LEVIN, F.D.

Over-all mechanization in laying gas pipelines. Bezop.truda v prom. 1 no.7:17-19 Jl '57. (MIRA 10:7)
(Gas, Natural--Pipelines)

LEVIN, F.D.

Unforgettable days. Stroi. pred. neft. prom. 3 no.2:1-5 F '58.
(MIRA 11:4)
(Petroleum--Pipelines)

KORTUNOV, Aleksey Kirillovich; LEVIN, F.D., red.; YERSHOV, P.R., ved. red.; TROFIMOV, A.V., tekhn. red.

[Years of a great upsurge; gas industry to the 22d Congress of the CPSU] Gody krutogo pod"ema; gazovaia promyshlennost' k XXII s"ezdu KPSS. Moskva, Gos.nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1961. 49 p. (MIRA 14:12)

1.Nachal'nik Glavnogo upravleniya gazovoy promyshlennosti SSSR (for Kortunov).

(Gas industry)

LEVIN, F.D.

Near-print industrial information; work practices of the Center for Scientific and Technological Information of the State Industrial Committee on the Gas Industry. NTI no.3:6-9 '63. (MIRA 16:11)

AZHOTKIN, G.I., red.; BESEDINA, O.S., red.; GIL', B.V., red.; DULEYEV, Ye.M., red.; IVANTSOV, O.M., red.; KOGAN, G.Ye., red.[deceased]; KUZNETSOV, P.L., red.; LEVIN, F.D., red.; SLANSKIY, D.A., red.; TELKOV, I.K., red.; KOMAROVA, L., ved. red.; KHRYASTOV, Yu., ved. red.

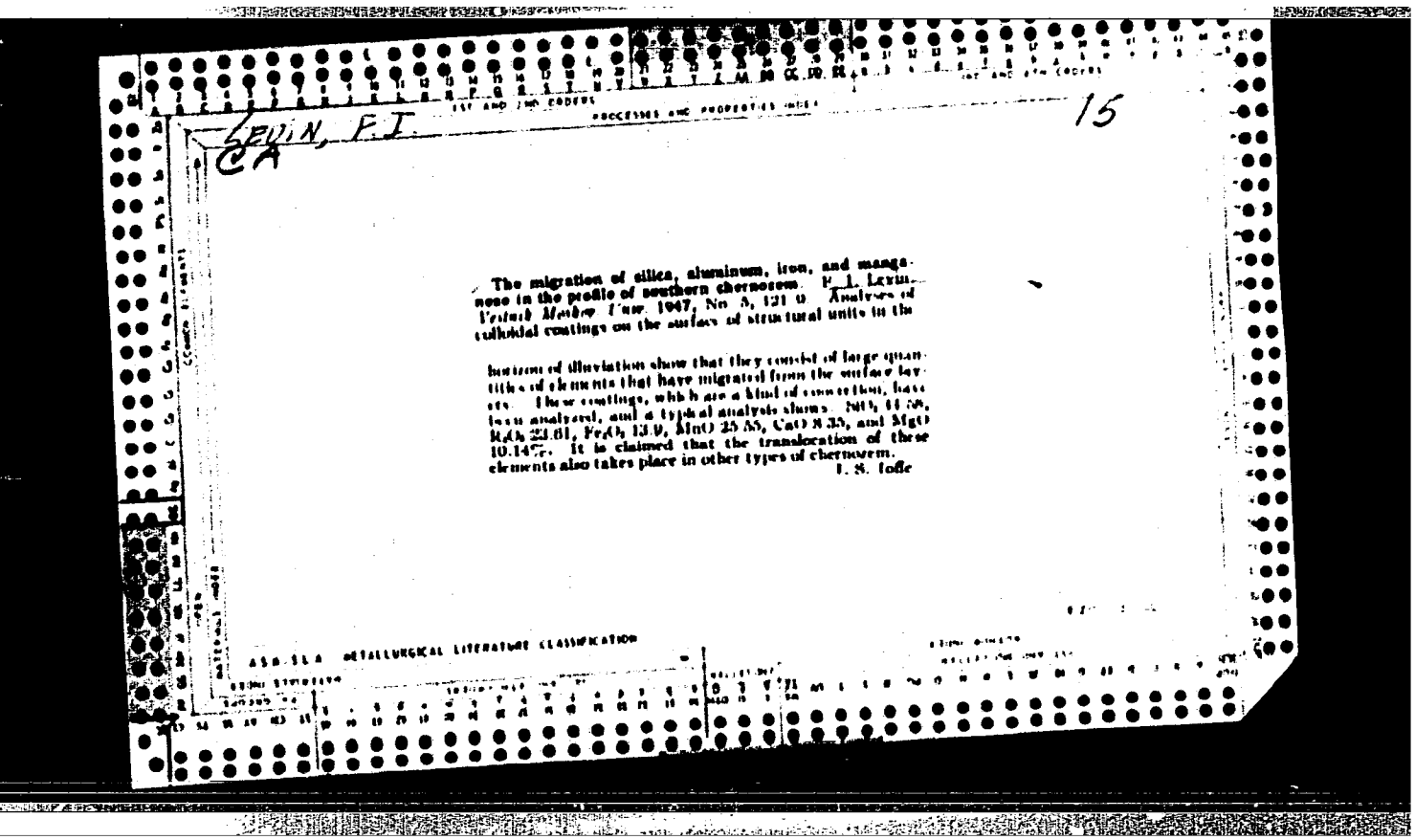
[Contribution of young specialists to the gas industry] Vklad molodykh spetsialistov v gazovuiu promyshlennost'. Moskva, 1964. 459 p. (MIRA 18:3)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy proizvodstvennyy komitet po gazovoy promyshlennosti.

LEVIN, F.I.

Effect of lime and organic fertilizers on the water stability of turf-Podzolic soils. Pochvovedenie no.10:98-104 O '57. (MIRA 10:12)

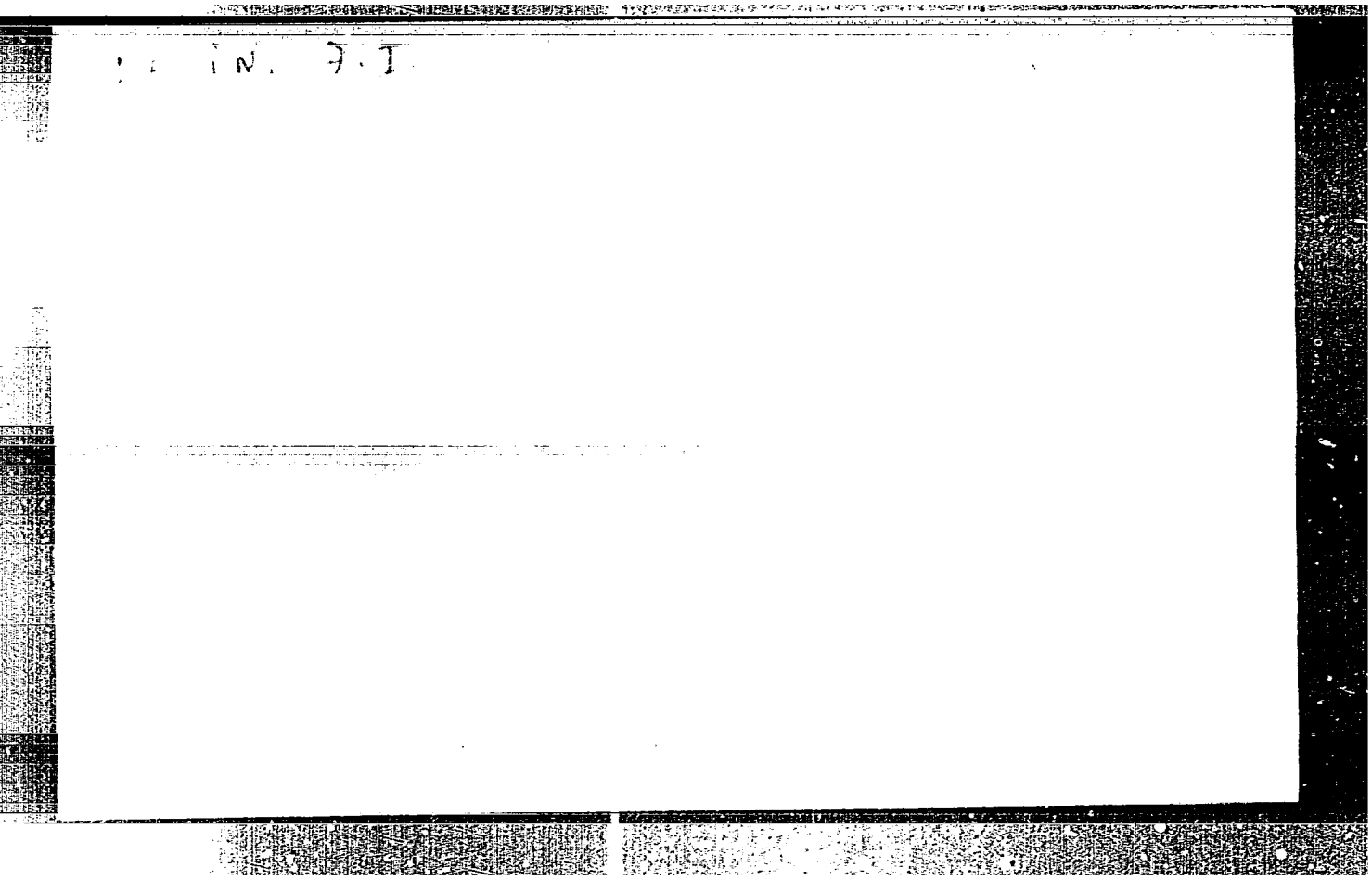
1. Pochvennaya laboratoriya Agrobiostantsii Moskovskogo gosudarstvennogo universiteta v Chashnikove.
(Podzol) (Lime) (Fertilizers and manures)

