

ISAKOVA, R.A.; UGRYUMOVA, L.Ye.; CHELOKHSAYEV, L.S.

Rapidity of volatilization of lead and zinc sulfides in vacuum.
Trudy Inst.met.i obog. AN Kazakh.SSR 11:150-159 '64.

(MIRA 18:4)

TILYUPO, G.A.; CHELOK'YAN, N.D.; KOCHINA, A.I.

Studying high-boiling fractions of the Il'skiy oil. Izv.
vys.uчеб.sav.; neft' 1 gaz 2 no.9:63-69 '59.

(MIRA 13:2)

1. Groznenskiy neftyanoy institut.
(Il'skiy region--Petroleum--Refining)

STROITSKIY, V.N.; CHELOK'YAN, R.S.

Magnetic locators of couplings and their use in shooting
drilling tools. Neft. khoz. 38 no.9:39-42 S '60.

(MIRA 13:9)

(Oil well drilling--Equipment and supplies)

S/169/62/000/012/035/095
D228/D307

AUTHOR: Chelok'yan, N.S.

TITLE: Development of a one-channel radioactive well logging instrument for servicing wells with temperatures of up to 250°C

PERIODICAL: Referativnyy zhurnal, Geofizika, no.12, 1962, 49, abstract 12A596 (In collection: Yadern. geofiz. pri poiskakh polezn. iskopayemykh, M., Gostoptekhzdat, 1960, 117-123)

TEXT: Results are stated for the development of a radioactive logging instrument that can work up to 250°C. The heat stability of the parts of a factory-produced radioactive logging instrument was checked, parts capable of working up to 270-300°C were chosen, the circuit of the instrument was worked out, and its individual units were finished off. The assembly-circuit of the instrument includes a high-voltage generator, a high-voltage rectifier and stabilizer, radiation indicators, and a pulse amplifier. The

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high-voltage generator is connected up like a high-frequency generator on a 6Ж1П (6Zh1P) tube. The circuit windings are wound with ПЭЛШО-0,1 (PELSHO-0.1) wire, treated with alkyd enamel. The rectifier is connected up on the half-wave principle on a 1Ц11П (1Ts11P) tube; it is stabilized by means of a СГ 9С (SG9S) stabilatron. Specially chosen counters of the СИ -4Г (SI-4G) type, capable of working to 250°C, are used as radiation detectors. The pulse amplifier is assembled on a 6Ж1П tube in a triode connection. ФТ - (FT-) type capacitors and МЛТ- (MLT-) type resistances are used in the circuit. Type ТМ-250 (TM-250) wire was employed for assembling purposes. Laboratory and well tests demonstrated the reliable performance of the instrument. ✓

[Abstracter's note: Complete translation]

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ЧЕЛОМБИТ'КО, П.К.

118-58-4-11/23

AUTHORS: Volkov, I.G., and Chelombit'ko, P.K., Engineers

TITLE: New Transloading Equipment at Sea Ports (Novaya tekhnika peregruzochnykh rabot v morskikh portakh)

PERIODICAL: Mekhanizatsiya Trudoyemkikh i Tyazhëlykh Rabot, 1958, ¹²№ 4, pp 28-30 (USSR)

ABSTRACT: Loading and unloading operations at sea ports are not yet, or only partly, mechanized. This refers mostly to the handling of loose freight and goods in packets inside ship holds and railroad cars. The tsentral'nyye proyektno-konstruktor-skiye byuro (The Central Design-Construction Departments) of the Ministerstvomorskogo flota (Merchant Marine Ministry) are developing new machines and mechanisms for the complex mechanization of loading operations at sea ports. The authors give a detailed description of the following loading mechanisms: 1) the PTS-1 coal loader, designed by Engineer N.T. Sergel', with a capacity of 350 tons per hour; 2) the PTS-2 for the loading of ships with a capacity of 100 tons per hour; 3) the PTS-4, designed by the TSPKB-4, for the loading of 50% manganese ore; 4) the PTB-2, designed by the TSPKB-3,

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for the loading of iron ore, bauxites, etc. into ship holds, with a capacity of 150 tons per hour; 5) the TsPKB-3 designed a scraper grab crane with a lifting capacity of 10 tons; 6) the PSG-200, designed by the TsPKB-3, with a capacity of 200 tons per hour (the loader has been designed particularly for the loading of manganese ore); 7) the bulldozer BMT-1, designed by the TsPKB-4, for the scraping of loose freight in ship holds, has a capacity of about 30 tons per hour; 8) the TsPKB-3 has designed (Initiator Engineer D.B. Spektor) a fork lift with a lifting height of 4.5 meters, to be used in ship holds; 9) for use inside railroad cars, the TsPKB has designed a fork lift with a lifting height of 1.5 meters and a load capacity of 1.5 tons. There are 6 figures.

AVAILABLE: Library of Congress

Card: 2/2 **1. Cargo-Handling-Equipment**

CHELOMBIT'KO, V.A.

KACHER, V.A.; TIMCHUK, A.I.; CHELOMBIT'KO, V.A.

A hard alloy for the rough boring of bushings. Avt. trakt. prom.
no.12:6a-b D '53.

(MLRA 6:12)

(tungsten alloys)

CHELOMBIT'KO, V.A.

KACHER, V.A., inshener; CHELOMBIT'KO, V.A., inshener.

Use of mineral-ceramic bushings in the manufacture of wire rope. Vest.
wash. 33 no.11:91-92 N '53. (MIRA 6:12)

(Wire rope)

AUTHOR: Chelombit'ko, V.I.

SOV/106-59-7-4/16

TITLE: Mutual Interference of Combination Frequencies

PERIODICAL: Elektrosvyaz', 1959, Nr 7, pp 26 - 32 (USSR)

ABSTRACT: When transmitters are in close proximity, voltages at the fundamental frequencies and harmonic frequencies of adjacent transmitters occur at the anodes of the output stages. Experimentally obtained graphs of these voltages, measured on the anodes of the output stages of u.s.w. transmitters, are shown in Figure 1 as a function of the spacing between the transmitters. To ensure high efficiency, the output stages operate under non-linear conditions. Due to this non-linearity, combination frequencies are formed and also combinations with the frequencies of adjacent transmitters. The amplitudes of the anode current combination-frequencies components are given by:

$$I_{a \text{ KOM}6} = D_3 \sum_{n=2}^R \frac{a_n^{n!}}{2^{n-1} \eta_1! \eta_1!} U_{gm}^{n-1} U_p$$

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Mutual Interference of Combination Frequencies SOV/106-59-7-4/16

which shows that the amplitudes of the components of the anode current are determined by:

- 1) the equivalent admittance of the valve - D_3 ;
- 2) the output stage grid voltage U_{gm} and the amplitude U_p of one of the voltages produced at the anode of the same valve;
- 3) the non-linearity of the volt-ampere characteristic (a_n and n);
- 4) η_1 and η_1' are any pair of natural numbers, the sum of which equals $n - 1$.

Analysis of the effect of these factors on the values of the amplitudes of the combination frequencies enables the following conclusions to be made.

A) Increase in the equivalent admittance of the valve leads not only to increase in the amplitudes of the existing combination components but also to the appearance of new combination frequencies in the anode current. These components

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Mutual Interference of Combination Frequencies

are negligible for small values of D .

B) The presence of very high voltage U_{gm} is one of the root causes of the formation of combination frequencies.

C) The number and strength of the combination frequencies increases with increase in the non-linearity of the valve characteristic.

The antenna circuits are often tuned by DC switching apparatus, in the circuit of which is a semiconductor or vacuum diode. In some radio stations, the amplitude modulation in the transmitter is checked by using a diode connected into the antenna circuit. With close spacing of the radio stations, on these diodes there appear, as well as the fundamental operating frequencies and harmonics of the given transmitter also voltages at the frequencies and harmonic frequencies of neighbouring transmitters. As a result, combination frequencies occur in the diode current. The amplitude of the current can be expressed in the form:

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$$I_k = AU_k^{n-m} U_p^m .$$

U_k and U_p are the amplitudes of voltages, the frequencies of which form a given combination: U_k is the amplitude of the transmitter frequency voltage, U_p is the amplitude of the voltage of the "picked-up" oscillation. The indices $n-m$ and m indicate the degree of non-linearity of the diode characteristic and the order of the picked-up frequency. The coefficient A takes the nature of the non-linear element into account. The author considers the radiation field of the combination frequencies. From the experimental data of field strength versus spacing of the transmitters, presented in Figure 2, it is seen that when the combination frequency coincides with the reception frequency of a nearby receiver, communication will be either totally suppressed or will be received with a large degree of interference.

