917, 129) about infinitely large rate of absorption of the differing particles by a sphere, the diffusion equations are solved for the case of spherical symmetry assuming finite and relatively small absorption rates, then the resulting expressions show a good agreement with the experimental curves. Concentration of quenching molecules $c_o = 18 \times 10^{19}$ molecules/cm^3, velocity $W = 209.8$ cm/sec, $R_1 = 5 \times 10^{-8}$ cm, and $R_2 = 2 \times 10^{-8}$ cm, were used to illustrate the above point. Curves showing the dependence of the change in luminescent yield on the concentration of quenching agent calculated from two forms of the decay law for

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Card 2/

ANDREYESHCHEV, Ye.A.; KILIN, S.F.; ROZMAN, I.M.; SHIROKOV, V.I.

Transfer of electron excitation energy in viscous solutions of organic substances. Izv.AN SSSR.Ser.fiz. 27 no.4:533-539 Ap '63. (MIRA 16:4)

1. Fiziko-tekhnicheskiy institut AN Gruzinskoy SSR.
(Fluorescence) (Organic compounds) (Quantum theory)

SVESHNIKOV, B.Ya. [deceased]; SHIROKOV, V.I.; LIMAREVA, L.A.

Mechanism underlying the concentration quenching of the luminescence of solutions of fluorescein, rhodamine, and trypaflavine in glycerine. Izv.AN SSSR.Ser.fiz. 27 no.4: 551-553 Ap '63. (MIRA 16:4)
(Organic compounds) (Luminescence)

VOLKOV, S.V.; LIMAREVA, L.A.; SHIROKOV, V.I.

Ultrahigh-frequency phase fluorimeter. Izv.AN SSSR.Ser.fiz. 27 no.4:558-561 Ap '63. (MIRA 16:4)
(Fluorimeter)

SHIROKOV, V I

Comments on A.M.Samson's article "Quenching of luminescent solutions by foreign substances." Opt. i spektr. 16 no. 4: 696-697 Ap '64. (MIRA 17:5)

BAZILEVSKAYA, N.S.; LIMAREVA, L.A.; CHERKASOV, A.S.; SHIROKOV, V.I.

Fluorometric determination of the lifetime of the excited state of excited dimers (excimers) in anthracene derivatives. Opt. i spektr. 18 no.2:354-356 F '65. (MIRA 1: 4

L 44425-66 EWT(l)/EWT(m)/EPF(c)/EWP(j)/T/EWA(h)/EWA(c) IJP(c) RM
ACCESSION NR: AP5017895 UR/0051/65/019/001/0078/0085
535.372:535.373.3:541.65

AUTHORS: Veselova, T. V.; Limareva, L. A.; Cherkasov, A. S.; Shirokov, V. I.

TITLE: Fluorometric study of the influence of the solvent on the fluorescence spectrum of 3-amine-N-methylphthalimide

SOURCE: Optika i spektroskopiya, v. 19, no. 1, 1965, 78-85

TOPIC TAGS: fluorescence spectrum, light excitation, luminescence, luminor, organic solvent

ABSTRACT: To obtain additional information on the character of the intermolecular interaction influencing the position of the fluorescence spectra, the authors carried out fluorometric measurements of the phase delay of the luminescence light, relative to the exciting light, in narrow spectral sections, covering the entire fluorescent spectrum of solutions of 3-amine-N-methylphthalimide in mixtures of n-heptane + pyridine and n-heptane + n-butanol at 20C, and in pure

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L 4425-66
ACCESSION NR: AP5017895

n-butanol at 20 -- -183C. The fluorometric measurements were carried out with the GOI fluorometer of 1958 (A. M. Bonch-Bruyevich et al., PTE no. 2, 53, 1958) at an exciting-light modulation frequency of 11.2 Mc. The narrow sections of the fluorescent spectra were separated with a UM-2 monochromator. The fluorometric phase in heptane solutions with small addition of pyridine and n-butanol was found to vary over the spectrum. This is attributed to the formation of hydrogen bonds between the molecules of the luminor and the active solvent. A similar phenomenon observed in a butanol solutions is examined over a certain temperature range from the viewpoint of reorientation of the solvent molecules to an equilibrium configuration corresponding to the excited luminor molecule. In the butanol, as the temperature increased from -183 to 20C, the fluorescence spectrum shifted to the red, and a change in the φ phase developed, becoming particularly strong at -70 -- -90C, decreasing with further increasing temperature, and practically disappearing at 20C. In the case of the heptane solution, addition of pyridine shifted the fluorescence spectra to the red and strengthened the dependence of the phase on the frequency. This dependence weakened with increasing pyridine concen-

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ACCESSION NR: AP5017895

3

4455

tration. 'We thank V. V. Zelinskiy for supplying the 3-amine-N-methylphthalimide.' Orig. art. has: 5 figures and 8 formulas.

ASSOCIATION: None

SUBMITTED: 13Apr64 ENCL: 00 SUB CODE: OP, GC

NR REF SOV: 011 OTHER: 001

Card 3/3

UR/0048/65/029/008/1340/1348

AUTHOR: Veselova, T. V.; Limareva, L. A.; Cherkasov, A. S.; Shirokov, V. I.

TITLE: Fluorometric detection and investigation of processes accompanying change of spectral composition of luminescence during its decay [Report, 13th Conference held in July 1964]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 8, 1965, 1340-1348

TOPIC TAGS: phosphorescence, solution property, luminescence spectrum, time constant

ABSTRACT: The fluorometric phase spectra of a number of fluorescent systems were [illegible] with an apparatus and technique that have been described elsewhere (A.M. [illegible], T.V.Karazin, V.A.Mel'nikov, and V.I.Shirokov, Pribory i tekhnika [illegible], 4, 131, 1958) and that allow measurements to be made in a narrow spectral range isolated with a monochromator. The results are presented graphically [illegible] discussed in considerable detail. Measurements were made at three temperatures between 24 and -183°C of the fluorescence of 1,3- and 1,4-dimethyl-9, [illegible]anthracene in alcohol solutions. The results are interpreted in