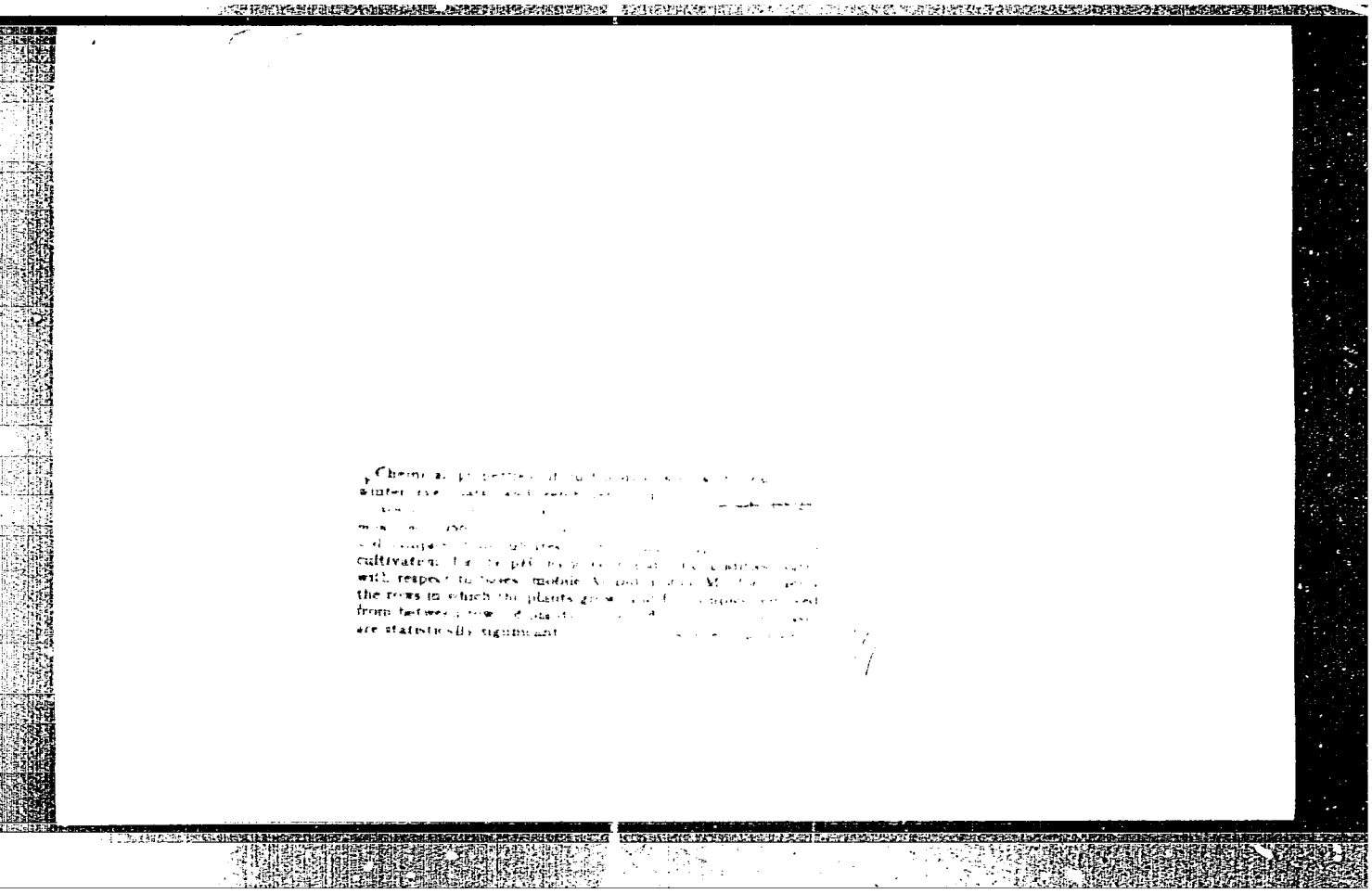


SEVIN, F.I.
CA
15

The migration of silica, aluminum, iron, and manganese in the profile of southern chernozem. F. I. Levin. *Pochvovedenie (Pedology)* 1947, No. 5, 321-9. Analyses of colloidal coatings on the surface of structural units in the horizons of illuviation show that they consist of large quantities of elements that have migrated from the surface layers. These coatings, which are a kind of concretion, have been analyzed, and a typical analysis shows: SiO_2 11.58, R_2O_3 23.61, Fe_2O_3 13.9, Al_2O_3 25.55, CaO 8.35, and MgO 10.14%. It is claimed that the translocation of these elements also takes place in other types of chernozem.
I. S. Joffe

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION





USSR / Soil Science. Physical and Chemical Properties of Soils. J-2

Abs Jour : Ref Zhur - Biologiya, No 16, 1958, No. 72662

Author : Levin, F. I.
Inst : Moscow State University
Title : Water Conductivity of the Structure of Turf-Podzolic Soils with the Application of Lime and Organic Fertilizers

Orig Pub : Pochvovedeniye, 1957, No 10, 98-104

Abstract : Results are cited of experiments on the experimental station of the Moscow State University in Chashnikov in 1951-1955. Soils of the experimental section, turf-strongly podzolic, pulverized-cleyey, weakly-cultivated ones, acids contain 10 mg of active Al per 100 g. A decrease is noted of the water conductivity of the structure with the application of lime and manure on the sections under grasses, corn, winter wheat and beets.

Card 1/2

LEVIN, F.I.

Effect of cultivation on the composition of humus in turf-Podzolic soils. Pochvovedenie no.9:85-89 S '59. (MIRA 13:1)

1.Agrobiologicheskaya stantsiya Moskovskogo gosudarstvennogo universiteta.

(Humus) (Tillage)(Podzol)

LEVIN, F.I., kand.mineralog.nauk; YAKOVLEV, A.P., kand.sel'skokhoz.nauk

Increasing the fertility of Podzols. Zemledelie 8 no.7:45-46 '60.
(MIRA 13:9)

(Podzol)

LEVIN, F.I.; SUBBOTINA, Ye.N.