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. Mutual Interference of Combination Frequencies

After considering the effects of the various non-linear elements of the transmitter on the field strength, the author considers the following methods for reducing the combination interference:

- 1) reduction in the number of non-linear elements;
 - 2) choice of the valve and working conditions of the output stage so that the amplitude of the combination frequencies is as small as possible;
 - 3) reduction in the value of the voltages picked up.
- This can be achieved by increasing the selectivity of the output stages. There are 2 figures.

SUBMITTED: December 20, 1958

Card. 5/5

CHELOMBIT'KO, Yu.P., inzh.; ETINGOF, L.A., inzh.

Special snow loader. Put' i put.khoz. no.11:27 N '59.
(MIRA 13:4)

(Railroads—Snow protection and removal)

LEBEDEV, Ye.A.; BANATOV, V.P.; CHELOMBIYEV, B.K.; MATVEYEV, D.F.

Investigating clay-mud circulation-loss zones in Stavropol
Territory under conditions of increased bottom temperatures.
Buro no.11:8-11 '64. (MIRA 18:5)

1. Stavropol'skiy filial Groznskogo neftyanogo nauchno-issledovatel'skogo instituta i ob'yedineniye "Stavropol'neftegaz".

CHELOMEY V. K.

CHELOMEY, V. K.

O napriazheniakh v rastianutoi plastine s podkreplennym kruglym otverstiem. Moskva, 1938. 44 p., tables, diagrs. (TSAGI. Trudy, no. 383)

Title tr.: Stresses in a stretched plate with a reinforced circular opening.

QA911.M65 no. 383

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

CHELOMEY, V. N.

USSR/Engineering - Automatic Control

FD-1108

Card 1/1 Pub. 41-2/13

Author : Chelomey, V. N., Moscow

Title : Pneumatic servomechanisms

Periodical : Izv. AN SSSR. Otd. tekhn. nauk 5, 39-50, May 1954

Abstract : Develops differential equations of motion for pneumatic servomechanisms of the rudder type, obtains their solutions for the case of small external loads and displacements of the force transmitting rod, and also investigates the problem of the dynamic stability of mechanisms of such type. Two references. Diagrams.

Institution :

Submitted : April 20, 1954

CHELOMEY, V.H., doktor tekhnicheskikh nauk, professor.

**Pneumatic servomechanisms. [Trudy] MVTU no.32:117-133 '55.
(MIRA 9:8)**

(Servomechanisms) (Pneumatic machinery)

CHELOMEY, V.N.

On the possibility of increasing the stability of elastic systems
by means of vibrations. Dokl. AN SSSR 110 no.3:345-347 S '56.
(MLRA 9:12)

1. Moskovskoye vyssheye tekhnicheskoy uchilishche imeni
M.E. Baumana. Predstavleno akademikom N.N. Bogolyubovym.
(Elastic solids) (Vibration)

SOV/123-59-15-61317

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1959, Nr 15, p 338 (USSR)

AUTHOR: Chelomey, V.N.

TITLE: Investigation of Pneumatic and Hydraulic Servomechanisms

PERIODICAL: V sb.: Avtomat. upravleniye i vychisl. tekhn., Nr 1, Moscow, Mashgiz, 1958, pp 166 - 181

ABSTRACT: Theoretic problems of pneumatic and hydraulic servomechanisms with valve distribution system are investigated. They are used as steering gears and consist of the power piston cylinder with two rods and a four-edged valve with the spring-lever feedback, controlled by a diaphragm relay. The differential equations of dynamic equilibrium of the valve and rod, of the basic theorems on pressure equilibrium and of the static characteristics of the machines are derived. The operation of the mechanism at a low pressure drop is examined. A comparison of pneumatic and hydraulic mechanisms, the principal layout of which is taken as being equal, is made. 1 schematic drawing, 3 graphs.

R.B.F.

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CHELOMEY, Ye.N.

Investigation of pneumatic and hydraulic serve-mechanisms.
Avtom. upr. i vych. tekhn. no.1:166-181 '58. (MIRA 12:1)
(Servomechanisms)

CHELO TARE

Cattle in Albania and ways for its improvement. Zhivotnovodstvo
23 no.5:89-94 My '61. (MIRA 16:2)

1. Direktor Nauchno-issledovatel'skogo instituta zootehniki,
Albaniya.

(Albania—Cattle breeding)

CHELOV, S.A.

New system for the classification and identification of
motor vehicles and trailers. Avt. prom. 30 no.8:16-19
Ag '64. (MIRA 17:11)

1. Tsentral'nyy nauchno-issledovatel'skiy i konstruktorskiy
institut toplivnoy apparatury avtotraktornykh i statsionar-
nykh dvigateley.

OBOLENTSEV, R.D.; KOTOV, Yu.I.; CHELOV, Ye.N.

Vibrational spectra of sulfides. Khim.sera-i azotorg.soed.sod.v naft.
nefteprod. 3:105-114 '60. (MIRA 14:6)

1. Bashkirskiy filial AN SSSR, Otdel khimii.
(Sulfide—Spectra)

OBOLENTSEV, R.D.; AYVAZOV, B.F.; GALEYEVA, G.V.; CHELOV, Ye.N.

Composition of sulfur organic compounds in a straight-run fuel
produced from Tuymasy and Bavly oils. *Khim. sera-i azotorg. soed. sod. v
neft. i nefteprod.* 3:241-250 '60. (MIRA 14:6)

1. Bashkirakiy filial AN SSSR, Otdel khimii.
(Sulfur organic compounds) (Fuel--Analysis)

VERESHCHAGIN, L.F.; YUZEFOVICH, N.A.; CHELOVSKIY, A.V.

Measurement of ultrasound velocities in some highly compressed
gases. Dokl. AN SSSR. 144 no.6:1272-1274 Je '62. (MIRA 15:6)

1. Institut fiziki vysokikh davleniy Akademii nauk SSR.
2. Chlen-korrespondent Akademii nauk SSSR (for Vereshchagin).
(Ultrasonic waves--Speed) (Gases, Compressed)

L 07828-67 EWT(1)/EWP(c)/EWT(m)/EWC(jc)-2/EWP(j)/EWP(l)/ETI/EWP(k) IJP(c) WG/JD/
ACC NR: AP6034022 WW/RM/WH SOURCE CODE: UK/0122/66/000/010/0054/0056

AUTHOR: Zhukov, A. A. (Candidate of technical sciences); Lisovskiy, L. P. (Candidate of technical sciences); Kokora, A. N. (Engineer); Shalashov, V. A. (Engineer); Chel'nyy, A. A. (Engineer)

ORG: none

TITLE: Making holes in spinnerettes for synthetic filament using an optical quantum generator (laser)

SOURCE: Vestnik mashinostroyeniya, no. 10, 1966, 54-56

TOPIC TAGS: *laser applications, textile industry machinery,* steel, spinnerette, filament drawing spinnerette, spinnerette hole drilling, laser hole drilling, laser / OKh23N28M3D3T steel

ABSTRACT: The Scientific Research Institute of Light Textile Machinery has investigated the possibility of using lasers in making holes in filament-drawing spinnerettes. A ruby laser with a 0.7 j maximum radiation energy was used for making holes in OKh23N28M3D3T steel spinnerettes. It was found possible to make holes of almost cylindrical shape and with a conical entrance if desired. The hardness of the heat-affected zone did not undergo any substantial changes. Finished experimental spinnerettes with up to 40 holes were tested at the Kalinin Synthetic Fiber Plant, which found that the quality of filament

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UDC: 621.95.048

L 07828-67

ACC NR: AP6034022

obtained was not inferior to that made with conventional spinnerettes. The use of a laser substantially increased the productivity in spinnerette making and made it possible to use hard and brittle material such as glass, siall and alumina ceramics.¹⁵ The use of lasers might in the future permit making holes of various shape. Orig. art. has: 4 figures.

SUB-CODE: 13/ SUBM DATE: none/ ATD PRESS: 5101

Card 2/2 bc

CHELOYAN, A.

With the help of the party organization. Ochr.truda i sots.
strakh. no.5:47-49 N '58. (MIRA 12:1)

1. Doverennyy vrach Krasnodarskogo kraysovprofa.
(Krasnodar Territory—Medicine, Industrial)

CHELPAN, L. K.