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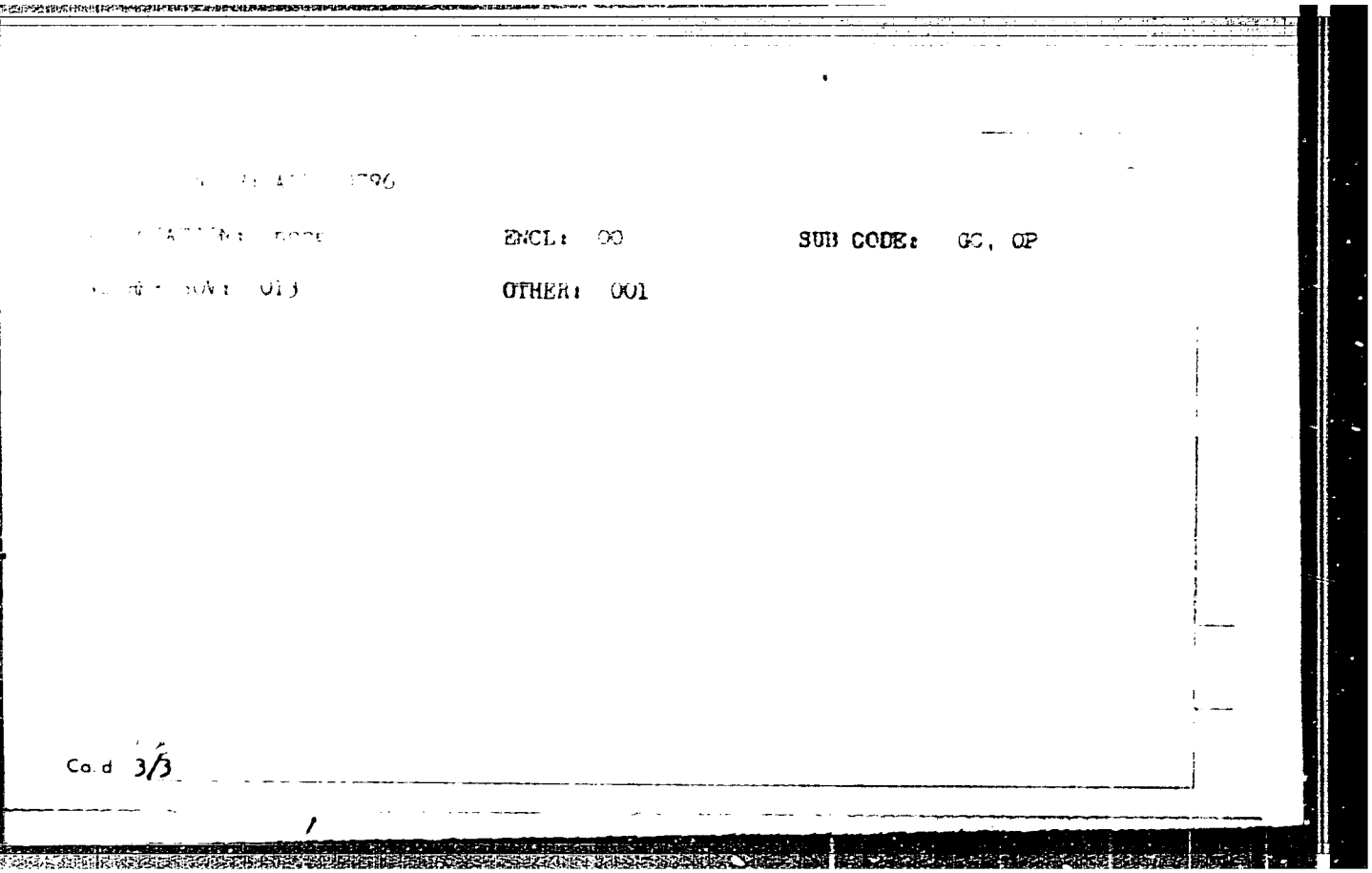
ACCESSION NR: AP5020796

2
1

terms of a four-level excitation scheme. The fluorescence of 2-vinylanthracene in alcohol solution was investigated. The wavelength variation of the fluorometric phase was considerable at 20°C and barely perceptible at - 183°. The results [illegible] consistent with A.S.Cherkasov's interpretation (Dokl. AN SSSR, 146, 852, [illegible] terms of cis - trans transformations. In order to investigate the effect [illegible] measurements were made of the fluorescence of 3-amino- [illegible]. The results [illegible] merely to alter the [illegible] coefficient. When the pyridine was replaced by n-butanol, it was [illegible] interpret the results in terms of a two-component fluorescence spectrum. This is ascribed to the possibility of formation of hydrogen [illegible] between the hydrogen of the amino groups of the 3-amino-N-methylphthalimide [illegible] of the n-butanol, and between the oxygen of each of the carbonyl [illegible] N-methylphthalimide and the hydrogen of the hydroxyl group [illegible]. Art. has: 4 formulas and 7 figures.

Card 2/3



ENCL: 00 SUB CODE: GC, OP

OTHER: 001

Cond 3/3

SHIROKOV, V.I., inzh.; [illegible], G.N., inzh.; KARPYSHEV, M.S., kand. tekhn. nauk

A new semicontinuous heavy-section rolling mill. Stal' 25 no.8: 830-834 S '65. (MIRA 18:9)

SHIROKOV, V.L.

11(4) PHASE I BOOK EXPLOITATION SOV/1492

Moscow. Neftyanoy institut

Voprosy geologii i dobychi nefti (Problems in Geology and Oil Production) Moscow, Gostoptekhizdat, 1958. 282 p. (Series: Its: Trudy, vyp. 22) 1,300 copies printed.

Exec. Ed.: G.F. Morgunova; Tech. Ed.: A.S. Polosina; Editorial Board: K.F. Zhigach, Professor (Resp. Ed.); I.M. Murav'yev, Professor; A.A. Tikhomirov, Candidate of Economical Sciences; V.I. Yegorov, Candidate of Economical Sciences; M.M. Charygin, Professor; F.F. Dunayev, Professor; N.I. Chernozhukov, Professor; Ye.M. Kuzmak, Professor; I.A. Charnyy, Professor; G.M. Panchenkov, Professor; V.N. Dakhnov, Professor; N.S. Nametkin, Doctor of Chemical Sciences; N.A. Almazov, Docent; V.N. Vinogradov, Candidate of Technical Sciences; V.I. Biryukov, Candidate of Technical Sciences; E.I. Tagiyev, Professor; V.M. Gurevich.

PURPOSE: This book is intended for technical personnel in the oil and gas industries, as well as for instructors and advanced students in petroleum