Effect of large amounts of mineral fertilizers upon the acidity of soil solution and the mobility of elements in little-cultivated strongly podzolized turf soils. Nauch. dokl. vys. shkoly; biol. nauki no.3:218-222 '63. (MIRA 16:9)

1. Rekomendovana agrobiologicheskoy stantsiyey biologo-pochvennogo fakul'teta Moskovskogo gosudarstvennogo universiteta im. Lomonosova.
(Fertilizers and manures) (Soil chemistry) (Podzol)

LEVIN, F.I.

Methods of quantitative estimation of the organic matter of agricultural crops during the study of the biological cycle of nitrogen and ash elements. Bot. zhur. 49 no.8:1180-1183 Ag '64. (MIRA 17:11)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

LEVIN, Fedor Ivanovich; MITYAYEVA, Yu.P., red.

[Role of mechanical cultivation for the improvement of turf-Podzolic soils] Rol' mekhanicheskoi obrabotki v uluchshenii svoistv dernovo-podzolistykh pochv. Moskva, Izd-vo Mosk. univ., 1965. 126 p. (MIRA 18:8)

PRIDANTSEV, M.V., doktor tekhn.nauk, prof.; LEVIN, F.L., inzh.

Highly resistant nonmagnetic steel. Metalloved. i term. obr. met. no.1:41-44 Ja '63. (MIRA 16:2)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii.

(Steel, Stainless—Testing)

FRIDANTOV, M.V. (Moskva) [illegible], F.I. (Moskva)

Hardening of austenitic-ferritic steel with the formation of a nonmagnetic structure. Zav. lab. 30 no.3 131-137 My-Ja '64. (MIRA 17:6)

PRIDANTSEV, M.V. (Moskva); LEVIN, F.L. (Moskva)

Hardening of nonmagnetic steel by alloying and heat treatment.
Izv. AN SSSR. Met. i gor. delo no.4:116-122 Jl-Ag '64.
(MIRA 17:9)

L 8934-65 EWT(m)/T/EWP(q)/EWP(b) MJW/JD

ACCESSION NR: AP4043920 S/0279/64/000/004/0116/0122

AUTHOR: Pridantsev, M. V. (Moscow); Levin, F. L. (Moscow) 5

TITLE: Strengthening nonmagnetic steel by alloying and heat treatment 16

SOURCE: AN SSSR. Izv. Metallurgiya i gornoye delo, no. 4, 1964, 116-122

TOPIC TAGS: stainless nonmagnetic steel, high strength nonmagnetic steel, Kh17N4G15 steel, steel strengthening, steel aging, steel alloying, steel heat treatment 19

ABSTRACT: To obtain an Fe-Cr-Ni-Mn steel 16 with a yield strength higher than 80 kg/mm^2 by heat treatment without strain hardening, the effect of C, N, and V on the strength, ductility, and notch toughness of stainless Kh17N4G15 base steels has been investigated. The steels investigated contained 16.50—17.90% Cr, 3.82—4.60% Ni, 14.70—16.17% Mn, 0.02—0.43% C, 0.015—0.45% N, and 0.1—3.12% V. The heat treatment consisted of quenching from a temperature in the 1150—1200C range and subsequent aging. It was found that, as austenite-forming elements, C and N affect the steel structure in approximately the same

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L 8934-65
ACCESSION NR: AP4043920

degree. Steels without V are austenitic with the C or N content higher than 0.21%, but this amount should be increased to 0.27 and 0.37%, respectively, to preserve the austenitic structure in steels with 1—2% V. Alloying with V promotes formation of a fine-grained structure and a more uniform distribution of carbide and carbonitride phases. It slightly increases the strength characteristics of the steel and sharply increases the strengthening effectiveness of aging. The maximum strength with aging was achieved in a steel with 0.40 to 2% V. In the steel quenched from 1150C, 10-hr aging at 700C increased the tensile strength from 85 to 98 kg/mm^2 and the yield strength from 55 to 73 kg/mm^2 but decreased elongation from 25 to 12% and the notch toughness from 9.5 to 7.0 kgm/cm^2. The best combination of strength ductility, and notch toughness is achieved by combined alloying of steel with C, N, and V; moreover, substitution of N for C improves the anticorrosion properties of the steel. The steel strengthening resulting from precipitation of the excess V(CN), $Me_{23}C_6$, and Cr_2N phases with aging depends on the ratio of C, N, and V in the steel and is proportional to the amount of V. No aging is observed in steels without V. With an unfavorable combination of C, N, and V when a ferritic component is present in the steel structure, the aging results in decomposition of the ferrite with the formation of a nonmagnetic

Card 2/3

L 8934-65

ACCESSION NR: AP4043920

α-phase and secondary austenite. Orig. art. has: 6 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 26Jul64	ATD PRESS: 3109	ENCL: 00
SUB CODE: MM, IE	NO REF SOV: 002	OTHER: 000

Card 3/3

S/0279/64/000/003/0131/0137

ACCESSION NR: AP4040985

AUTHORS: Pridantsev, M. V. (Moscow); Levin, F. L. (Moscow)

TITLE: Austenite-ferrite steel strengthening with formation of nonmagnetic structures

SOURCE: AN SSSR. Izvestiya. Metallurgiya i gornoye delo, no. 3, 1964, 131-137

TOPIC TAGS: magnetic permeability, martensitic steel, ferritic steel, vanadium, silicon, nickel, carbon, nitrogen, alloying, heat treatment, steel/ Kh18N4G10 steel, EI 878 steel, AISI 202 steel, Kh18VN4G10 steel

ABSTRACT: The possibility of obtaining high-strength nonmagnetic steels was investigated. These steels are obtained by the decay of the ferrite component upon aging and by the subsequent formation of a σ-phase and secondary austenite in the specimen structure. A two-phase austenite-ferrite Kh18N4G10 steel was used as the test specimen. Structural changes, magnetic permeability, and mechanical properties were investigated as a function of heat treatment and alloy content. Heat treatments consisted of high-temperature quenching with cooling in water, followed by aging. Alloy materials consisted of ferrite-producing vanadium and silicon and austenite-forming nickel, carbon, and nitrogen. The degree of reinforcement was seen to decrease during aging (annealing at 400 and 700C for 50 hrs) with a decrease

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(N) L 12094-66 EWT(m)/EWP(e)/EWP(w)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b) IJP(c)

ACC NR: AP6000603 SOURCE CODE: UR/0129/65/000/012/0010/0014

MJW/JD/HW/JG

AUTHOR: Pridantsev, M. V.; Levin, F. L.

ORG: TsNIIChERMET

TITLE: Effect of manganese on the structure and properties of nonmagnetic stainless steels

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 12, 1965, 10-14

TOPIC TAGS: manganese containing steel, stainless steel, magnetic permeability, nitrogen, ferrite

ABSTRACT: The authors present the results of an investigation of the steels Kh18N4, Kh15N4 and Kh8N9 (containing 8-16% Mn) as well as of steels additionally alloyed with nitrogen. Presence of the ferromagnetic component was determined by the differential method according to the degree of magnetic saturation. The measurements were performed in a magnetic field with an intensity of 200 e. The figures on magnetic saturation were recalculated in terms of magnetic permeability. Findings: Mn increases the yield point of austenitic steels. For two-phase austenite-ferrite steels containing 4% Ni, the effect of Mn depends on the Cr content: a) in steels containing 18% Cr the amount of austenitic phase increases as the Mn content increases to 14%, but the ferritic component cannot be completely eliminated on alloying with Mn;

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UDC: 620.17:669.14.018.5

L 12094-66
ACC NR: AP6000603

b) in steels containing 15% Cr the formation of austenitic structure requires 14% Mn. In order to obtain an austenitic structure in stainless steels containing 18% Cr and 4% Ni, it is necessary to add nitrogen in addition to Mn. Nitrogen is added as an alloy element to stainless steels, because it expands the α-region and strengthens austenite without vitiating corrosion resistance. The solubility of nitrogen in austenite increases with increasing content of Mn. Mn acts as an austenite-forming element which contributes to reducing the amount of the α-phase in two-phase steels of the Kh18N4 type. The effect of Mn is particularly marked in the presence of high hardening temperatures. For example, in specimens quenched from 1250°C increasing the Mn content from 10 to 14% reduces magnetic permeability 1.5 times for steels with 18% Cr and 2 times for steels with 15% Cr. This must be taken into account when developing low-magnetic Cr-Ni-Mn steels requiring high hardening temperatures. Orig. art. has: 2 tables, 3 figures.