Cand Tech Sci - (diss) "Theoretical and experimental bases for the non-uniformity of fuel supply to diesel cylinders allowable in operation." Kiev, 1961. 20 pp; (Ministry of Agriculture Ukrainian SSR, Ukrainian Academy of Agricultural Sciences); 200 copies; price not given; (KL, 5-61 sup, 195)

CHELPAN, L. K.

Uneven fuel feeding. Mekh. sil'. hosp. 12 no.10:21-22 0 '61.
(MIRA 14:11)

1. Laboratoriya traktornykh i kombaynovykh dvigateley
Khar'kovskogo politekhnicheskogo instituta.
(Diesel engines)

SOV/137-59-3-6374

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 3, p 20c (USSR)

AUTHORS: Smirnov, A. I., Chelpanov, B. V.

TITLE: Introduction of Sb Into Cast Iron and Steel
(Sur'mirovaniye chuguna i stali)

PERIODICAL: Nauchn. zap. Odessk. politekhn. in-t, 1957 (1958), Vol 17, pp
223-254

ABSTRACT: Introduction of Sb into gray cast iron (CI) markedly refines the structure and improves the antifrictional properties of the CI but lowers its mechanical properties and increases its hardness. High antifriction and anticorrosive properties combined with satisfactory mechanical characteristics may be ensured if the Sb concentration in the CI is maintained between 0.4 and 0.75%. The new antimonous CI exhibits good casting properties and, despite its increased hardness, is readily machinable. This type of CI may be obtained by means of introducing Sb into the CI's of the types SCh 15-32, SCh-18-36, et al. The antimonous antifrictional CI may be employed instead of bronzes and babbitts. Optimal results in saturating the surface layers of iron-carbide alloys with Sb were obtained in a mixture of charcoal and Sb oxide. A. S.

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CHELPAOV, B.V., Cand Tech Sci -- (diss) "Study of antimon^v~~um~~
pig iron as material for ~~rolling~~ bearings." Odessa, 1959,
18 pp with graphs (Min of Higher Education U~~SSR~~. Odessa
Polytechnic Inst) 150 copies (KL, 34-59, 115)

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S/121/60/000/010/011/015
A004/A001

18.1150

AUTHORS: Smirnov, A. I., Chelpanov, B. V.TITLE: Using Antimony-Alloyed Cast Iron Instead of Bronze ¹⁶PERIODICAL: Stankii Instrument, 1960, No. 10, pp. 29-31

TEXT: As a result of research work and protracted investigations, a new antifriction material has been developed - antimony-alloyed cast iron. The metallic antimony is added directly into the ladle with the molten cast iron of grades CY 15-32 (Sch 15-32) and CY 18-36 (Sch 18-36). Based on laboratory and service tests, the optimum composition of antimony alloyed cast iron is the following: C = 3.0 - 3.5%, Si = 1.4 - 2.2%, Mn = 0.6 - 0.8%, Sb = 0.3-0.65%, up to 0.3 % P and up to 0.12% S. The addition of antimony to gray cast iron causes a considerable refining of the macrostructure of the latter. The microstructure of antimony-alloyed cast iron is characterized by a finely laminar pearlite and a uniform graphite deposition over the whole microsection field, while ferrite and cementite inclusions are not present at all. The addition of 0.25 - 0.35% antimony to the cast iron increases the pearlite microhardness from 196 to 245-255 kg/mm², while the microhardness of the phosphide eutectic is increased from 350 to 425 kg/mm².

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Using Antimony-Alloyed Cast Iron Instead of Bronze

Moreover, the Brinell hardness of cast iron is increased from 197 to 229 kg/mm². The increase in hardness is effected on account of the alloying ability of the solid antimony solution. The bending strength limit and deflection of antifric-tion cast iron containing antimony decrease on the average by 18 - 20%, while the hardness increases by 10 - 15% in comparison with the initial cast iron. In a four-hour test series of cast iron containing up to 1.25% of antimony, with a lubricant supply of 3.75 cm³/hour and a specific pressure of 20 - 60 kg/cm² it was found, that cast iron with an antimony content in the range of 0.30 - 0.65% possesses the lowest friction coefficient and wear. Fig. 2 shows the results of the second test series to determine the effects of antimony on the load capacity of cast iron.

Figure 2:

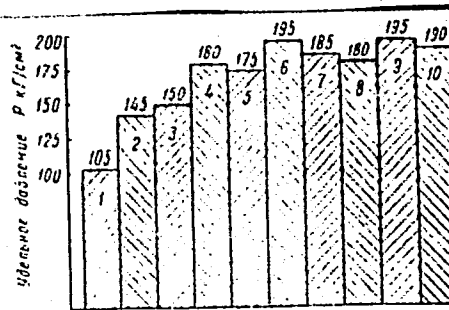


Figure 2. Specific Pressure of:

- 1 - initial gray cast iron, 2 - antimony alloyed cast iron with 0.11% Sb, 3 - the same with 0.25% Sb, 4 - the same with 0.32% Sb, 5 - the same with 0.4% Sb, 6 - the same with 0.64% Sb, 7 - the same with 1.0% Sb, 8 - the same with 1.25% Sb,
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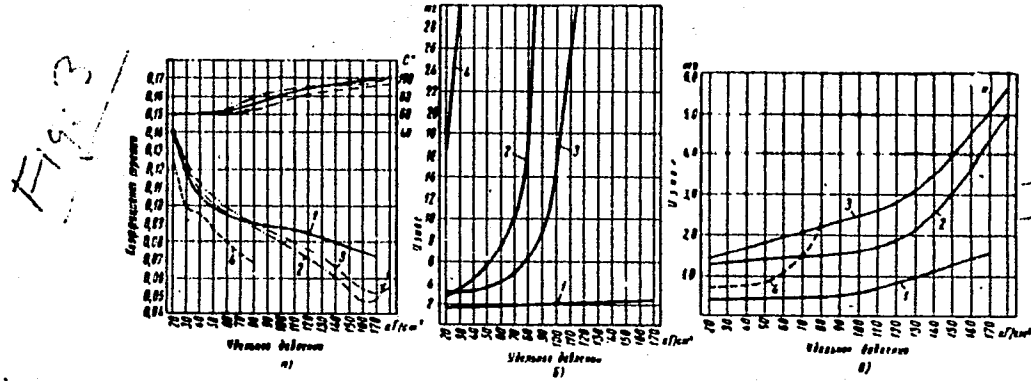
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Using Antimony-Alloyed Cast Iron Instead of Bronze

9 - Бр. ОЛС 5-5-5 (Br.OTS 5-5-5) bronze, 10 - Бр. ОИ 10-1 (Br.OF 10-1).

Fig. 3 shows the results of comparative tests to investigate the running-in ability of antimony alloyed cast iron. As it can be seen from the graph 3, a, the friction coefficients of antimony-alloyed cast iron at a specific pressure of 80 kg/cm² are practically equal to those of bronze. Fig. 3, a shows the friction coefficient at Figure 3:



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Using Antimony-Alloyed Cast Iron Instead of Bronze

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a given specific pressure, Fig. 3, (b) the wear at a given specific pressure for the following materials: 1 - antimony-alloyed cast iron, 2 - Br.OF 10-1 bronze, 3 - Br.OTs 5-5-5 bronze, 4 - babbitt. Fig. 3, (v) shows the wear of a steel ring working in a couple with antimonous cast iron, bronze and babbitt respectively. In order to determine the surface finish, the specimens were tested on the ~~WST~~ IZT-17 profile recorder with an enlargement factor of 1,400 along the vertical and 25.5 along the horizontal. The medium microroughness of the steel rings after rubbing on a cast iron plate amounted to 2.6 - 1.9 μ , while the values for the tested specimens were in the range of 1.8 - 1.5 μ . Comparative tests were carried out to elucidate the wear resistance under conditions of dry friction of antimony-alloyed cast iron, bronze and babbitt. The test results are given in the following table:

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Using Antimony-Alloyed Cast Iron Instead of Bronze

Material	Wear of Specimens in Height in mm	Total Wear of three Specimens		Ratio between volumetric Wear of the Specimen and Wear of Babbit	Wear of Steel Ring in mg
		in mg	in mm ³		
Antimony-alloyed cast iron	0.03	53.8	7.3	1.04	47.8
Initial gray cast iron	15.43	26,422.4	3,570.6	510.09	1,032.1
Bronze Br.OF 10-1	0.16	294.4	33.9	4.83	22.7
Bronze Br.OTsS 5-5-5	0.31	618.3	70.3	10.04	6.2
Babbitt B-83	0.04	51.2	7.0	1.00	1.0

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A004/A001

✓X

Using Antimony-Alloyed Cast Iron Instead of Bronze

The authors point out that the wear resistance of antimony-alloyed cast iron parts is 2 - 3 times as high as that of bronze. In addition to good friction properties, antimony-alloyed cast iron has a considerably higher corrosion resistance than gray cast iron. In sea water its corrosion resistance equals that of admiralty brass. There are 4 figures and 1 table.