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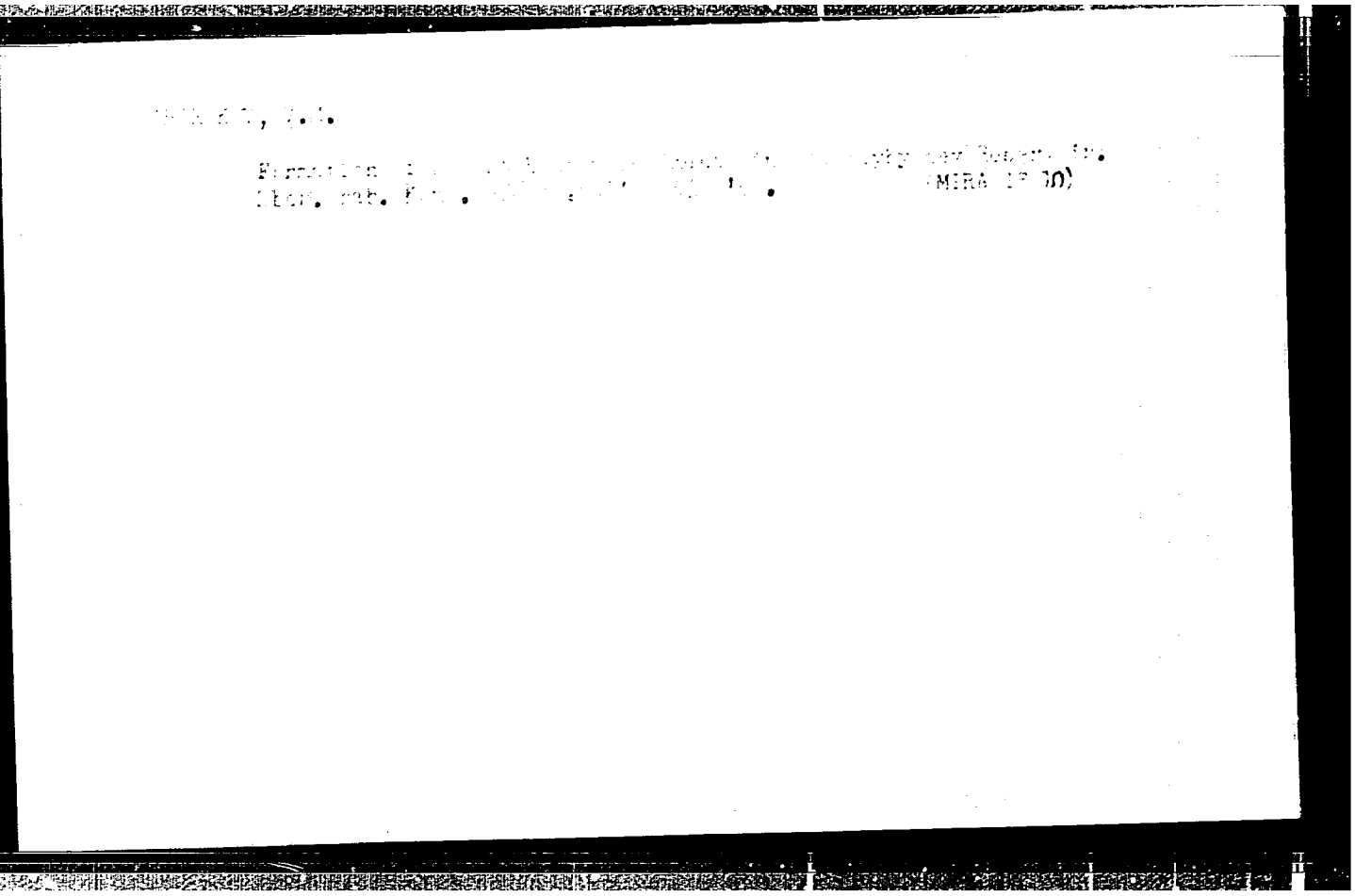
engineering institutes.

COVERAGE: This collection of articles, written by members of the teaching staff of the Moscow Petroleum Institute imeni I.M. Gubkina, is devoted to a discussion of the geology and production of petroleum, particularly as it applies to the Stalingradskoye Povolzh'ye, the Predkavkaz'ye, and the Southeastern part of the Russian Platform. The articles include reports on studies in hydrogeology and geophysics, a discussion of problems in directional drilling, and a review of the methodology of oil displacement (dislodging) in porous media through water drive. The articles are accompanied by diagrams, graphs, tables, and bibliographic references.

TABLE OF CONTENTS:



SHIROKOV, V.M.

Special features of runoff formation in the Sok River basin. Izv. Kazan. fil. AN SSSR. Ser. energ. i vod. khoz. no.1:181-185 '57. (MIRA 11:10)

(Sok Valley--Runoff)

SOV/48-22-9-9/40

AUTHORS: Sveshnikov, B. Ya., Shirokov, Yu. M., Kuznetsova, L. A., Kudryashov, P. I.

TITLE: On the Kinetics of the Quenching of the Fluorescence of Solutions by Means of Foreign Substances (O kinetike tusheniya fluorestsentsii rastvorov postoronnimi veshchestvami)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958, Vol 22, Nr 9, pp 1047 - 1050 (USSR)

ABSTRACT: The method of counting the effective collisions between the molecules of the reacting substances is very important for the theory of the extinction of the fluorescence of solutions as well as for the theory of reactions in the solutions. The work by Vavilov, 1929, (Ref 4) presented the first striking proof that the application of the diffusion theory is possible in the computation of the number of effective collisions in solutions. Nevertheless, Vavilov's formula for the extinction gave no exact quantitative description of this phenomenon. To remove the discrepancy between

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theory and experiment Vavilov and Frank (Ref 5) set up a hypothesis on an additional statistical extinction. In 1935 one of the authors (Ref 6) succeeded in establishing a formula for the extinction which explains the non-linear dependence of the quantity B_o/B on the concentration c of the extinction agent without the assumption of a statistical extinction. This was possible because of a thorough analysis of the kinetics of the diffusion processes taking place around the excited molecule. The good agreement of the theoretical and experimental data validates the non-exponential law of fluorescence extinction and of the diffusion mechanism of the extinction. The experimental data not only prove the diffusion theory of fluorescence extinction by other substances, but also present the first experimental proof for the correctness of the formula by Smolukhovskiy-Kolmogorov-Leontovich (Ref 8). This formula assumes that the rate of diffusion depends on the time which has elapsed since the beginning of diffusion (Brownian movement). There are 2 figures,

On the Kinetics of the **Quenching** of the Fluorescence of Solutions by Means of Foreign Substances SOV/48-22-9-9/40

2 tables, and 8 references, 6 of which are Soviet.

Card 3/3

SHIROKOV, V.M.

Problems in estuary warping of small rivers discharging into Kuybyshev Reservoir. Trudy Kazan. fil. AN SSSR. Ser. energ. i vod. khoz. no.4:22-28 '59. (MIRA 13:8)

1. Komsomol'skaya gidrometeorologicheskaya observatoriya Privolzhskogo upravleniya gidrometeorologicheskoy sluzhby.
(Kuybushev Reservoir--Coast changes)

BOROVKOVA, Tamara Nikolayevna; NIKULIN, Pavel Ivanovich; SHIROKOV, Vyacheslav Mikhaylovich; MIKHEYEV, N.I.; DURASOVA, V.M., tekhn. red.

[The Kuybyshev Reservoir; physical geography]Kuibyshevskoe vodokhranilishche; kratkaia fiziko-geograficheskaia kharakteristika. [By] T.N.Borovkova, P.I.Nikulin, V.M.Shirokov. Kuibyshevskoe knizhnoe izd-vo, 1962. 90 p. (MIRA 16:4) (Kuybyshev Reservoir region--Physical geography)

VENDROV, S.L., red.; NIKULIN, P.I., red.; SHIROKOV, V.M., red.

[Materials of the First Technological Conference for Studying Kuybyshev Reservoir] Materialy nauchno-tekhnicheskogo soveshchaniia po izucheniiu Kuibyshevskogo vodokhranilishcha. Kuibyshev, Komsomol'skaia gidrometeorologicheskaia observatoriia. No.1. 1963. 245 p.
(MIRA 17:7)

1. Nauchno-tekhnicheskoye soveshchaniye po izucheniyu Kuybyshevskogo vodokhranilishcha. 1st, Stavropol'-on-Volga, 1962. 2. Komsomol'skaya gidrometeorologicheskaya observatoriya (for Nikulin, Shirokov). 3. Gosudarstvennyy komitet Soveta Ministrov RSFSR po vodnomu khozyaystvu, Institut geografii AN SSSR (for Vendrov).

ASKEVA, N.P.; GRISHKUN, G.I.; USHAKOVA, A.A., zaveduyushchaya; SHIROKOV, V.N., zasluzhennyy vrach RSFSR, glavnyy vrach; FAYERMAN, I.L., professor, zasluzhennyy deyatel' nauki, direktor.