SUB CODE: 11, 13, 20/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 001

Card 2/2

L 36977-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6013361 SOURCE CODE: UR/0370/66/000/002/0102/0106

AUTHOR: Pridantsev, M. V. (Moscow); Levin, F. L. (Moscow)

ORG: none

TITLE: Relationship between the hardening and change in phase composition of high-strength dispersion-hardening nonmagnetic steel

SOURCE: AN SSSR. Izvestiya. Metally, no. 2, 1966, 102-106

TOPIC TAGS: high-strength steel, dispersion hardening, vanadium steel

ABSTRACT: The study considers certain aspects of hardening involving the determination of the quantity and composition of the hardening phases and certain characteristics of their separation during heat treatment of 25Kh17N4G15AF2 steel of the following composition: 0.23-0.30% C, 16-18% Cr, 3.5-4.5% Ni, 14-16% Mn, 0.25-0.37% N_2, 1.2-2.2% V, not more than 1.00% Si, not more than 0.03% S, and not more than 0.05% P. Dispersion hardening of this steel was found to produce high yield point values combined with satisfactory plasticity and impact resistance values. The hardening is associated with processes of separation of excess carbide and carbonitride phases, $Me_{23}C_6$, Cr_2N, and V(CN). The change in the phase composition of the steel at various stages of the heat treatment and the change in the lattice constant during aging were determined. The hardening effect is a function of the composition, quantity, and

Card 1/2 UDC: 669.15

L 30977-66

ACC NR: AP6013361 /

relative proportions of the hardening phases, and also of the nature of their distribution and degree of dispersion. A highly favorable and decisive influence on the hardening of the steel during aging is exerted by uniformly distributed sparingly soluble vanadium carbonitrides, which hinder grain growth during heating and separate in a highly dispersed state during aging. Orig. art. has: 2 figures and 1 table.

SUB CODE: 11/ SUBM DATE: 11May65/ ORIG REF: 003

Card 2/2

FEDORENKO, Nikolay Trofimovich; LEVIN, F.M., red.; KANDYKIN, A.Ye., tekhn. red.

[Chinese notebook] Kitaiskie zapisi. Moskva, Sovetskii pisatel', 1958 557 p. (MIRA 11:10)
(China--Descritpion and travel)

LEVIN, F. P.

"Determining the Zone of Momentary Cut-off in Maximum Current Protection Set up on Reactivated Feeders," Elek. Stan., No. 3, 1949. Engr.

LEVIN, F. P.

USSR/Electricity - Distribution, Power Mar 51

"Metal 6-10 KV Distributing Stations For Outdoor Installation," Ya. A. Irlakhman, F. P. Levin, Engineers, Sibelektromontazh, Min for Constr of Heavy Ind Enterprises

"Elektrichestvo" No 3, pp 66-68

Describes enclosed all-metal distributing stations for 6-10 kv composed of large units prefabricated at workshops or in a plant. Submitted 15 Sep 50.

201T33

KRACHKOVSKII, N. N.; SHNEYERMAN, I. S.; LEVIN, F. P.

LEVIN, F. P.

"Several Questions of the Schemes of Interconnection of High-Voltage Nets," Electricity, Publ. by the Printing House of the Govt. Energy (Electrical) Publ. House, in Moscow, 1952.

SHNEYDMAN, ENOS, YA. S., LEVIN, L. P.

Krachovskiy, N. N.

Remarks on N. N. Krachovskiy's article " Some problems of cummutation schemes of high voltage networks." Elektrichestvo no. 6, 1952.

MONTHLY LIST OF RUSSIAN ACCESSIONS. Library of Congress. November 1952. UNCLASSIFIED.

IRLAKHMAN, Ya.A., inzhener; LEVIN, F.P., inzhener.

Metal-built distributior substation (RU) for outside installation. Prom.energ. 12 no.9:23-25 S '57. (MIRA 10:10)
(Electric substations)

KUDRYASHOV, S.A., insh.; LEVIN, F.P., insh.

Switchgear layout with bus bars in the lower part. Elek. sta. 29 no.4:90-91 Ap '58. (MIRA 11:8)

(Electric switchgear)

IRLAKHMAN, Ya.A.; LEVIN, F.P.

Problem of substations with large units. Avt.dor. 23 no.1:50 Ja '60. (MIRA 13:5)

1. Gosudarstvennyy proyektnyy institut "Elektroproyekt," Novosibirsk.
(Electric substations)

LEVIN, G.

LEVIN, G.; VOL'MIR, V.

Investigating the thermal and physical properties of porous polystyrene [with summary in English]. Khol. tekh. 35 no.1:47-52 Ja-F '58. (MIRA 11:2)
(Styrene--Testing)

LEVIN, G.

[redacted]

Capital investment in ferrous metallurgy and time limit for the construction of industrial installations. Vop. ekon. no.2:36-49 F '58. (MIRA 11:3)
(Steel industry--Finance)

LEVIN, G.

Ways to determine the economic efficiency of the introduction of modern technology. Vop.ekon.no.8:59-74 Ag '56. (MIRA 9:9)
(Technology)

LEVIN, G.

Rapid method for assembling the equipment of a blast furnace charging mechanism. Prom. stroi. i inzh. soor. 2 no. 1:10-11 Ja '60. (MIRA 14:1)

1. Nachal'nik Zhdanovskogo upravleniya "Metallurgmontazh."
(Zhdanov—Blast furnaces—Equipment and supplies)

LEVIN, G.

Current economic problems of capital construction.
Vop. ekon. no.11:37-47 N '62. (MIRA 15:11)
(Construction industry—Management)

LEVIN, G.

Helping people is a good occupation. Sov.profsoiuzy 19 no.3: 8-9 F '63. (MIRA 16:2)

1. Predsedatel' profsoyuznogo komiteta Rumayevskogo territorial'nogo proizvodstvennogo kolkhozno-sovkhoznogo upravleniya, TSelinnyy kray.
(Rumayevka District (Kokchetav Province)—Trade unions)
(Rumayevka District (Kokchetav Province)—State farms—Management)

Coauthor with M. M. Golovchiner of "Quantized Noise in Pulse-Code Modulation", Vestnik NII MPSS, 3(26), 1952 -- RT 8/55/21

Scientific Research Institute, Ministry of Communications Equipment Industry
(NII Ministerstvo Promyshlennosti Sredstv Svyazi)

LEVIN, G. A. LEVIN, G. A.

USSR/Electronics FD 228

Card 1/1

Author : Levin, G. A. and Levin, B. R., Active Members, VNORiE

Title : The passband of a linear system and the reproduction of signals without distortion

Periodical : Radiotekhnika 9, 21-30, Mar/Apr, 1954

Abstract : Considers calculations of signal pulse form distortions during transmission through a minimum-phase linear system if only the frequency characteristic is known. The distortion factor of signal form as a whole and the time lag of the signal are used as quantitative measurements of distortion. Also shows that spreading the characteristics of the standard frequency response passband causes an automatic improvement of the form of its phase response. Six references: 6 USSR.

Institution : All-Union Scientific and Technical Society of Radio Engineering and Electric Communications imeni A. S. Popov (VNORiE)

Submitted : October 31, 1952

LEVIN, G.A.

USSR/Electronics - Pulse techniques FD-2288

Card 1/1 Pub 90-1/12

Author : Levin, G. A. and Levin B. R.

Title : Time Characteristics of signal Pulses Passing Through Linecr Systems

Periodical : Radiotekhnika 10, No. 1 3-11, Jan 1955

Abstract : Article gives new calculations for delay time, displacement time, and time of rise of the signal front for multi-stage circuits with monotonic and non-monotonic transient characteristics. In a system with identical stages and monotonic transient characteristics, the time of rise of the signal front is equal to difference between the delay time and displacement time. The formulas and graphs in the work can be used in planning multistage systems for reproduction of rectangular pulse signals with given distortion characteristics. Tables, graphs. Four references, 3 USSR.