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SMIRNOV, A.I.; CHELPANOV, B.V.

Antifriction antimony cast iron. Lit. proizv. no. 5:18-19 My '61.
(MIRA 14:5)

(Bearing metals)

SOV/112-59-4-7478

Translation from: Referativnyy zhurnal. Elektrotehnika, 1959, Nr 4, p 146 (USSR)

AUTHOR: Chelpanov, I. B.

TITLE: Oscillations of Higher-Than-Second Order of the Leading-Characteristic Switch-On Relays

PERIODICAL: Nauchno-tekhn. inform. byul. Leningr. politekhn. in-t, 1957, Nr 12, pp 33-42

ABSTRACT: The article extends, to higher-order systems the results of the author's work (see PMM, Vol 21, Nr 6, 1957) about the oscillations of a system with one degree of freedom. An approximation method of solution is used. A higher-order system is represented by the second order in the case of 2 roots lying close to the imaginary axis (e.g., the case of two fairly long time constants of the controlled system and a number of short time constants of the controller). In this case the solution, for a unit signal at the input of the linear part and for zero initial conditions (transfer function), can be written as follows:

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SOV/112-59-4-7478

Oscillations of Higher-Than-Second Order of the Leading-Characteristic

$$u_0(t) = h(t) = A_1 e^{\lambda_1 t} + A_2 e^{\lambda_2 t} + \sum_{k=3}^n A_k e^{\lambda_k t}$$

where $|\operatorname{Re} \lambda_1|$ and $|\operatorname{Re} \lambda_2| \ll |\operatorname{Re} \lambda_k|$ ($k = 3, 4, \dots, n$).

Effect of the roots $\lambda_3, \dots, \lambda_n$ (short time constants of the controller) is represented in the phase plane as jumps of the path that depicts the points (as the simplified system has $h(0) \neq 0$ and $\dot{h}(0) \neq 0$) at joining points of individual segments. Otherwise, the movement analysis can be conducted as in the case of the second-order system. Stability ranges of boundary cycles and the ranges of restricted, but not periodical, movements are determined in the article. An example with a third-order system is used to show that the approximation method can yield qualitatively different results from those of the exact method.

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SOV/112-59-4-7478

Oscillations of Higher-Than-Second Order of the Leading-Characteristic

A system simulation by means of an EMU-6 electronic model is described. A scheme with a leading-characteristic relay is presented.

N.A.K.

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CHELPANOV, I. B.: Master Tech Sci (diss) -- "The oscillation of dynamic systems containing relays with leading power factors". Leningrad, 1958. 11 pp
(Min Higher Educ USSR, Leningrad Polytech Inst im M. I. Kalinin), 150 copies
(KL, No 7, 1959, 126)

AUTHOR: Chelpanov, I.B. (Leningrad) 40-22-1-5/15
TITLE: Oscillations of a System Which Possesses a Relay With Leading Characteristic (Kolebaniya sistemy, soderzhashchey relе s operezhayushchey kharakteristikoy)
PERIODICAL: Prikladnaya Matematika i Mekhanika, 1958, Vol 22, Nr 1, pp 50-66 (USSR)
ABSTRACT: The dynamic properties of a system of one degree of freedom are investigated, the behavior of which is described by the equations

$$(0.1) \quad \frac{d^2u}{dt^2} + L \frac{du}{dt} + Mu = y \quad ; \quad y = -F(u)$$

Here the function $F(u)$ is a relay characteristic with a range of insensibility and an ambiguity in certain ranges of the initial parameter u of the relay. In this case the idealized relay characteristic would possess a rectangular hysteresis cycle which is cut up in the medium range because of the existence of the zone of insensibility. Because of the unavoidable delays in the switching process the real character-

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Oscillations of a System Which Possesses a Relay With
Leading Characteristic

40-22-1-5/15

istic appears somewhat more complicated and possesses inter-
sections and crossing-overs at the switching points. In the
present paper the influence of these imperfections of real
relays is investigated with the aid of the method of the phase
plane. In the paragraphs 2-6 of the paper it is shown that, if
the system without relay itself is unstable ($L < 0$ or $N < 0$),
then stability can be obtained by the relay for certain initial
deviations which do not exceed a presupposed limit. Finally in
§ 7 it is shown that, if the system itself is stable, a con-
siderable improvement of the dynamic properties can be obtained
by application of the relay. There are 24 figures, and 2 So-
viet references.

SUBMITTED: June 15, 1957

Card 2/2

S/194/61/000/011/022/070
D209/D302

9.3230

AUTHORS: Savchkov, V.K. and Chelpanov, I.B.
TITLE: On the design of variable filters
PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika,
no. 11, 1961, 10, abstract 11 B68 (Nauchno-tekhn.
inform. byul. Leningr. politekhn. in-ta, 1960, no. 7,
124-30)

TEXT: It is shown that for certain given problems filters which are nearly optimum, can be used in circuits with variable parameters. The main uses of variable filters (VF) are analyzed. It is shown that with large signal to noise ratio VF's are better than non-adjustable filters. Methods of obtaining nearly optimum VF's are examined. A circuit of a VF of the first order with variable resistance is given. A method of construction of unbiased filters passing signals of a given form without distortion is described. The use of VF's renders it possible to obtain unbiased filtering

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On the design of variable filters

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with a smaller error than in the case of non-adjustable filters. 13
The proposed method of constructing VF's has a disadvantage in that
it is necessary to adhere accurately to the rule of change of vari-
able coefficient. The permissible error in the reproduction of
functions of a given form on potentiometers amounts to 1-2%. 3 ref-
erences. [Abstracter's note: Complete translation]

Card 2/2

16.4000

S/194/61/000/009/020/053
D209/D302

AUTHOR: Chalpanov, I.B.

TITLE: Formation of the characteristic equation of a system based on experimental measurements

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 9, 1961, 29, abstract 9 V240 (Tr. Leningr., politekhn. in-ta, 1960, no. 210, 290-295)

TEXT: The formation of a differential equation of the motion of a system based on experimental characteristics is necessary when these equations can be obtained from theoretical considerations. As initial experimental curves either transfer functions or frequency response characteristics are used. The latter method gives good results for systems of sufficiently high order, but the frequency response characteristics cannot be obtained for unstable systems. The first case is examined, a change of method of derivation of transfer function which widens the scope of analysis being

Card 1/2

Formation of the characteristic...

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D209/D302

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proposed at the same time. An example of an analysis of transfer processes for a 3rd order system with the use of a model arrangement MNT-9 (MPT-9) is brought in. 4 figures. 2 references.
[Abstracter's note: Complete translation]

Card 2/2

13,9520

37149
S/179/62/000/001/024/027
E191/E435

AUTHOR: Chelpanov, I.B. (Leningrad)

TITLE: On the effect of random deviations of gyroscopes on the behaviour of the simplest inertial guidance system

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Mekhanika i mashinostroyeniye. no.1, 1962, 164-166

TEXT: The analysis is devoted to the effects of random components of the deviation of the gyroscopes on the behaviour of an autonomous system of inertial guidance. The simplest inertial guidance system is considered, based on the principle of the geometrically established vertical. A free uncorrected gyroscope forms the basis for stabilizing a platform in absolute space. The signal from an accelerometer mounted on another platform, after a double integration in two integrating units (integrators) is fed to a comparison unit, which performs the orientation of the accelerometer platform in relation to the stabilized platform at an angle proportional to the output signal of the second integrator. The system is designed to satisfy the condition of Card 1/3

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E191/E435

On the effect of random ...

imperturbability so that the period of free oscillations of the system is 84.4 minutes. In such a simple single-channel system, the output signal of the second integrator is proportional to the length traversed by the object along the great circle arc of a non-rotating sphere which coincides with the surface of the Earth. The block diagram of the system is shown. The output quantities of the guidance system attached to a moving object are the length of the traversed course, the velocity and the position of the vertical determined by the orientation of the accelerator platform. These quantities are picked off the second integrator, the first integrator and the comparison unit respectively. When all elements are ideal and the Schuler condition is fulfilled, the system is imperturbable and the harmonic errors in all coordinates due to the presence of non-zero initial conditions do not depend on the motion of the object. It is therefore possible to seek the errors of a system placed on a non-moving base. It is assumed that the gyroscope deviation is a random function of time. Following earlier publications, a stationary random function is assumed so that the statistical properties of
Card 2/3

On the effect of random ...