Two cases of calcified hydatid cyst of rare location. Vest.rent.i rad. no.2:66-67 Mr-Ap '53. (MLRA 6:6)

1. Rentgenologicheskoye otdeleniye Ryazanskoy oblastnoy klinicheskoy bol'nitsy imeni N.A.Semashko (for Askeyeva, Grishkun, Ushakova). 2. Ryazanskaya oblastnaya klinicheskaya bol'nitsa imeni N.A.Semashko (for Shirokov). 3. Kafedra propedevticheskoy khirurgii Ryazanskogo meditsinskogo instituta imeni akademika I.P.Pavlova (for Askeyeva, Grishkun and Fayerman).
(Spleen--Hydatids) (Peritoneum--Hydatids)

OZOLIN, A.K., inzh.; SHIROKOV, V.N., mashinist-instruktor

Answers to readers' questions. Elek. i tepl.tiaga 2 no.4:44-45 Ap '58.
(MIRA 12:3)

1. Depo Likhobory Moskovsko-Okruzhnoy dorogi (for Shirokov).
(Locomotives)

SHIROKOV, Viktor Nikolayevich; BERLYAND, S.S., red.; DYNIN, I.A., red.izd-va; DOBUZHINSKAYA, L.V., tekhn.red.

[Car dumpers and their maintenance] Vagonooprokidyvateli i ikh remont. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1960. 119 p. (MIRA 13:8)
(Railroads--Cars--Maintenance and repair)
(Dumping appliances)

SHIROKOV, V.N.

[Mechanical equipment of coke by-products plants] Mekhanicheskoe oborudovanie koksо-khimicheskikh zavodov. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1953. 310 p. (MLRA 7:6)

(Coke industry--Equipment and supplies)

SHIROKOV, Viktor Nikolayevich, inzhener; SIDOROV, Vladimir Nikolayevich, inzhener; redaktor; EVENSON, I.M., tekhnicheskiy redaktor

[Experience in operating piston compressors] Opyt ekspluatatsii porshnevykh kompressorov. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1954. 125 p. (MLRA 8:4)
(Air compressors)

SOV/137-58-10-20859

Translation from Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 73 (USSR)

AUTHORS Veksin I. N., Grebenik, V. M., Sokolov, L. D., Shirokov, V. N.

TITLE An Investigation of the Bearing Capacity of a Nr 425 Cold-rolling Sheet Mill (Issledovaniye nesushchey sposobnosti listovogo stana 425 kholodnoy prokatki)

PERIODICAL: Izv. vyssh. uchebn. zavedeniy. Chernaya metallurgiya, 1958, Nr 1, pp 160-178

ABSTRACT: The methods and results of measurements of rolling forces, stresses in the housings, and torque moments of the electric motor in cold rolling on a 425 sheet mill. The major measurements were taken on 2 stands. The electrical characteristics were taken simultaneously at 3 stands and the coiler. Measurement of the forces of rolling steel-strip grades 2, 10 SP, 85, 65, E3A, 50, U7A, U10A, 08PS, and 08KP in the cold and hot conditions is made by hydraulic capsules with wire strain gages. The hydraulic capsules are placed only under the left screwdowns (S). Measurement of stresses in the housings is made by wire resistance strain gages at 9 points which are shown by analysis to take the maximum stresses. In

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An Investigation of the Bearing Capacity (cont.)

investigating the electric drives, measurement was made of armature current, field current, and the voltage on the armature of the rolling-mill motors, coilers, and screwdowns. The S stresses do not exceed 80 t, and the stresses in the housings do not exceed the permissible level. The mean stressing of rolling-mill motors in terms of current, moment, and power is 30-50%.

1. Rolling mills--Performance 2. Rolling mills--Electrical properties 3. Rolling mills--Test methods

M.Z.

Card 2/2

BAKLUSHIN, I.L., inzh.; VEKSIN, I.N., inzh.; GREBENIK, V.M., kand.tekhn.nauk, dotsent; LYULENKOV, V.I., inzh.; SARANTSEV, V.P., inzh.; SOKOLOV, L.D., doktor tekhn.nauk, prof.; SHIROKOV, V.N., prof.

Equipment for use with resistance wire transducers. Izv.vys. ucheb.zav.; chern.met. no.6:149-156 Je '58. (MIRA 12:8)

1. Sibirskiy metallurgicheskiy institut. Rekomendovano kafedroy mekhanicheskogo oborudovaniya metallurgicheskikh zavodov Sibirskogo metallurgicheskogo instituta.
(Metallurgical plants--Equipment and supplies)
(Machinery--Testing) (Transducers)

SOKOLOV, L.D., prof., doktor tekhn.nauk; SHIROKOV, V.N., prof.; GREBENIK, V.M., dots., kand.tekhn.nauk; BAKLUSHIN, I.L., inzh.; VEKSIN, I.N., inzh.; LEDENEV, Yu.N., inzh.; SABANTSEV, V.P., inzh.

Investigation of rolling mill stands. Izv.v.ys.ucheb.zav.; chern. met. no.8:135-140 Ag '58. (MIRA 11:11)

1. Sibirskiy metallurgicheskiy institut.
(Rolling mills) (Strains and stresses)

BAKLUSHIN, I.L., inzh.; VEKSIN, I.N., inzh.; GREBENIK, V.M., dotsent, kand. tekhn. nauk; LYULENKOV, V.I., inzh.; SABANTSEVM, V.P.; SOKOLOV, L.D., prof., doktor tekhn. nauk; SHIROKOV, V.N., prof.

Hydraulic calibration of 1500-ton power presses. Izv. vys. ucheb. zav.; chern. met. 2 no.4:113-121 Ap '59. (MIRA 12:8)

1.Sibirskiy metallurgicheskiy institut. Rekomendovano kafedroy mekhanicheskogo oborudovaniya metallurgicheskikh zavodov Sibirskogo metallurgicheskogo instituta.
(Hydraulic presses) (Calibration)

ALEYNIKOV, A.I.; BAKLUSHIN, I.L.; VEKSLIN, I.M.; GREBENIK, V.M.; LYULENKOV, V.I.; SABANTSEV, V.P.; SEREGIN, S.A.; SOKOLOV, L.D.; SHIROKOV, V.N.

Investigating the mechanism of the rotation process of ferroalloy furnace baths. Izv. vys. ucheb. zav.; chern. met. no.8:181-187 '60. (MIRA 13:9)

1. Sibirkiy metallurgicheskiy institut.
(Rotary hearth furnaces) (Iron alloys)

S/148/61/000/006/013/013
E193/E480

AUTHORS: Sokolov, L.D., Shirokov, V.N., Grebenik, V.M., Veksin, I.N., Baklushin, I.L., Lyulenkov, V.I., Sabantsev, V.P.