Institution: --

Submitted : May 28, 1954

USSR/Electronics-Communications LEVIN, G. A. FD-2651

Card 1/1 Pub. 90-1/11

Author : Levin, G. A., and Golovchiner, M. M.

Title : Analysis of Quantization Noise in Pulse-Code Modulation

Periodical : Radiotekhnika, 10, No 8, 3-21, Aug 1955

Abstract : In connection with the importance of pulse-code modulation to multichannel radio relay lines used for communications, television, navigation, and remote control, the authors examine the character of the spectrum of signal harmonics and combination frequencies developed by quantization of a sinusoidal signal. They derive basic expressions for determining the power of quantization noise for both c-w and pulse transmission. They determine the power of quantization noise using preliminary signal compression and expansion and find a rule for optimum distribution of levels for a sinusoidal signal. Graphs. Three references: 1 USSR.

Institution :

Submitted : February 18, 1955

Category : USSR/Radiophysics - Generation and conversion of radio-frequency oscillations I-4

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 1829

Author : Levin, G.A., Vazhenina, Z.P.
Title : Use of Reactance Tube To Control the Frequency of Vacuum-Tube Oscillator

Orig Pub : Elektrosvyaz', 1956, No 8, 3-17

Abstract : Discussion of the problem of the limiting frequency deviation in a vacuum-tube oscillator, obtainable with the aid of a reactance tube. The connection between the frequency deviation and the depth of the parasitic amplitude modulation is established. In one version of a circuit for connecting the reactance tube to the oscillator tank circuit it is possible to reduce considerably the parasitic amplitude modulation, compared with the usual circuit, over a wide range of oscillator frequency variation. Calculations made with the derived equations are compared with experimental data.

Card : 1/1

LEVIN, G.A.; VAZHENINA, Z.P.

Controlling the frequency of electron-tube generators with the aid of reactive tubes. Elektrosviaz' 10 no.8:3-17 Ag '56. (MLRA 9:9)
(Oscillators, Electron-tube)

SUBJECT USSR/MATHEMATICS/Fourier series CARD 1/2 PG - 149
AUTHOR TURKIN V.K., LEVIN G.A.
TITLE On the theory of the detection of frequency modulated oscillations.
PERIODICAL Doklady Akad. Nauk 106, 999-1002 (1956)
reviewed 7/1956

A frequenwy modulated oscillation of the form $u = A \exp\left[i(\omega_0 t + m \sin \Omega t)\right]$ which can be represented by Bessel functions:

$$u = A \sum_{n=-\infty}^{\infty} J_n(m)\cos(\omega_0+n\Omega)t$$

shall be amplitude modulated: $v = A \sum b_n J_n(m)\cos(\omega_0+n\Omega)t$ and then conducted by an"amplitude detector" with the characteristic $i = \gamma_0 + \gamma v^2$. For the case that the b_n are polynomials or exponential functions of n, Fourier developments of i are known. The author considers the practically essential case that b_n is a broken rational function of n. After depompositions of a fraction into partial fractions, as the coefficients of the Fourier series of i one obtains functions of the form

Doklady Akad. Nauk 106, 999-1002 (1956) CARD 2/2 PG - 149

$$\sum_{n=-\infty}^{\infty} n^a J_n(m) J_{\pm(n-\mu)}(m) \quad \text{and} \quad \sum_{n=-\infty}^{\infty} \frac{J_n(m) J_{\pm(n-\mu)}(m)}{(n-\alpha)^k}$$

($a \geq 0$, $k > 0$ and μ integers; α complex). For the second type of functions the author gives recursion formulas, integral representations and asymptotic developments (for some special cases).

LEVIN, G.A.

Heinrich Hertz; on the hundredth anniversary of his birth, 1857-1957. Elektrosviaz' 11 no.2:3-4 F '57. (MLRA 10:3)
(Hertz, Heinrich, Rudolph, 1857-1894)

AUTHORS: Levin, G.A. and Zerova, M.V. Sov/106-58-2-1/16

TITLE: Tuning Error in a Pulse-signal Receiver Using a.f.c. With a Diode-phantastron Control Circuit (Oshibka v nastroyke priyemnika impul'snykh signalov pri primenenii APCh s diodno-fantastronnoy skhemoy upravleniya)

PERIODICAL: Elektrosvyaz', 1958, Nr 2, pp 3 - 11 (USSR).

ABSTRACT: The input signal is mixed with a local oscillation whose frequency may be controlled by a voltage. The output of the mixer is fed via a tuned amplifier to a discriminator, the cross-over frequency of the discriminator and the centre frequency of the amplifier being the same. The voltage pulses out of the discriminator are amplified and fed to the diode-phantastron circuit. In the absence of discriminator output, the phantastron produces a saw-tooth voltage waveform, causing the local oscillator to "search" over the frequency scale. The grid of the phantastron is returned to earth via the diode, connected as a d.c. restorer. Discriminator pulses appearing across the diode produce a negative voltage which stops the search. The anode voltage of the phantastron is now dependent on the voltage at its grid and behaves like an ordinary "integrator". The following assumptions are made in

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the analysis of the circuit:- within the working limits, the discriminator characteristic, the control characteristic of the local oscillator and the anode-grid relation of the phantastron valve when used as an amplifier are all linear; the pulses are rectangular; distortion suffered in transit through the narrow-band and video amplifiers are neglected; the diode characteristic is piecewise linear. Since the relations in the rest of the loop are independent of time, interest is centred on the behaviour of the control circuit. Analysis of the circuit of Figure 4 yields equations (9) and (10) which describe the way in which the grid voltage of the phantastron varies in the interval between pulses. Eqs.(13), (14) and (15) give the deviation of local oscillator frequency from nominal value and the time-rate of change. Because of the periodic nature of the signal, the local oscillator frequency will also have a saw-tooth variation. The tuning error is defined as the peak deviation of local oscillator frequency from the cross-over point of the discriminator and is given by Eq.(20). This error will be the less, the higher the video gain and

discriminator slope, the greater the ratio of pulse-length to charge time of capacitor C_1, the smaller the ratio of repetition period to discharge time of C_1. When the tuning error is large, it is sometimes advisable to displace the crossover frequency of the discriminator away from the nominal amplifier band-centre.
There are 7 figures and 1 Soviet reference.

SUBMITTED: March 4, 1957

Card 3/3 1. Electronic equipment--Performance 2. Electric circuits--Analysis
3. Electron tubes--Control systems

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S/106/60/000/005/002/009
A055/A133

AUTHORS: Levin, G. A.; Levin, B. R.; Ayzenberg, V. I.; Rozanov, V. S.

TITLE: Increasing the efficiency of multichannel systems with time division of channels

PERIODICAL: Elektrosvyaz', no. 5, 1960, 10-16

TEXT: Statistical measurements in multichannel systems with time division of channels revealed that a telephone channel is really active only for about 15 minutes per hour at maximum load. The probability law proves that during 99% of the total time the number of active channels does not exceed a value $n < N$ (N being the total number of channels). The present article shows how it is possible to increase the efficiency of these multichannel systems by a proper use of inactive intervals and channels. It also shows that this efficiency can be increased by a more complete utilization of the statistics of the instantaneous values of the transmitted signals: by varying the duration of the channel intervals in accordance with the instantaneous value of the transmitted signal, it is possible to increase the number of channels. To enhance this efficiency, it is necessary to abandon the channel interval of constant duration. Inasmuch as