S/179/62/000/001/024/027
E191/E435

the rate of deviation do not depend on the origin of time. The correlation of the rate of deviation is given in the simplest form. An analysis shows that all three root mean square values of the errors increase infinitely in time, in other words, the inertial guidance system diverges as a result of random gyroscope deviations. The mean errors grow approximately proportionately to the square root of time. This differs from the result due to constant deviation, the reason being that the system operates at the stability boundary. There are 2 figures.

SUBMITTED: March 4, 1961

Card 3/3

24.4100

40113

S/040/62/026/004/009/013
D409/D301AUTHOR: Chelpanov, I.B. (Leningrad)TITLE: Oscillations of a second-order system in the case of
random parameter-variationsPERIODICAL: Prikladnaya matematika i mekhanika, v. 26, no. 4,
1962, 762 - 766TEXT: The statistical properties of the solutions of the second-
order differential equation

$$\frac{d^2x}{dt^2} + 2n \frac{dx}{dt} + [1 + \varepsilon_1 \xi(t)]x = 0 \quad (1)$$

are considered; $\xi(t)$ is a random function of time and ε_1 is a small parameter. It is assumed that the correlation function R is known, and that the mean $\xi(t)$ is zero. After a change of variables, Eq.(1) becomes

$$d^2z/d\tau^2 + z = - \varepsilon \xi(\tau)z \quad (\varepsilon = \varepsilon_1/1 + n^2) \quad (2)$$

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Oscillations of a second-order ...

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The solution of Eq. (2) is almost harmonic and it is convenient to take it in the form

$$z(\tau) = a(\tau)\cos \tau + b(\tau)\sin \tau. \quad (3)$$

First, the approximate solution of the determinate problem is constructed. The functions a and b are sought in the form of series in powers of ε . Recursion formulas are obtained for these functions. The statistical properties of the solutions are considered, when $\xi(\tau)$ is a random function of time. The initial conditions are also considered as random. A system of finite-difference equations for the correlation moments

$$\overline{a_i^2}, \overline{b_i^2} \text{ and } \overline{a_i b_i}$$

is obtained. The statistical properties of the solutions of Eq. (1) are determined by the transformed characteristic exponents

$$\xi = \eta \exp\left(-\frac{2\pi n}{\sqrt{1+n^2}}\right) \approx \eta(1 - 2\pi n) \quad (19)$$

For stability it is necessary that all $|\xi_i| < 1$ ($i = 1, 2, 3$). The Card 2/3

Oscillations of a second-order ...

S/040/62/026/004/009/013
D409/D301

largest characteristic exponent ξ_3 determines the statistical properties of the solutions of Eq. (1) as follows: if $\xi_3 < 1$, the mean square value of the amplitude decreases and the solution is statistically stable; if $\xi_3 > 1$, then the mean-square value of the amplitude increases without bounds and the solutions are unstable. The correlation between the orthogonal components decreases with time, i.e. for sufficiently large t , the phase becomes equally-probable, regardless of its initial distribution. ✓

SUBMITTED: February 6, 1962

Card 3/3

24.4/00

S/040/62/026/005/013/016
D234/D308

AUTHOR: Chelpanov, I. B. (Leningrad)
TITLE: Errors of compensated gyroscopic instruments with random law of variation of error in velocity
PERIODICAL: Prikladnaya matematika i mekhanika, v. 26, no. 5, 1962, 952-959

TEXT: The author considers the differential equation of motion of a single-rotor gyrocompass with arbitrary period and damping. It is assumed that ballistic errors are corrected with the aid of an external nonideal velocity meter. The initial conditions are random values with zero mathematical expectation and known correlation moments. The correlation function for the velocity error is introduced and formulas are derived which make it possible to determine the mean square error of the instrument for any time instant if the parameters are known. The problem of optimum values of the parameters has the form

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Errors of compensated ...

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D234/D308

$$\frac{\partial(I_1 + I_2)}{\partial \xi} = 0, \quad \frac{\partial(I_1 + I_2)}{\partial \omega_0} = 0 \quad (2.1) \quad \sqrt{B}$$

where I_1 and I_2 have different analytical expressions for $\xi < \omega_0$, $\xi = \omega_0$ and $\xi > \omega_0$. The full solution of this problem is complicated. The author introduces some simplifications and considers the cases of small damping and critical damping, assuming the correlation function of the velocity error to be

$$\rho_v(\Delta\tau) = e^{-b|\Delta\tau|} \quad (2.2)$$

and taking only terms of the first order in $1/b$ in (2.1) ($1/b$ is

Card 2/3

Errors of compensated ...

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D234/D308

assumed to be small in comparison with the time T). Equations for the minimum are derived and their solutions given in the form of graphs. There are 7 figures.

SUBMITTED: February 8, 1962

Card 3/3

S/280/63/000/001/005/016
E140/E435

AUTHORS: Katkovnik, V.Ya., Poluektov, R.A., Chelpanov, I.B.
(Leningrad)

TITLE: The synthesis of multichannel discrete (sampled data)
systems in the presence of random noise

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye
tekhnicheskikh nauk. Tekhnicheskaya kibernetika.
no.1, 1963, 59-70

TEXT: The synthesis of multichannel discrete filters is undertaken
in the presence of correlation between the input signals. The
method ensures minimum dispersion of the sampling error. It is
shown that the solution obtained is unique. The system is assumed
to have infinite memory, and in this case the use of the z-transform
yields the solution in closed form. There is 1 figure.

SUBMITTED: July 13, 1962

Card 1/1

CHELPAOV, I.B. (Leningrad)

Construction of an optimal filter with incomplete data on the
statistical properties of signals. Izv. AN SSSR, otd. tekhn.
nauk, tekhn. kib. no.3:67-72 My-Je '63. (MIRA 16:7)

(Radio filters) (Information theory)
(Electric filters)

CHELPANOV, I.B. (Leningrad)

Synthesis of the dynamic characteristics of multichannel systems.
Izv. AN SSSR. Tekh. kib. no.6:25-32 N-D '63. (MIRA 17:4)

ACCESSION NR: AT3012932

S/2563/63/000/226/0070/0080

AUTHOR: Chelpanov, I. B.

TITLE: Gyro compass damping under random variation of the platform velocity

SOURCE: Leningrad. Politekhnikheskiy institut. Trudy*, no. 226, 1963, 70-80

TOPIC TAGS: gyroscopic compass, gyro compass platform, gyroscope damping, gyro compass damping, gyro compass platform stabilization

ABSTRACT: It is pointed out that although independently obtained information on the velocity of a gyro compass platform makes it possible to reduce appreciably the gyroscope errors in practice, theoretically the problem of the gyroscope damping remains the same as without such velocity data, since any error in the determination of the velocity can act as a perturbation dependent on the law

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ACCESSION NR: AT3012932

governing the platform motion. Consequently the author determines first the most suitable value of the damping coefficient under the assumption that the perturbation (velocity or error in the velocity) is a random function of the time, and then describes and analyzes a new scheme for suppressing the error, the use of which gives under certain conditions much better results than straight damping. The scheme involves essentially the use of an accelerometer whose signal is analyzed by a computer to separate the periodic error, and to introduce a correction in the gyro compass reading. For optimal determination of the parameters it is necessary to transform the signal with the aid of a linear filter to make the output noise "white" and to approximate the resultant signal with a known function. An error analysis shows that the variance of the error is inversely proportional to the time interval, the same as in the system with straight damping, and does not depend on the initial conditions. The larger the initial deviation of the system, the more effective the

Card

2/13

ACCESSION NR: AT3012932

described system is compared with constant damping. Orig. art. has:
3 figures and 56 formulas.