TITLE: Experimental and analytical determination of forces in cold rolling

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, 1961, No.6, pp.191-193

TEXT: In the course of an earlier investigation carried out by the present authors (Ref.1: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, 1959, 8), large discrepancies were found between the laboratory results and the operational data on forces acting on the rolls during cold rolling. It was revealed, however, in the course of further tests that in many cases the roll chocks had become worn (in some places to a depth of 0.4 mm) and it was postulated that this factor may have affected the load cell readings. In an attempt to find a way of eliminating this source of error, both during the calibration of the load cells and later in use, the effect of lead washere approximately 2 mm thick, placed under the dynamometers, was investigated. Fig.1 shows the

experimental conditions: a - an annular washer supporting the load cell along its periphery; б - a solid washer under the central part of the load cell; в - no washer; г - a solid washer of the size equal to that of the load cell. On the right-hand side of Fig.1, the calibrating force is plotted against the load cell readings; most consistent results were obtained when a large solid washer was used (graph г). The latter method was employed in roll force measurements and the results compared with roll force values, calculated according to A.I.Tselikov and A.A.Korolev (Ref.2: Prokatnyye stany, Metallurgizdat, 1958). The results are tabulated. It will be seen that the difference reached occasionally 30 or even 37%, the experimental values being always lower than the calculated figures. One possible explanation of this effect is provided by the fact that the temperature of cold rolled metal increases. Although the strength of the carbon steels and constructional alloy steels increases on heating between 20 and 400°C, this increase takes place during cold rolling at certain rolling speeds only. According to M.I.Manjoine (Ref.5: Journal of the Iron and Steel, v.150, p.3, VI, 1947, 380),

SOKOLOV, L.D.; SHIROKOV, V.N.; GREBENIK, V.M.; VEKSIN, I.N.; BAKLUSHIN, I.L.; LYULENKOV, V.I.; SABANTSEV, V.P.; KAZANTSEV, A.A.

Investigating stresses in models of steel pouring ladles. Izv. vys. ucheb. zav.; chern. met. 4 no.10:147-156 '61. (MIRA 14:11)

1. Sibirskiy metallurgicheskiy institut.
(Smelting furnaces--Equipment and supplies)
(Thermal stresses--Models)

ALEYNIKOV, A.I.; BAKLUSHIN, I.L.; VEKSIN, I.N.; VOSKRESENSKIY, V.A.; GONCHAROV, O.M.; LYULENKOV, V.I.; SHIROKOV, V.N.

Investigating the throw mechanism of a charging machine on ferroalloy furnaces. Izv. vys. ucheb. zav.; chern. met. 6 no.6:204-208 '63. (MIRA 16:8)

1. Sibirskiy metallurgicheskiy institut.
(Metallurgical furnaces—Equipment and supplies)

BAKLUSHIN, I.L.; VEKSIN, I.N.; LYULENKOV, V.I.; SABANTSEV, V.P.; SOBOLEV, A.P.; SOKOLOV, L.D.; SHIROKOV, V.N.

Analyzing the reserve strength of the 1100 blooming mill stand in the Kuznetsk Metallurgical Combine. Izv. vys. ucheb. zav.; chern. met. 7 no.2:205-212 '64. (MIRA 17:3)

1. Sibirskiy metallurgicheskiy institut.

ACC NR: AT6035485 SOURCE CODE: UR/2572/66/000/012/0072/0084

AUTHOR: Solomin, V. I. (Candidate of technical sciences); Chernyavskiy, O. F. (Engineer); Komov, V. S. (Engineer); Shirokov, V. N. (Engineer)

ORG: None

TITLE: Calculation of a conical shell on a digital computer

SOURCE: Raschety na prochnost'; teoreticheskiye i eksperimental'nyye issledovaniya prochnosti mashinostroitel'nykh konstruktsiy. Sbornik statey, no. 12, 1966, 72-84

TOPIC TAGS: conic shell structure, computer application, thin shell structure, shell theory

ABSTRACT: The authors consider a thin elastic conical shell with a load and thickness which vary arbitrarily along the meridian. It is assumed that temperature varies along the generatrix as well as with respect to thickness. The elastic constants are taken as independent of temperature. The computer program used for solving the problem is based on the method of finite differences combined with the method of initial parameters. The program is compact, taking up only 30% of the operative memory of the "Minsk-14" digital computer. The small size of this program gives potential applicability as a component part of a more general program for calculating structures where one of the elements is a conical shell. Machine time is only about ten minutes for computation of all nodal stresses and displacements for the case of

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ACC NR: AT6035485

120 nodes (240 unknowns). The program is used at the Chelyabinsk Tractor Plant for strength calculations of conical shells. The initial equations are derived and the computational algorithm is given as well as a brief description of the program and a specific example of application. Orig. art. has: 9 figures, 2 tables, 30 formulas.

SUB CODE: ~~20, 12~~ 13/ 09/ SUBM DATE: None/ ORIG REF: 005

Card 2/2

SOV/24-59-2-16/30

AUTHORS: Zhukov, V. N., Pechorina, I. N., Shirokov, V.P. (Sverdlovsk)

TITLE: The Effects of Cavitation on the Dynamic Response of Hydraulic Effector Mechanisms (Vliyaniye kavitatsionnykh rezhimov na dinamicheskiye kharakteristiki gidravlicheskikh ispolnitel'nykh mekhanizmov)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1959, Nr 2, pp 104-108 (USSR)

ABSTRACT: The paper describes some tests done with a hydraulic effector mechanism coupled to an artificial load, in which the inertial and positional components can be adjusted largely independently (Fig 1). The pressure is measured with an induction transducer, and the position of the load is indicated by a potentiometer indicator. Fig 2 shows details of the cylinder and valve system used with the effector mechanism. The equations below this figure are written on the assumption that the liquid is incompressible, that the output of the pump does not depend on the pressure, and that the mass of the piston can be neglected. These equations are discussed in a general way in relation to the conditions under which cavitation bubbles can appear; the main one is that the piston somehow acquires a high speed, principally on account of the action of external forces, or of sudden

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The Effects of Cavitation on the Dynamic Response of Hydraulic Effector Mechanisms

reversal of the motion when the piston is far from the neutral position (the position in which the spring exerts no force on the piston). The last two pages of the paper show oscillograms of the pressure p and position y taken with electromagnetically controlled valves. Fig 3 shows the response to a step perturbation applied to the piston, Fig 4 the response when the current to the valves is reversed (at 8.5mA) Fig 5 the same when the current is 29 mA, and Fig 6 the same when the current is 15 mA (in the last case the initial velocity was different from zero). In all cases τ denotes the time for which the cavitation bubbles are present. The last section deals briefly with the changes in the equations to be used during the time that cavitation bubbles are present; the last equation states the condition under which cavitation will occur. The paper contains 6 figures and 3 Soviet references.

SUBMITTED: November 17, 1958.

Card 2/2

ACC NR: AP6027232 SOURCE CODE: UR/0109/66/011/008/1369/1379

AUTHOR: Shirokov, V. V.; Loginov, V. A.