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the time interval between pulses of the preceding and following channels is used as carrier of useful information, the method described by the authors is a variety of pulse-time modulation and can therefore be named "interval pulse-time modulation" or IPTM. There are many possible variants of this new type of modulation system, but all these variants can be divided into definite categories according to: 1) the method used for transmitting the number (n^0) of the channel 2) the method allowing to take into account the sign of the modulating signal. Let us assume that the voice signal $\xi(t)$ is a stationary random process with probability density $w(x)$, with zero mean value and with dispersion σ_ξ^2. Let us analyze the systems where the information interval is modulated by the absolute value $h|\xi(t)|$ of the signal in a given channel, and where the sign of the signal is coded by an additional pulse. If t_ν is the random duration of the information interval of the ν-th channel, the probability density of t_ν is:

$$W(x) = \frac{2}{h} w\left(\frac{x}{h}\right), \qquad x > 0 \tag{1}$$

where h is the proportionality coefficient(which will be assumed equal to one). The mean value and the dispersion of t_ν are respectively:

$$m_1\{t_\nu\} = \frac{2}{h}\int_0^\infty xw\left(\frac{x}{h}\right)dx = hm_1\{|\xi(t)|\}, \tag{2}$$

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Increasing the efficiency of multichannel ...

and

$$M_2\{t_\nu\} = \frac{2}{h}\int_0^\infty x^2 w\left(\frac{x}{h}\right) dx - h^2 m_1^2 \left\{\left|\xi(t)\right|\right\}. \quad (3)$$

In the case of IPTM where information intervals are modulated by the sum of the instantaneous values of the signal and by its envelope E (t), the mean value of t_ν is:

$$m_1\{t_\nu\} = m_1\{\xi(t)\} + m_1\{E(t)\}. \quad (4)$$

and the dispersion is:

$$M_2\{t_\nu\} = M_2\{\xi(t)\} + M_2\{E(t)\}. \quad (5)$$

To compare the efficiency of several variants of the system using IPTM, the gain procured by any one of these variants (as regards the number of channels and the frequency-band) in respect of the usual pulse-phase modulation systems is to be calculated. In the usual N-channel pulse-phase modulation, interval T_o is the sum of N + 1 channel-intervals (account taken of the synchronization channel). The duration of one channel-interval is the sum of pulse $\tilde{\tau}$, of the protective time 3τ and of the duration of the information interval $2\alpha_1\sigma$. The magnitude

of the peak factor α_1 is derived from the condition that the absolute values do not exceed (with a given probability p_1) $\alpha_1 \sigma$. Thus:

$$T_o = (N + 1)(4\tau + 2\alpha_1 \sigma). \quad (7)$$

Let us now analyze the time T_i occupied in one period by N_i channels of the IPTM system [Abstracter's note: Subscript i stands for any one of the compared variants of the system.]. If $B_i\tau$ is the duration of the code combination of pulses per channel, T_i is the sum of the time $(B_iS_i + 2)\tau$ occupied by code combinations and marker pulse, and of the total information time equal to the sum of n_i independent, similarly distributed, random magnitudes. S_i is here equal to the number n_i of active channels in the case of a special coding of the number (n^o) of the channel, and to the total number N_i of channels in the case of a simple reading of channels. If the number of active channels is, with a probability near one, not inferior to ten, the total information time can be considered as distributed according to the normal law with the mean and the dispersion respectively equal to $n_i m_1^{(i)}\{t_\nu\}$ and $n_i M_2^{(i)}\{t_\nu\}$. Therefore, T_i is a fortuitous magnitude whose parameters are:

$$m_1\{T_i\} = (B_iS_i + 2)\tau + n_i m_1^{(i)}\{t_\nu\}, \quad M_2\{T_i\} = M_2^{(i)}\{t_\nu\}\, n_i. \quad (8)$$

T_i is limited below by magnitude c (minimum duration of all code combinations and

Increasing the efficiency of multichannel ...

of marker pulse in one period and must not exceed, with probability p_2 near one, the duration of period T_o, this to avoid distortions. Taking (8) into account, we obtain:

$$F\left\{\frac{T_0-(B_iS_i+2)\tau-n_im_1^{(i)}(t_v)}{\sqrt{M_2^{(i)}(t_v)n_i}}\right\}-F\left\{\frac{\tau-(B_i'i+2)\tau-n_im_1^{(i)}(t_v)}{\sqrt{M_2^{(i)}(t_v)n_i}}\right\}=p_2. \quad (9)$$

But it is possible to state that

$$F\{\tau_2\}=P_2 \quad (10)$$

where

$$\tau_2=\frac{T_o-(B_i3_i+2)\tau-n_im_1^{(i)}(t_v)}{M_2^{(i)}(t_v)n_i}. \quad (11)$$

Equation (10) allows to determine τ_2 (for a given probability $1-p_2$ of the system overload). Using the expression:

$$\Im A_1=n_im_1^{(i)}(t_v)+\tau_2\sqrt{n_iM_2^{(i)}(t_v)}. \quad (12)$$

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we find:

$$T_o = (B_1 S_1 + 2)\tau + \theta A_1. \quad (13)$$

Substituting into (13) the value of τ extracted from (7), we find the final formula for the possible number of channels N_1, when (the noiseimmunity remaining unaletered) one of the variants of IPTM is used instead of pulse-phase modulation: n_1 being determined as a function of N_1 with the aid of the "activity curve" (activity coefficient k versus N). Equation (14) allows to find function $N_1 = N_1 (N)$ at fixed values of T_o and τ, and at given values of p_1 and p_2. If, with IPTM, the number of channels is left equal to N, the time occupied by these N channels will be inferior to T_o. It will be possible, therefore, to increase the pulse duration up to:

$$\tau_1 (N) = \frac{T_o - A_1 \theta}{B_1 S + 2} \quad (15)$$

The narrowing of the required frequency band, allowed by the passage from pulse-phase modulation to IPTM, will then be characterized by the relation:

$$\Delta_1 = \frac{\tau_1}{\tau} \quad (16)$$

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At the end of the article, the authors, using the above set of formulae, compare the efficiency of the different variants (i) of the IPTM system. They find that the least efficiency corresponds to the coding of the number (n^{o}) of channels by a uniform binary code. With a non-uniform binary code, the minimum efficiency (1.75-times increase of the number of channels) is yielded by the system with the additional, sign indicating, signal, and the maximum efficiency (1.91-times increase of the number of channels) is yielded by the transmission of the sum (signal + its envelope). The greatest efficiency (4.15-times increase of the number of channels) is obtained with the simple reading of channels and the transmission of the sum (signal + its envelope); this method ensures also the maximum narrowing of the band for the same number of channels. There are 5 figures, 2 tables and 5 references: 2 Soviet-bloc and 3 non-Soviet-bloc. The two references to English-language publications read as follows: Holbrook, Dixon. "Load Rating Theory for Multichannel Amplifiers". BSTY, v. 18, 624, 1939. US-Patent, cl. 179-15. no. 2724017, 15-11-55.

SUBMITTED: February 3, 1960

Card 7/7

KALABEKOV, B.A.; LEVIN, G.A.

Optimum predistortions in multichannel radio relay communication lines with frequency-division multiplex and frequency modulation. Elektrosviaz' 14 no.1:45-55 Ja '60.
(MIRA 13:5)
(Radio-transmitters and transmission)

LEVIN, G.A.; LEVIN, B.R.; AYZENBERG, V.I.; ROZANOV, V.S.

Increase in the effectiveness of multichannel systems with separation of channels. Elektrosvias' 14 no.5:10-16 My '60. (MIRA 13:8)
(Radiotelephone)

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S/109/61/006/009/004/018
D201/D302

9.3273 (also 1040, 1159)

AUTHORS: Turkin, V.K., and Levin, G.A.