ASSOCIATION: Fizicheskiy institut i. A. P. N. Lebedeva AN SSSR
(Physics Institute, AN SSSR)

SUBMITTED: 00

DATE ACQ: 05Sep63

ENCL: 01

SUB CODE: CG

NO REF SOV: 005

OTHER: 003

Card 3/43

IOVLEV, Yu.A.; PERVOZVANSKIY, A.A.; SAVCHKOV, V.K.; CHELPANOV, I.B.

Theory of narrow-band self-adjusting filters. Trudy LPI
no.226:157-159 '63.

(MIRA 16:9)

(Electric filters)

CHELPA NOV, I.B.

Use of prior information for the analysis of signals. Trudy LPI
no.226:189-195 '63. (MIRA 16:9)

(Electronic control)

CHELPANOV, I.B.; SHAKHMUNDES, L.Yu.

Correction of an unperturbed inertial navigation system in case
of a random law of changes in object speed. Izv.vys.ucheb.zav.;
prib. 6 no.6:85-92 '63. (MIRA 17:3)

1. Leningradskiy politekhnicheskij institut imeni Kalinina.
Rekomendovana kafedroy dinamiki i prochnosti mashin.

CHELPA NOV, I.B. (Leningrad)

Design of an optimum stationary filter with a finite memory for
a random time interval. Avtom. i telem. 24 no.1:47-52 Ja '63.
(MIRA 16:1)

(Electric filters) (Automatic control)

CHELPANOV, I.B. (Leningrad)

Synthesis of an optimum filter for signals changing statistical
properties at successive time intervals. Avtom. i telem. 24
no.10:1330-1337 0 '63. (MIRA 16:11)

CHELPAKOV, I.B. (Leningrad)

**Method for the approximate solution of integral equations for
optimum filtration. Avtom. i telem. 24 no.11:1461-1466 N '63.**

(MIRA 16:12)

CHELPA NOV, I. B. (Leningrad)

Synthesis of a complex system consisting of a continuous and discrete channel. Izv. AN SSSR Tekh. kib. no. 12154-164, Ja-7 '64 (MIRA 17:8)

L 26691-65 EWP(d)/EPF(n)-2/EWP(v)/EWP(k)/EWP(h)/EWP(l) Po-l/Pq-l/Pf-l/Pg-l/
Pu-l/Pk-l/P1-l IJP(c) WW/BC

ACCESSION NR: AT5002372 S/2563/64/000/235/0105/0110

AUTHOR: Chelpanov, I. B.

TITLE: Problem of the synthesis of a complex system for signals connected by non-linear dependencies with useful signals

SOURCE: Leningrad. Politekhicheskiy institut. Trudy, no. 235, 1964. Dinamika i prochnost' mashin (Dynamics and strength of machines), 105-110

TOPIC TAGS: random noise, optimum filter system, optimum control, automatic control system

ABSTRACT: The author derives the usual equations for a problem of optimum filtration of multivariate non-stationary random processes. He then proves that the standard methods of solving integral equations lead to practically insurmountable difficulties. The condition is further complicated by the fact that a solution should be carried out again for new functions $\xi_0(t)$ and $\gamma_0(t)$. For the problem of the determination of the coordinates of a point moving along a plane, this means that the laws of tuning filters, and possibly their design, should change as a function of the assumed trajectory. The author states that possible simplifications in solving the problem of constructing a system of optimum filters

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ACCESSION NR: AT5002372

are connected with the fact that the functions $\xi_0(t)$ and $\gamma_0(t)$ change slowly. He goes on to point out that the method of successive approximations can be used to solve the system of equations for the obtained variance of error of the system. A serious deficiency of the system shown in Fig. 1 of the Enclosure is that a preliminary knowledge of the functions $\xi_0(t)$ and $\gamma_0(t)$ is necessary for its operation. This deficiency is eliminated by the introduction of self-tuning circuits, as shown in Fig. 2 of the Enclosure. Orig. art. has: 2 figures and 15 formulas.

ASSOCIATION: Leningradskiy politekhnicheskij institut imeni M. I. Kalinina (Leningrad polytechnic institute)

SUBMITTED: 00

ENCL: 02

SUB CODE: IE

NO REF SOV: 003

OTHER: 002

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ACCESSION NR: AT5002372

ENCL: 01

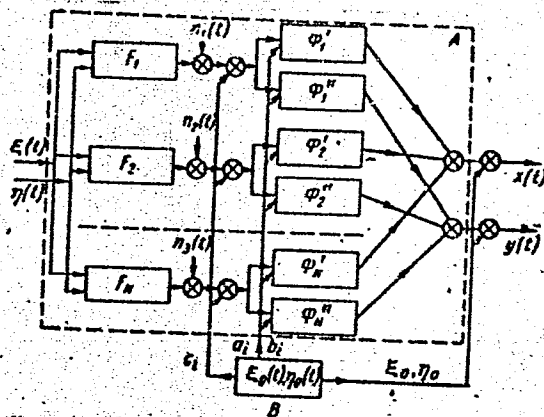


Fig. 1 - Block diagram of a complex system of optimum filters.

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ACCESSION NR: AT5002372

ENCL: 02

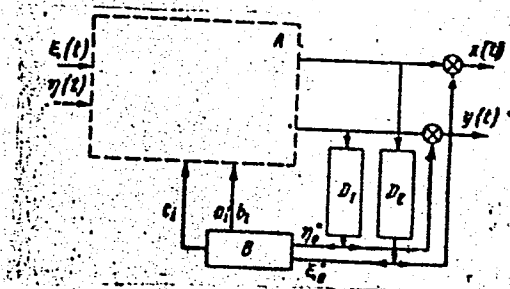


Fig. 2 - Block diagram of an optimum filter system with self-tuning circuits

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L 26690-65 EWT(d)/EWT(1)/EWP(v)/EEC-L/EWP(k)/EWP(h)/EWP(1)/EWA(h) Pf-L/Peb
ACCESSION NR: AT5002373 S/2563/64/000/235/0111/0118

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AUTHOR: Chelpanov, I. B.

TITLE: Use of the method of successive approximations for the solution of problems of optimum filtration

SOURCE: Leningrad. Politeknicheskii institut. Trudy, no. 235, 1964. Dinamika i prochnost' mashin (Dynamics and strength of machines), 111-118

TOPIC TAGS: successive approximation, optimum filter system, random function, finite storage, automatic control; 4 25

ABSTRACT: The author commences with a description of the method of successive approximations as used when solving the problems of optimum filtration. He points out that, in the problems of the synthesis of optimum filters, the method of successive approximations can be used: when the solution of the problem cannot be obtained by the usual methods; when the solution can be found accurately, but awkward calculations are required; and when it is desirable to obtain the solution of a large group of problems in the same form. Then he shows how a small parameter can be introduced for different classes of problem of the theory of optimum filters, and in each case he notes what advantages are

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ACCESSION NR: AT5002373

obtained by the method of successive approximations as compared to other methods. He uses several cases of stationary and non-stationary problems to illustrate the advantages of the method of successive approximations, and concludes by investigating the dynamics of a self-tuning system. Orig. art. has: 1 figure and 29 formulas.

ASSOCIATION: Leningradskiy politekhnicheskiy institut imeni M. I. Kalinina
(Leningrad polytechnic institute)

SUBMITTED: 00

ENCL: 00

SUB CODE: IE, MA

NO REF SOV: 006

OTHER: 000

Card 2/2

L 25745-65 EWT(d)/EEO-2/EEC-4 Pn-4/Po-4/Pq-4/Pg-4/Pk-4/P1-4 BC

ACCESSION NR: AP5002088

S/0146/64/007/006/0059/0064

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AUTHOR: Chelpanov, I. B.

TITLE: Synthesizing the dynamic characteristics of a navigation-data-processing system for indication purposes

SOURCE: IVUZ. Priborostroyeniye, v. 7, no. 6, 1964, 59-64

TOPIC TAGS: navigation system, navigation data processing

ABSTRACT: The possible structure of optimal smoothing devices that ensure the highest accuracy of a navigation system is explored. The structure is determined from general characteristics of the present position data and time-dependent instrumental errors. With a not-too-long smoothing time constant, the gain from cutting down on fluctuation errors is higher than the loss due to the appearance of dynamic errors. The problem is solved on the basis of the theory of filtrating random signals. A simple single-channel navigation system (see Enclosure 1)

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ACCESSION NR: AP5002088

comprises a linear-imperfect navigation equipment NE which measures $x(t)$ with an additive error $n(t)$, a filter F , and a trigonometric (or kinematic) converter TC which performs nonlinear conversion into a convenient observable quantity (the equipment is not connected to the navigational control system). The smoothing filter F is considered to be linear; an integral equation (15) for determining its transfer function is set up. Orig. art. has: 2 figures and 15 formulas.