ORG: none

TITLE: Effect of noise and signal fluctuation on a goniometric system

SOURCE: Radiotekhnika i elektronika, v. 11, no. 8, 1966, 1369-1379

TOPIC TAGS: radar, goniometer, signal noise separation

ABSTRACT: The effect of noise and signal-amplitude fluctuation on a noncoherent tracking radiogoniometer having instantaneous signal-amplitude comparison is theoretically analyzed. The effect of AGC-system on the fluctuation and dynamic errors is also evaluated. These conclusions are reported: (1) The fluctuation error can be reduced by narrowing the effective goniometer band and by raising the AGC-system inertia; (2) The fluctuation error substantially depends on the noise modulation which is caused by random variations of the receiver gain (when the AGC-system responds to signal-amplitude fluctuation); the better the AGC-system response to the fluctuation, the deeper the noise modulation that takes place; (3) The dynamic error

UDC: 621.391.822

ACC NR: AP6027232

can be reduced by widening the goniometer band and by reducing the AGC-system inertia; (4) The final selection of the goniometer band and AGC-system inertia should be made as a compromise between the fluctuation and dynamic errors; (5) As the signal-to-noise ratio increases, the fluctuation error decreases, and the dynamic error begins playing a major role; hence, in this case, widening the band and reducing AGC-system inertia is advisable, and introduction of time-constant-stabilizing nonlinearities into the AGC feedback loop is undesirable; (6) Other things being equal, the maximum fluctuation and dynamic errors occur when the amplitude fluctuation has a narrow band as compared to the goniometer band. Orig. art. has: 7 figures and 50 formulas.

SUB CODE: 17, 09 / SUBM DATE: 26Mar65 / ORIG REF: 002 / OTH REF: 003

Card 2/2

SHIROKOV, Yevgeniy Petrovich, kand. sel'khoz. nauk; SABUROV, N.V., prof., red.; VASIL'YEVA, Ye., red.; KUZNETSOVA, A., tekhn. red.

[Storing cabbage]Khranenie kapusty. Pod red. N.V.Saburova. Moskva, Mosk. rabochii, 1961. 66 p. (MIRA 15:12)
(Cabbage--Storage)

SHIROKOV, V.V., inzhener.

Erecting gasholders by the roll method. Nov.tekh.i pered.op.v stroi. 19 no.10:21-22 O '57. (MIRA 10:11)
(Gasholders)

9.2510

77773
SOV/109-5-2-6/26

AUTHOR: Shirokov, V. V.

TITLE: Action of AM Signal on a Two-Loop System of Automatically Regulated Amplification

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol 5, Nr 2, pp 218-223 (USSR)

ABSTRACT: It is required that the receiver should maintain a uniform average output signal level even when the power of the input signal fluctuates over a wide range; it is further required that the signal envelope remain undistorted in some channels and that it can be demodulated in other channels. These demands are met by a system of two-loop amplifiers as shown in Fig. 1. The article derives an integral equation describing the processes in this system in a steady state. This equation permits solution for the signal envelope spectrum at the output by the method of successive approximations. Passage of a signal with a sinusoidal envelope through the receiver is

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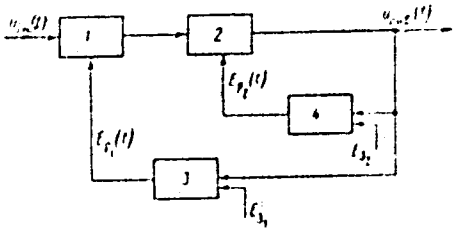

Fig. 1. Two-loop automatically regulated amplifier system: (1,2) regulated amplifiers; (3,4) feedback circuits.

analyzed in detail, permitting the selection of parameters for an automatically regulated amplifier featuring a minimum distortion of the sinusoidal envelope of the signal containing the information (1) Characteristics of AM Signal at the Output of a Receiver Having a Two-Loop System of Automatically Regulated Amplication: Considering the great inertia of the latter, the amplitude of the input signal is taken as input disturbance, even if it is in the shape of pulses. Feedback circuits are assumed linear with reference to the signal envelope,

meaning that the feedback detector is either free of inertia or equivalent to an inertial linear circuit of the envelope. These assumptions are usually well founded. Output signal $U_{out}(t)$ relation to input signal $U_{in}(t)$, and regulation voltages $E_{p1}(t)$ and $E_{p2}(t)$ are expressed by the equation

$$U_{out}(t) = U_{in}(t)|k_1 - b_1 E_{p1}(t)||k_2 - b_2 E_{p2}(t)|, \qquad (1)$$

where k_1 and b_1, k_2 and b_2 are parameters of the approximated regulating characteristics of first and second amplifiers. The second signal is presented as Fourier integral

$$U_{in}(t) = A + \frac{1}{2\pi}\int_{-\infty}^{\infty} a(\omega)\, e^{j\omega t} d\omega. \qquad (2)$$

Here A and a (ω) are the average value and the spectrum

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[illegible] component of the input perturbance, [illegible]. Then the output voltage can be written as

$$U_{out}(t) = \frac{1}{2\pi}\int_{-\infty}^{\infty} C(\omega)\, e^{j\omega t} d\omega. \qquad (3)$$

[illegible] regulating voltages are

$$\left.\begin{aligned} E_{p1}(t) &= \frac{k_{01}}{2\pi}\int_{-\infty}^{\infty} C(\omega)\, H_1(\omega)\, e^{j\omega t} d\omega - k_{01}E_{d1} \\ E_{p2}(t) &= \frac{k_{02}}{2\pi}\int_{-\infty}^{\infty} C(\omega)\, H_2(\omega)\, e^{j\omega t} d\omega - k_{02}E_{d2} \end{aligned}\right\} \qquad (4)$$

where $k_{01}H_1(\omega)$ and $k_{02}H_2(\omega)$ are transmission coefficients of the feedback circuit, $H_1(0) = H_2(0) = 1$, and E_{d1} and E_{d2} are delay voltages. By substituting (3) and (4) into (1) a nonlinear integral equation is obtained, the solution of which is sought in a series of consecutive approximations

$$C(\omega) = C_0(\omega) + C_1(\omega) + C_2(\omega) + \ldots$$

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the zero-th approximation for m $\leq$ 1 is

$$C_0(\omega) = F(\omega)[2\pi A\delta(\omega)(k_1 + b_1k_{01}E_{01})(k_2 + b_2k_{02}E_{02}) +$$

$$+ k_{01}k_{02}b_1b_2A\frac{1}{2\pi}\int_{-\infty}^{\infty} C_0(s)\,C_0(\omega - s)\,H_1(s)\,H_2(\omega - s)\,ds]. \qquad (6)$$

Since the output signal for m $\leq$ 1 is constant, (6) is transformed into

$$C_0(\omega) = k_{cp}2\pi A\delta(\omega), \qquad (8)$$

where K_{cp} = D/A is mean coefficient of amplification of the receiver and D can be found from

$$b_1b_2k_{01}k_{02}AD^2 - (1 + Ab_1k_2k_{01} + Ab_2k_1k_{02} + Ab_1b_2E_{01}k_{01}k_{02} +$$
$$+ Ab_1b_2E_{02}k_{01}k_{02})D + A(k_1k_2 + b_1k_2k_{01}E_{01} + b_2k_1E_{02}k_{02} +$$
$$+ b_1b_2E_{01}E_{02}k_{01}k_{02}) = 0.$$

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Formulas for the first and second corrections $C_1(\omega)$ and $C_2(\omega)$ to $C_0(\omega)$ are given further. For most cases it is not needed to go beyond the first two corrections. The above mentioned solution is applied by the author for the practival case of sinusoidal modulation of a signal. The input signal is

$$U_{in}(t) = A(1 + m\cos\omega_0 t). \quad (12)$$

Then the spectrum of the variable component of the input signal will be

$$c(\omega) = Am\pi[\delta(\omega + \omega_0) + \delta(\omega - \omega_0)]. \quad (13)$$