TITLE: Detection of frequency modulated signals

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 9, 1961, 1460 - 1464

TEXT: In their previous work (Ref.1: Dokl. AN SSSR, 1956, 106, 6) the authors derived new forms of special functions which are of interest in the theory of detecting frequency modulated waves. These functions are given by

$$T_{\mu}^{(k)}(m, \alpha) = \sum_{n=-\infty}^{\infty} \frac{J_n(m) J_{n-\mu}(m)}{(n-\alpha)^k}, \qquad (1)$$

$$U_{\mu}^{(k)}(m, \alpha) = \sum_{n=-\infty}^{\infty} \frac{J_n(m) J_{\mu-n}(m)}{(n-\alpha)^k}. \qquad (2)$$

Here k - a whole positive number; μ - a whole number; m - a real

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number; α - any number (real or complex); $J_n(m)$, $J_{n-\mu}(m)$ and $J_{\mu-n}(m)$ - Bessel functions of the first kind. They also explained how the above functions should be used in the design procedure of an FM detector. Previously (Ref. 1: Op.cit.), the authors derived several formulae facilitating the tabulation of functions (1) and (2) In the present article the authors derive assymptotic formulae of another form which are more suitable for numerical evaluation of the above functions. This they do assuming that α is a very large number which is usually true in practical cases and that $\mathrm{Im}(\alpha) < o_1$, e.g. that $\alpha = \sigma - i\Psi$ where $\Psi > 0$. Under those assumptions and after various mathematical operations

$$I_o \sim -\frac{1}{(2i\alpha)^{\mu+1}} m^{\mu}(e^{-2\pi i\alpha} - 1) - \frac{1}{(2i\alpha)^{\mu+2}} \int_0^{\pi} \frac{d^{\mu+1}u}{dz^{\mu+1}} e^{-2i\alpha z} -$$

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$$-\frac{1}{(2i\alpha)^{\mu+3}}\int_0^{\pi}\frac{d^{\mu+2}u}{dz^{\mu+2}}e^{-2i\alpha z}-\ldots-\frac{1}{(2i\alpha)^{n+1}}\int_0^{\pi}\frac{d^{n}u}{dz^{n}}e^{-2i\alpha z}-\ldots$$

is derived as an assymptotic formula for Eq. (1) when s = 0 and

$$I_s\sim-\frac{1}{(2i\alpha)^{\mu+1}}\pi^s m^{\mu}e^{-2\pi i\alpha}-\frac{1}{(2i\alpha)^{\mu+2}}\int_0^{\pi}\frac{d^{\mu+1}}{dz\mu+1}e^{-2i\alpha z}-$$

$$-\frac{1}{(2i\alpha)^{\mu+s}}\int_0^{\pi}\frac{d^{\mu+s}u}{ds^{\mu+s}}e^{-2i\alpha s}-\ldots-\frac{1}{(2i\alpha)^{n+1}}\int_0^{\pi}\frac{d^{n}u}{ds^{n}}e^{-2i\alpha s},$$

for $s>0$ [Abstractor's note: Meaning and use of Eqs. (1) and (2) not given: Parameter s results from mathematical operations on (1) and (2)]. In a similar manner one assymptotic representation of function (2) is derived as

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Detection of frequency ...

$$K_0 \sim -\frac{J_\mu(2m)}{2i\alpha}(e^{-2\pi i\alpha}-1)-\frac{1}{(2i\alpha)^2}\int_0^\pi \frac{dv}{ds}e^{-2\pi i\alpha s}- \\ -\frac{1}{(2i\alpha)^3}\int_0^\pi \frac{d^2v}{ds^2}e^{-2\pi i\alpha s}-\ldots-\frac{1}{(2i\alpha)^{n+1}}\int_0^\pi \frac{d^nv}{ds^n}e^{-2\pi i\alpha s}-\ldots$$

$$K_1 \sim -\frac{\pi^2 J_\mu(2m)}{2i\alpha}e^{-2\pi i\alpha}-\frac{1}{(2i\alpha)^2}\int_0^\pi \frac{dv}{ds}e^{-2\pi i\alpha s}- \\ -\frac{1}{(2i\alpha)^3}\int_0^\pi \frac{d^2v}{ds^2}e^{-2\pi i\alpha s}-\ldots-\frac{1}{(2i\alpha)^{n+1}}\int_0^\pi \frac{d^nv}{ds^n}e^{-2\pi i\alpha s}-\ldots$$

for $\alpha > 0$. It is stated in conclusion that the above formulae compared with those given in Ref. 1 (Op.cit.) simplify evaluation of the results of detecting frequency modulation. There are 1 figure and 1 Soviet-bloc reference.

SUBMITTED: May 9, 1961

Card 4/4

LEVIN, G.A.; TURKIN, V.K.

Concerning the theory of the detection of complex frequency modulated signals. Radiotekh. i elektron. 6 no.9:1465-1467 S '61. (MIRA 14:8)

(Radio detectors)
(Radio—Receivers and reception)

LEVIN, G.A.

Review of B. R. Levin's book "Theory of random processes and its application in radio engineering". Elektrosviaz' 15 no.1:49,74 Ja '61. (MIRA 14:3)

(Radio) (Probabilities)
(Levin, B.R.)

GUREVICH, Moisey Sergeyevich; LEVIN, G.A., retsenzent; LIVSHITS, Kh.A., retsenzent; ROZOV, V.M., otv. red.; VEYTSMAN, G.I., red.; ROMANOVA, S.F., tekhn.red.

[Radio-signal spectra] Spektry radiosignalov. Moskva, Sviaz'-izdat, 1963. 310 p. (MIRA 16:6)
(Radio waves-Spectra)
(Information theory)

LEVIN G.A.

BERG, A.I., glav. red.; TRAPEZNIKOV, V.A., glav. red.; BERKOVICH, D.M., zaml glav. red.; LERNER, A.Ya., doktor tekhn. nauk, prof., zam. glav. red.; AVEN, O.I., red.; AGEYKIN, D.I., red.; kand. tekhn. nauk, dots., red.; AYZERMAN, M.A., red.; VENIKOV, V.A., doktor tekhn. nauk, prof., red.; VORONOV, A.A., doktor tekhn. nauk, prof., red.; GAVRILOV, M.A., doktor tekhn. nauk, prof., red.; ZERNOV, D.V., red.; IL'IN, V.A., doktor tekhn. nauk, prof., red.; KITOV, A.I., kand. tekhn. nauk, red.; KOGAN, B.Ya., doktor tekhn. nauk, red.; KOSTOUSOV, A.I., red.; KRINITSKIY, N.A., kand. fiz.-mat. nauk red.; LEVIN, G.A., prof. red.; LOZINSKIY, M.G., doktor tekhn. nauk, red.; TOSSIYEVSKIY, V.I., red.; MAKSAREV, Yu.Ye., red.; MASLOV, A.A., dots., red.; POPKOV, A.A., red.; RAKOVSKIY, M.Ye., red.; ROZENBERG, L.D., doktor tekhn. nauk, prof., red.; SOTSKOV, B.S., red.; TIMOFEYEV, P.V., red.; USHAKOV, V.B., doktor tekhn. nauk, red.; FEL'DBAUM, A.A., doktor tekhn. nauk, prof., red.; FROLOV, V.S., red.; KHARKEVICH, A.A., red.; KHRAMOY, A.V., kand. tekhn. nauk, red.; TSYPKIN, Ya.Z., doktor tekhn. nauk, prof., red.; CHELYUSTKIN, A.B., kand. tekhn. nauk, red.; SHREYDER, Yu.A., kand. fiz.-mat. nauk, dots., red.; BOCHAROVA, M.D., kand. tekhn. nauk, starshiy nauchnyy red.; DELONE, N.N., inzh., nauchnyy red.; BARANOV, V.I., nauchnyy red.; PAVLOVA, T.I., tekhn. red.

(Continued on next card)

BERG, A.I.--- (continued). Card 2.