ASSOCIATION: Leningradskiy politekhnicheskiy institut im. M. I. Kalinina
(Leningrad Polytechnic Institute)

SUBMITTED: 21Jan64

ENCL: 01

SUB CODE: NG

NO REF SOV: 003

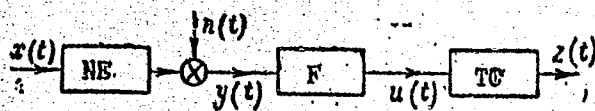
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Cord 2/3

L 25745-65

ACCESSION NR: AP5002088

ENCLOSURE: 1



A block diagram of a single-channel navigation system

Card 3/3

CHEMISTRIE

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L 41182-65 /EWT(d)/EWP(c)/EWP(v)/T/EWP(k)/EWP(l) Pf-4

ACCISSION NR: AP5004677

S/0115/64/000/009/0058/0059

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AUTHOR: none

TITLE: Fourth scientific and technical conference on "Cybernetics for the improvement of measurement and inspection methods"

SOURCE: Izmeritel'naya tekhnika, no. 9, 1964, 58-59

TOPIC TAGS: cybernetics, electric measurement, ^{gm}electric quantity instrument, digital computer, electronic equipment, electric engineering conference

ABSTRACT: The conference was held 1-4 July at the All-Union Scientific Research Institute of Metrology by the Section of Electrical Measurements of the Council on the Problem of "Scientific Instrument Making" of the State Committee on Coordination of Scientific Research Work in the USSR together with the All-Union Scientific Research Institute of Electrical Measurement Instruments and the Leningrad Regional Administration of the Scientific and Technical Division of the Instrument Making Industry. More than 400 delegates from 29 cities of the country participated. Fifty-seven reports were heard and discussed. Reports were given by: P. V. NOVITSKIY (Leningrad)--"Definition of the Concept of Informational Error in Measurement and its Importance in Practical Use" and "On the Problem of the Average Informational Criterion of Accuracy Throughout the Entire Scale of an Instrument"; Ya. A.
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ACCESSION NR: AP5004677

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KUPERSHMIDT (Moscow)--"On Determination of the Criteria of Accuracy for Measurement Devices"; S. M. MANDEL'SHTAM (Leningrad)--report on a new criterion of accuracy of measurement instruments; P. F. PARSHIN (Leningrad)--report on optimization when using Fourier transforms on electronic digital computers; S. P. DMITRIYEV, G. Ya. DOLGINTSEVA and A. A. IGNATOV (Leningrad)--proposal of a new method for solving problems of optimum filtering for non-stationary random signals and interference; I. B. CHELPANOV--"Calculation of the Dynamic Characteristics of an Optimum Complex Two-Channel System which Uses Signals from a Position Meter and from a Speed Meter"; R. A. POLUSKTOV (Leningrad)--"Optimum Periodic Correction in the Measurement of Continuous Signals"; S. P. ADAMOVICH (Moscow)--"Analysis and Construction of Devices for Correction of Non-linearity and Scaling for Unitary Codes"; G. V. GORELOVA (Taganrog)--"A Method for Statistical Optimization in Graduating the Scales of Electrical Measuring Instruments"; M. A. ZHESL'MAN (Moscow)--"Analog-Digital Voltage Converter with Automatic Error Correction"; B. N. MALINOVSKIY, V. S. KALENGHUK and I. A. YANOVICH (Kiev)--"Automatic Monitoring of the Parameters of the Electrical Signals of Complex Radio and Electronic Equipment"; Y. P. PEROV (Moscow)--"Operational Cybernetics as an Independent Scientific Specialization"; Ye. N. GIL'BO (Leningrad)--"On the Problem of Effective Non-linear Scales"; A. I. MARKELOV (Moscow)--"Devices for Preliminary Processing of the Results of Measurements Presented in the Form of

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Graphic Recordings For Subsequent Introduction of the Information into Universal Digital Computers"; O. M. MOGILSVER and S. S. SOKOLOV (Leningrad)--"On a Method for Reducing Excess Information"; T. V. NIKOLAYEVA (Leningrad)--"A Device for Temporal Discretization of Continuous Signals"; A. A. LYOVIN and M. L. BULIS (Moscow)--"Optimization of the Transmission of Telemetric Information as a Means for Raising the Efficiency and Eliminating Interference"; D. E. GUKOVSKIY (Moscow)--"On a Statistical Approach to the Detection of Events in Automatic Inspection"; M. I. LANIN (Leningrad)--"Method for Calculating the Holding Time of Communications in a Centralized Inspection System or Constant Servicing Time"; O. N. BRONSHTSYN, A. L. RAYKIN and V. V. RYKOV (Moscow)--"On a Single-Line Mass Service System with Losses"; V. M. SHLYANDIN (Penza)--report on circuit designs for direct compensation electrical digital measuring instruments; A. N. KOMOV (Novocherkassk)--report on a new method for compensation of digital bridges; M. N. GLAZOV (Leningrad)--report on the problem of voltage-to-angular rotation conversion; V. S. GUTNIKOV (Leningrad)--"Methods for Construction of Frequency Capacitance Pickups with a Linear Scale"; R. Ya. SYROFYATOVA and R. R. KHARGHENKO (Moscow)--report on the determination of the amplitude-frequency and phase characteristics of PFM and PWM modulators; Ye. I. TSHYAKOV (Novocherkassk)--"The Phototransistor as a Switch for Electrical Measurement Purposes"; N. V. MALYGINA (Leningrad)--a report on ways for making universal equipment for measurement of current, voltage and power; P. P. ORNATSKIY and V. I. ZOZULYA (Kiev)--reports on the construction of static voltmeters, wattmeters, and

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ACCESSION NR: AP5004677

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phase meters; A. V. TRIKHANOV, I. G. SMYSHLYAYEV, N. I. SABLIN, V. M. RAZIN and V. A. GORBUNOV (Tomsk)--report on a device for automatic processing of the measurements of vibration amplitude of pneumatic hammers; L. K. RUKINA and V. G. KNORRING (Leningrad)--report on the development of a digital compensator for measuring pressure, force, etc.; N. B. DADUKINA (Leningrad)--report on a method for constructing frequency pickups for gas analysis; Ye. M. KARPOV, V. A. BRAZHNIKOV and B. Ya. LIKHTSINDER (Kuybyshev)--reports on analysis and recording of boring speeds; Yu. V. PSHENICHNIKOV (Kuybyshev)--"A High Speed Voltage-to-Digital Code Converter for ac Pickups"; G. P. VIKHROV and V. K. ISAYEV (Vilna)--"A Highly Accurate Digital Peak-to-Peak Voltmeter"; and S. M. PERSIN (Leningrad)--"A Low Level Analog-Digital Voltage Converter."

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: EE, EC

NO REF SOV: 000

OTHER: 000

JPRS

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Card 4/4

L-26687-65 EWT(1)/EEC-4/EMA(h) Feb

ACCESSION NR: AT5002369

S/2563/64/000/235/0079/0090

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AUTHOR: Iovlev, Yu. A.; Pervozvanskiy, A. A.; Savchikov, V. K.; Chelpanov, I. B.

TITLE: Suppression of the harmonic content of a signal by means of a system of self-tuning filters 25

SOURCE: Leningrad. Politekhicheskiy institut. Trudy, no. 235, 1964. Dinamika i prochnost' mashin (Dynamics and strength of machines), 79-90

TOPIC TAGS: low frequency, narrow band filter, filter stability, self tuning filter, harmonic suppression

ABSTRACT: Suppressing the harmonic content of a signal by means of a system of self-tuning filters requires the construction of a system of narrow-band wave-traps possessing the amplitude-frequency characteristics shown in Fig. 1. of the Enclosure. After presenting the system of differential equations describing the behavior of a system of self-tuning filters, the authors introduce the basic variants in the block diagram of the filter system. Two variants of feeding signals across the inputs of the filters are discussed: the fundamental signal is fed across the filter input, or the fundamental signal is combined with the outgoing

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signals from the other filters. In addition, four variants are discussed for controlling the filters. Then a static calculation of the filter system is carried out for the two latter variants: the filters are independent, and each filter is controlled by its outgoing signal and the sum error signal. The work of two filters for one harmonic content is then analyzed. It is concluded that two filters ensure a theoretically accurate compensation of the harmonic signal. The effect of small perturbations on the stability of two filters tuned to one harmonic content is then determined. The results obtained enabled the authors to solve the problem of the work of the two filters when the incoming signal consists of two harmonic components. From this, the author determines the work of an arbitrary number of filters when the incoming signal contains any number of harmonic components. Orig. art. has: 12 figures and 37 formulas.