It is obvious that

$$U_{out}(t) = \frac{1}{2\pi}\int_{-\infty}^{\infty} C(\omega)e^{j\omega t}d\omega = U_{out_0}(t) + U_{out_1}(t) + U_{out_2}(t) + \ldots \quad (14)$$

where

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$$U_{вых}(t) = \frac{1}{2\pi} \int_{-\infty}^{\infty} U_{вх}(\omega) e^{j\omega t} d\omega = k_{ус} A_1 \qquad (15)$$

In accordance with (15) and (14),

$$U_{вых1}(t) = \frac{1}{2\pi} \int_{-\infty}^{\infty} U_{вх}(\omega) e^{j\omega t} d\omega = A_1 k_{ус} \operatorname{Re}[H_1(\omega_0) e^{j\omega_0 t}]$$

or

$$U_{вых1}(t) = A_1 k_{ус} [\operatorname{Re}[H_1(\omega_0)]^2 + \operatorname{Im}[H_1(\omega_0)]^2] \cos(\omega_0 t + \varphi_1). \qquad (16)$$

where

$$\varphi_1 = \operatorname{arctg}\left[\frac{\operatorname{Im}[H_1(\omega_0)]}{\operatorname{Re}[H_1(\omega_0)]}\right]$$

These formulas can be used for calculating the distortion of the modulation depth and phase of the signal envelope at the output of the receiver with a two-loop automatically regulated amplification. Formulas for determining the second correction (constant and variable components) are given:

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$$U_{out\,2}(t) = \frac{1}{2\pi}\int_{-\infty}^{\infty} C_2(\omega)\, e^{j\omega t} d\omega = U_{2const} + U_{2pr} \qquad (17)$$

where

$$U_{2const} = \frac{Am^2N_1}{2k_{01}} F(0)\,\mathrm{Re}\,[H_{p1}(\omega_0)] + \frac{Am^2N_2F(0)}{2k_{02}}\,\mathrm{Re}\,[H_{p2}(\omega_0)] +$$

$$+ \frac{A^2b_1b_2m^2}{2} F(0)\,\mathrm{Re}\,[H_{p1}(\omega_0)\,H^*_{p2}(\omega_0)]$$

The variable component is

$$U_{2pr} = \frac{Am^2N_1}{2k_{01}}\,\mathrm{Re}\,[H_{p1}(\omega_0)\,F(2\omega_0)\,e^{2j\omega_0 t}] +$$

$$+ \frac{Am^2N_2}{2k_{02}}\,\mathrm{Re}\,[H_{p2}(\omega_0)\,F(2\omega_0)\,e^{2j\omega_0 t}] +$$

$$+ \frac{b_1b_2A^2m^2}{2}\,\mathrm{Re}\,[H_{p1}(\omega_0)\,H_{p2}(\omega_0)\,F(2\omega_0)\,e^{2j\omega_0 t}]$$

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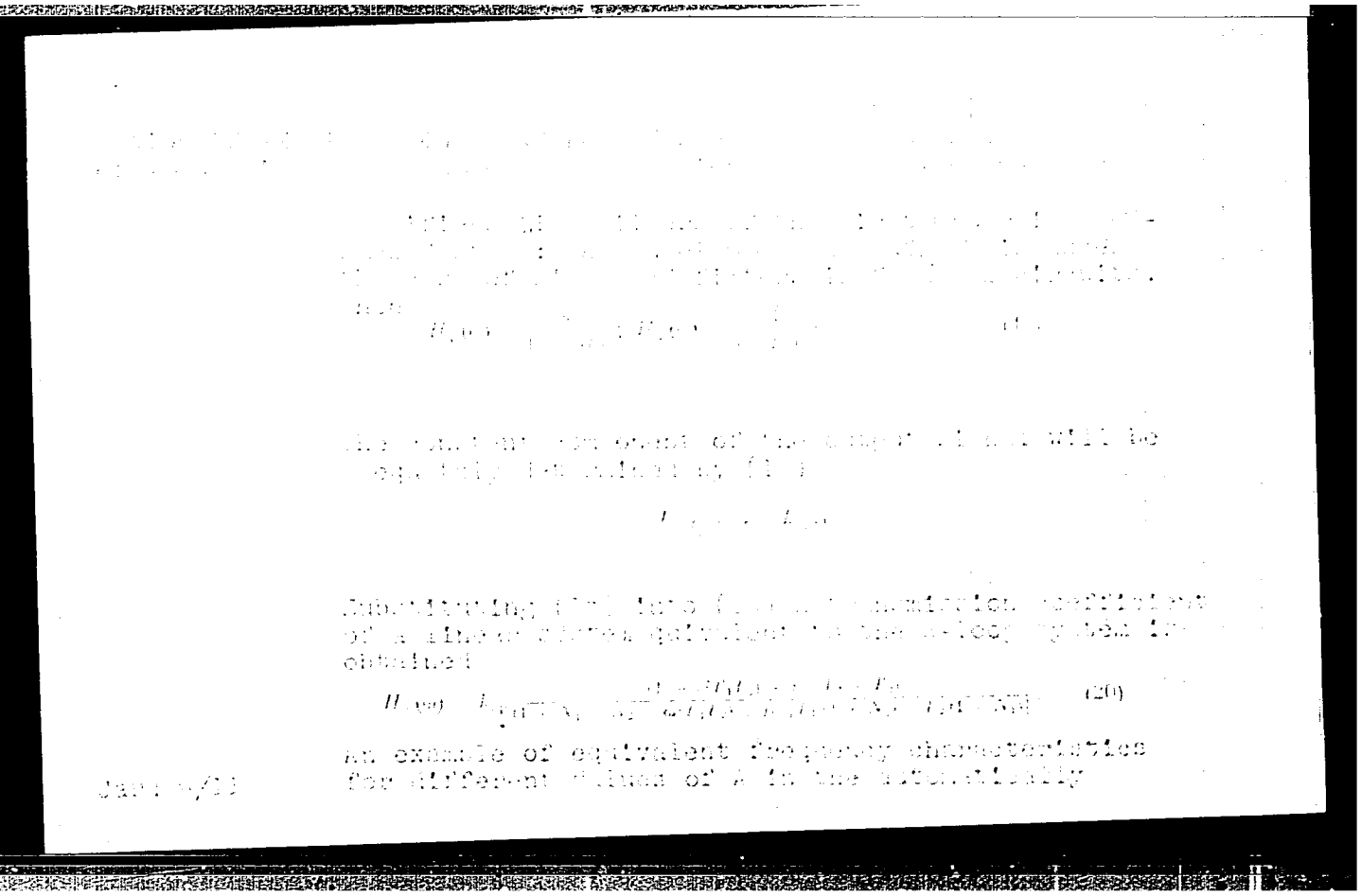
(2) Distortion of the Sinusoidal Envelope of a Signal by a Two-Loop System of Automatically Regulated



An example of equivalent frequency characteristics for different values of α in the bilinear

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regulated amplifying system is shown in Fig. 2.