ASSOCIATION: Leningradskiy politekhnicheskij institut imeni M. I. Kalinina (Leningrad polytechnic institute)

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ENCL: 01

SUB CODE: EC

NO REF SOV: 00

OTHER: 000

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L 26687-65

ACCESSION NR: AT5002369

ENCLOSURE: 01

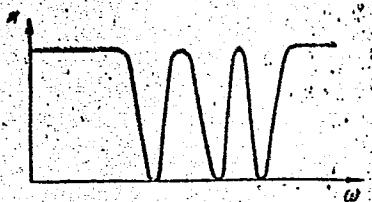


Figure 1. Amplitude-frequency characteristics of a narrow-band wavetrap.

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L 42472-65 EEO-2/EWT(d)/EEG-4 Pn-4/Po-4/Pp-4/Pq-4/Pg-4/Pk-4/P1-4 EC

ACCESSION NR: AP5006644

S/0146/65/008/001/0122/0127

AUTHOR: Chelpanov, I. B.

TITLE: Synthesizing the dynamic characteristics of a navigational-data processing system for purposes of control

SOURCE: IVUZ. Priborostroyeniye, v. 8, no. 1, 1965, 122-127

TOPIC TAGS: navigational data, navigational data processing, vehicle control

ABSTRACT: This is a further development of a previous author's work (IVUZ - Priborostroyeniye, 1964, v. 7, no. 6) where it was assumed that the navigational system operated only for indicating purposes. In the present article, the navigational system is assumed to operate as a part of the closed system: vehicle-navigational-equipment-control-equipment. On the basis of the theory of filtration of random signals, the problem is considered of finding the characteristics of a device capable of optimal processing of the signals received from

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ACCESSION NR: AP5006644

imperfect navigational equipment. A simple single-channel closed system is described by integral equations. The quality of navigation-system operation is determined by the accuracy of observing the program of actual vehicle motion. Orig. art. has: 3 figures and 17 formulas.

ASSOCIATION: Leningradskiy politekhnicheskii institut im. M. I. Kalinina
(Leningrad Polytechnic Institute)

SUBMITTED: 21Jan64

ENCL: 00

SUB CODE: NG

NO REF SOV: 003

OTHER: 000

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Card 2/2

L 21979-66 EWA(h)/EWP(k)/EWT(d)/EWT(1)/EWP(h)/EWP(1)/EWP(v) TG

ACC NR: AP6007863

SOURCE CODE: UR/0103/66/000/002/0070/0075

AUTHOR: Gil'bo, Ye. P. (Leningrad); Chelpanov, I. B. (Leningrad) 29

ORG: none 14

TITLE: Optimal nonlinear inertialess transformation of the signals of several instruments taking the nonreliability of their operation into account 25

SOURCE: Avtomatika i telemekhanika, no. 2, 1965, 70-75

TOPIC TAGS: reliability theory, reliability engineering, system reliability

ABSTRACT: The author determines the nonlinear characteristic of a device which is optimal with respect to the minimum error dispersion criterion for the problem of the conversion of data from several imperfect instruments. It is assumed that the random error distributions are known for a normal operational mode of the instrument and for failure of the instrument. It is shown for the case of three instruments that the characteristic presented assures the averaging of reliable data and rejection of unreliable data. The reliability threshold is determined by the a priori probability of instrument failure. Orig. art. has: 3 figures and 25 formulas. 2

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UDC: 62-52:519.281

L 21979-66

ACC NR: AP6007863

SUB CODE: 09 / SUBM DATE: 26Jun64 / ORIG REF: 003 //

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L 239EO-65 EWT(d)/EWT(1)/EPF(n)-2 Po-4/Pq-4/Pg-4/Pu-4/Pk-4/Pl-4 IJP(c)
WW/BC

ACCESSION NR: AP5003973

S/0103/65/026/001/0088/0090

AUTHOR: Chelpanov, I. B. (Leningrad)

TITLE: Self-adjustment in a multichannel system when a priori information concerning the properties of signals is absent

SOURCE: Avtomatika i telemekhanika, v. 26, no. 1, 1965, 88-90

TOPIC TAGS: multichannel system, self adjusting filter, self adjusting optimal filter, single channel system, optimal control system

ABSTRACT: It is stressed that the problem of the synthesis of a multichannel optimal control system utilizing the minimum mean-square error as the performance criterion has been studied by many authors under the assumption that the useful signal and the noise are random, stationary functions of time whose properties are defined by means of given correlation functions. The author investigated the case in which the cross-correlation functions of signals are not given in advance and can be determined only during the normal operation of the system. The introduction of self-adjusting filters on the basis of current estimates of cross-correlation functions is considered as a

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ACCESSION NR: AP5003973

possible means for realizing the synthesis in this case. It is shown that in single-channel systems, the possibilities of using such self-adjusting filters are very limited. In the case of multichannel systems, it is shown that there is some possibility of designing a self-adjusting optimal filter and calculating the correlation function of the signal when there are no a priori data on the spectral densities of signals. The block diagram of a multichannel self-adjusting system is presented and the performance of the self-adjusting block is explained. Orig. art. has: 2 figures and 6 formulas. [LK]

ASSOCIATION: none

SUBMITTED: 27Apr63

ENGL: 00

SUB CODE: IE, EC

NO REF SOV: 002

OTHER: 005

ATD PRESS: 3178

Card 2/2

GIL'BO, Ye.P. (Leningrad); CHELPANOV, I.B. (Leningrad)

Characteristic of an optimal inertialess impulse noise filter. Avtom.
i telem. 26 no.6:1074-1078 Je '65. (MIRA 18:7)

CHELPA NOV, I.B.

Criticality of automatic control systems optimal according to
the criterion of the minimum of a mean square error. Trudy
LPI 252:153-159 '65. (MIRA 18:9)

GOROSHCHENKO, Ya.G.; MAYOROV, V.G.; VOROBAYCHIK, A.I.; CHELPANOV, L.G.

Rotary-ring type furnace for the sulfuration of titanium-bearing materials. Titan i ego splavy no.9:162-165 '63. (MIRA 16:9)
(Sulfuration—Equipment and supplies)
(Titanium ores)

ACC NR: AR6023342

SOURCE CODE: UR/0271/66/000/004/A010/A010

AUTHOR: Konstantinov, S. V.; Chelpanov, L. V.

TITLE: Intermittent amplifier for an analog computer

SOURCE: Ref. zh. Avtomat telemekh i vychisl tekhn, Abs. 4A74

REF SOURCE: Sb. tr. In-t gorn. mekhan. i tekhn. kibernet. im. M. M. Fedorova, no. 15, 1964, 159-165

TOPIC TAGS: analog computer, computer component, ac amplifier, intermittent amplifier

ABSTRACT: Amplifiers of an intermittent action for a specialized analog computer calculating the second derivative of the gravitational potential are described. There is a capacitance coupling between the stages of the amplifier. The coupling capacitors are switched by keys. Upon closing the keys the input voltage at the stage is set at zero and charging of the coupling capacitor occurs. On opening the keys the capacitors retain the charge for a certain time and the entire circuit during this time has the properties of a dc amplifier with direct couplings. Fine tuning of the amplifier takes place during the intervals. The basic data of the intermittent amplifiers are given for two systems. The amplification factor is 30 (1000), range of output voltages 0— +50 V (0— ±50 V), and drift 0.5 mV in both cases. [Translation of abstract] 3 illustrations and bibliography of 2 titles. T. R.

SUB CODE: 09

Card 1/1

UDC: 62-52:621.375.2

3000

CHUPROVA, Aleksandr Ignat'yevna, doyarka; CHELPANOV, N.I., red.;

[On a dairy farm above the Arctic Circle] Na zapoliarnoi ferme.
Arkhangel'sk] Arkhangel'skoe knizhnoe izd-vo, 1960. 20 p.

(MIRA 14:11)

1. Nar'yan-Marskaya sel'skokhozyaystvennaya opytnaya stantsiya
(for Chuprova).

(Nenets National Area--Dairying)