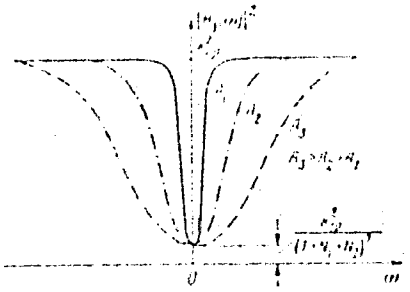

Fig. 2. Equivalent frequency characteristics of an automatically regulated amplifying system.

The depth of sinusoidal modulation is determined from (16), and (19), and (20) as

$$m_{out} = m \frac{\left|(1+\gamma_1 T_1)(1+N_2-\gamma_2 T_2)+N_1(1-\gamma_2 T_2)\right|}{\left|1+N_1+N_2-\gamma_1 T_1 \gamma_2 T_2\right|}$$

$$\cdot \frac{\left|N_1 T_1(1+\gamma_2 T_2)+N_2 T_2(1-\gamma_1 T_1)\right|}{\left|\gamma_1 T_1(1+N_1+N_2)\right|} \qquad (21)$$

while the phase of the sinusoidal envelope at the output will differ from that at the input by

$$\varphi_1 = \operatorname{arc\,tg}\left[-\frac{N_1\omega_0 T_1(1+\omega_0^2/T_2^2)+N_2\omega_0 T_2(1+\omega_0^2/T_1^2)}{(1+\omega_0^2/T_1^2)(1+N_2+\omega_0^2/T_2^2)+N_1(1+\omega_0^2/T_2^2)}\right]. \qquad (22)$$

If necessary, amplitude and phase of the second harmonic can also be calculated. There are 2 figures; and 2 Soviet references.

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AUTHOR: Shirokov, V. V.

TITLE: Effect of interferences upon a two-channel receiving system with automatic gain control

PERIODICAL: Elektrosvyaz', no. 1, 1961, 16 - 23

TEXT: Two-channel receiving systems with automatic gain control (AGC) being used nowadays for measuring angular coordinates, are subjected to severe conditions as regards the identity of the characteristics of the two channels. In the present article, the author analyzes the effect exerted on such systems by signal fluctuations and by interferences modulated according to a random law. Using formulae and equations already obtained by him for the first channel of the system, where the AGC circuit is closed, (Ref. 1: Shirokov, V. V. and Repin. V. G., Radiotekhnika, No. 4, 1959), he proceeds now to similar calculations for the second channel, where the AGC circuit is open. The comparative investigations of the result enable him to calculate the characteristics of the random process at the output of the channels, to determine their dependance upon the

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AGC parameters (and consequently to choose these parameters) and to estimate the effect of the non-identity of the adjusting characteristics of the channels. In his calculation involving Fourier integrals, the author solves a set of equations for output voltage spectra and obtains formulae for the mathematical expectation and for the spectral density of the output voltage. As a result of this theoretical analysis, the author comes to the following conclusions: 1) - With respect to the transmission of the envelope of the signal, the AGC system is, in the first approximation, equivalent to a linear system the transmission factor of which is determined by the formula:

$$H'_{eq}(\omega) = \frac{K'_{cp}}{1 + \mu Ab'K_1 H(\omega)} \qquad (15)$$

for the first channel, and by the formula

$$H_{eq}(\omega) = K_{cp} \frac{1 + \mu AK_1 H(\omega)\left(b' - b\frac{K'_{cp}}{K_{cp}}\right)}{1 + \mu Ab'K_1 H(\omega)} \qquad (20)$$

for the second channel. [Abstracter's note: Subscript eq (equivalent) is the translation of the original э.] 2) - The mean values of signals at the output of the channels are independent of the random component of the input voltage. If only mean output signal values are considered, it is sufficient to maintain equal (by additional adjustments) their average amplification factors within the whole range of variations of the input signal amplitude. 3) - Even if steps are taken to equalize the mean amplification factors of the channels, the fluctuation components of the output voltages may still differ considerably on account of the non-identity of the adjusting characteristics. The smaller the inertness of the AGC system, the greater will be this difference. There are 2 figures and 4 Soviet-bloc references.

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SHIROKOV, V.V.

Effect of signal fluctuations on a receiver with AGC.
Radiotekh. i elektron. 6 no.9:1452-1459 S '61.
(MIRA 14:8)
(Radio—Receivers and reception)

BAKUT, P.A.; BOL'SHAKOV, I.A.; GERASIMOV, B.M.; KURIKSHA, A.A.; REPIN, V.G.; TARTAKOVSKIY, G.P., prof.; SHIROKOV, V.V.; ALEKSANDROVA, A.A., red.; BELYAYEVA, V.V., tekhn. red.

[Problems of the statistical theory of radar] Voprosy statisticheskoi teorii radiolokatsii. [By] P.A.Bakut i dr. Pod obshchei red. G.P.Tartakovskogo. Moskva, Sovetskoe radio. Vol.1. 1963. 423 p. (MIRA 16:5)
(Radar)

BAKUT, P.A.; KOL'SHAKOV, I.A.; GERASIMOV, B.M.; KURIKSHA, A.A.; KEPIN, V.G.; TARTAKOVSKIY, G.P., prof.; SHIROKOV, V.V.; ALEKSANDROVA, A.A., red.

[Problems in statistical radar theory] Voprosy statisticheskoi teorii radiolokatsii [sy] P.A.Bakut i dr. Moskva, Sovetskoe radio. Vol.2. 1964. 1078 p. (MIA 17:9)

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Bakut, P. A.; Bol'shakov, I. A.; Gerasimov, B. M.; Kuriksha, A. A.; Repin, V. G.; Tartakovskiy, G. P.; Shirokov, V. V.

Problems of the statistical theory of radar (Voprosy statisticheskoy teorii radiolokatsii), v. 2., Moscow, Izd-vo "Sovetskoye radio", 1964, 1078 p. illus., biblio., index. Errata slip inserted. 6,000 copies printed.

TOPIC TAGS: radar, statistical theory

PURPOSE AND COVERAGE: The second volume of the book is devoted to the theory of radar measurements and problems of target resolution. A general theory of radar measurements is developed which contains the analysis of tracking and nontracking measurement systems, linear and nonlinear, and the synthesis of optimal systems of measuring the motion parameters of targets which change over time and their combinations. On the basis of this theory, the book presents an analysis and synthesis of long-range systems, systems of speed measurement, and angular measurement systems. Coherent and incoherent signals are investigated. In considering the problems of target resolution, the possibility of resolving reflected signals is studied and optimal receivers in this respect are found. Optimal resolution systems in detection and measurement of

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coordinates are also investigated. The book is intended for researchers and engineers concerned with problems of radar and for students and graduate students. Many problems of the general theory are also of interest to those concerned with theoretical problems in all fields based on the theory of statistics, particularly in automatic control.

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KAZAKOV, M.P.; VASIL'YEV, Yu.M.; SHIROKOV, V.Ya.

Development of concepts on the tectonics of Ciscaucasia and the southern boundary of the Russian Platform. Trudy MNI no.22:29-62 '58. (MIRA 12:4)

(Russian Platform--Geology, Structural)
(Caucasus, Northern--Geology, Structural)

SHIROKOV, V.Ya.

Tectonic pattern of the southern margin of the Tajic Depression. (MIRA 15:6)
Trudy MINKHiGP no.36:152-175 '62.
(Tajic Depression--Geology, Structural)