[Industrial electronics and automation of production processes]Avtomatizatsiia proizvodstva i promyshlennaia elektronika. Glav. red. A.I.Berg i V.A.Trapeznikov. Moskva, Gos.nauchn. izd-vo "Sovetskaia Entsiklopediia." Vol.1. A - I. 1962. 524 p. (MIRA 15:10)

1. Chlen-korrespondent Akademii nauk SSSR (for Sotskov, Kharkevich, Zernov, Timofeyev, Popkov).

(Automatic control) (Electronic control)

BERG,A.I.,glav.red.; TRAPEZNIKOV,V.A.,glav.red.; TSYPKIN, Ya.Z., doktor tekhn.nauk,prof.,red.; VORONOV,A.A., doktor tekhn.nauk,prof.,red.; SOTSKOV,B.S., doktor tekhn.nauk,red.; AGEYKIN,D.I., doktor tekhn. nauk, red.; GAVRILOV,M.A., red.; VENIKOV,V.A., doktor tekhn.nauk, prof.,red.; CHELYUSTKIN,A.B., doktor tekhn. nauk,red.; PROKOF'YEV, V.N., doktor tekhn.nauk,prof.,red.; IL'IN,V.A., doktor tekhn.nauk, prof.,red.; KITOV,A.I.,doktor tekhn.nauk,red.; KRINITSKIY, N.A., kand. fiz.-matem.nauk,red.; KOGAN,B.Ya., doktor tekhn.nauk, red.; USHAKOV,V.B., doktor tekhn.nauk,red.; LERNER,Yu.A., doktor tekhn. nauk,prof., red.; FEL'DBAUM, A.A.,prof., doktor tekhn.nauk,red.; SHREYDER,Yu.A., kand. fiz.-mat. nauk,dots.,red.; KHARKEVICH,A.A., akad., red.;TIMOFEYEV,P.V., red.; MASLOV,A.A.,dots.,red.; LEVIN, G.A., prof.,red.; LOZINSKIY,M.G., doktor tekhn.nauk,red.; NETUSHIL, A.V., doktor tekhn.nauk,prof.,red.; POPKOV,V.I.,red.; ROZENBERG, L.D.,doktor tekhn.nauk,prof.,red.; LIVSHITS,A.L.,kand.tekhn.nauk,red.

[Automation of production and industrial electronics] Avtomatizatsiia proizvodstva i promyshlennaia elektronika; entsiklopediia sovremennoi tekhniki. Moskva, Sovetskaia Entsiklopediia. Vol.3. Pogreshnost' resheniia - Teleizmeritel'naia sistema chastotnaia. 1964. 487 p. (MIRA 17:10)

1. Chlen-korrespondent AN SSSR (for Sotskov, Gavrilov, Timofeyev, Popkov).

TURKIN, V.K.; LEVIN, G.A.

Reliability of a multichannel communication line with a correlation dependence between the states of different channels. Trudy ucheb. inst. sviazi no.14:9-14 '63. (MIRA 17:9)

1. Moskovskiy elektrotekhnicheskiy institut svyazi i Vsesoyuznyy zaochnyy elektrotekhnicheskiy institut svyazi.

BERG, A.I., glav. red.; TRAFEZNIKOV, V.A., glav. red.; TSYPKIN, Ya.Z., doktor tekhn. nauk, prof., red.; VORONOV, A.A., prof., red.; AGEYKIN, D.I., doktor tekhn. nauk red.; GAVRILOV, M.A., red.; VENIKOV, V.A., doktor tekhn. nauk, prof., red.; SOTSKOV, B.S., red.; CHELYUSTKIN, A.B., doktor tekhn. nauk, red.; PROKOF'YEV, V.N., doktor tekhn. nauk, prof., red.; IL'IN, V.A., doktor tekhn. nauk, prof., red.; KITOV, A.I., doktor tekhn. nauk, red.; KRINITSKIY, N.A., kand. fiz. mat. nauk, red.; KOGAN, B.Ya., doktor tekhn. nauk, red.; USHAKOV, V.B., doktor tekhn. nauk, red.; LERNER, A.Ya., doktor tekhn. nauk, prof., red.; FEL'DBAUM, A.A., doktor tekhn. nauk, prof., red.; SHREYDER, Yu.A., kand. fiz.-mat. nauk, red.; KHARKEVICH, A.A., akademik, red. [deceased]; TIMOFEYEV, P.V., red.; MASLOV, A.A., dots., red.; TRUTKO, A.F., inzh., red.; LEVIN, G.A., prof., red.; LOZINSKIY, M.G., doktor tekhn. nauk, red.; NETUSHIL, A.V., doktor tekhn. nauk, prof., red.; POPKOV, V.I., red.; ROZENBERG, L.D., doktor tekhn. nauk, prof., red.; LIFSHITS, A.L., kand. tekhn. nauk, red.; AVEN, O.I., kand. tekhn. nauk, red.; BLANN, O.M. [Blunn, O.M.], red.; BROYDA, V., inzh., prof., red.; BREKKL', L [Brockl, L.] inzh., knad. nauk, red.; VAYKHARDT, Kh. [Weichardt, H.], inzh., red.; BOCHAROVA, M.D., kand. tekhn. nauk, st. nauchn. red.

[Automation of production processes and industrial electronics] Avtomatizatsiia proizvodstva i promyshlennaia elektronika; entsiklopediia sovremennoi tekhniki. Moskva, Sovetskaia entsiklopediia. Vol.4. 1965. 543 p. (MIRA 18:6)

KRIVONOS, N.F., inzh.; RUDAVSKIY, E.Ya., inzh.; LEVIN, G.A., inzh.; GRISHCHENKO, I.M., inzh.

Dependence of unit losses in electrical steel on the force of compression of packs and incremental weight of lacquer coatings. Energ. i elektrotekh. prom. no.1:59-60 Ja-Mr '64. (MIRA 17:5)

GUSYATINSKIY, Igor' Aleksandrovich; RYZHKOV, Yevgeniy Vasil'yevich; NEMIROVSKIY, Aleksandr Solomonovich; MARKOV, V.V., retsenzent; LEVIN, G.A., retsenzent [deceased]; BORODICH, S.V., otv. red.; NOSOVA, M.N., red.

[Radio relay communication lines] Radiorelejnye linii sviazi. Moskva, Sviaz', 1965. 542 p. (MIRA 19:1)

L 63053-65 EEO-2/EWT(d)/EED-2 Pn-4/Pj-4
ACCESSION NR: AP5013028 UR/0106/65/000/005/0007/0014
621.396:621.34-506

AUTHOR: Levin, G. A.; Bonch-Bruyevich, A. M.

TITLE: Synthesizing detectors with a self-optimizing threshold level in radio-communication receivers

SOURCE: Elektrosvyaz', no. 5, 1965, 7-14

TOPIC TAGS: radio detector, optimal detector

ABSTRACT: A brief review is presented of ways to synthesize decision devices intended for simple binary detecting of signals pertaining to a pulse-code sequence distorted by noise. The open-loop threshold-control detectors are most complicated because measuring the signal-to-noise ratio requires complex receiving and transmitting equipment. The closed-loop threshold-control detectors are much simpler and can operate within a wide signal-to-noise ratio range without any essential reduction of the accuracy of threshold determination; such detectors,

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L 63053-65
ACCESSION NR: AP5013028

however, require knowledge of an a-priori probability p(1); this limitation is very important in a communication system. Detectors with an extremal search system of threshold control permit determining the optimal threshold in the cases when error-detecting codes are used and when p(1) is unknown. The time of determining the optimal threshold is longer (because of the time loss for searching) than in other types of detectors. Besides, the searching may cause errors in the setting of the threshold level, the errors increasing with the signal-to-noise ratio; in this case, the radius of curvature of the control-performance function increases, and with the increasing signal-to-noise ratio, no proportional increase of the detection probability results. Orig. art. has: 5 figures and 3 formulas.

ASSOCIATION: none

SUBMITTED: 17Aug64 ENCL: 00 SUB CODE: EC

NO REF SOV: 012 OTHER: 001

Card 2/2

L 36498-65 EWA(h)/EWT(1) Peb

ACCESSION NR: AP5007084 S/0109/65/010/003/0403/0412

AUTHOR: Levin, G. A.; Bonch-Bruyevich, A. M.

TITLE: Ultimate probability of the detection error of a decision device having a quasi-optimal threshold

SOURCE: Radiotekhnika i elektronika, v. 10, no. 3, 1965, 403-412

TOPIC TAGS: quasioptimal detector, decision device

ABSTRACT: A decision-device-type detector having a quasi-optimal threshold is theoretically considered. Formulas for the optimal and quasi-optimal thresholds are developed for the cases of normal and Rayleigh laws of joint distribution of signal and noise density at the detector input. Plots of these thresholds vs. signal-to-noise ratio are presented. A principle (block diagram) of synthesizing a quasi-optimal detector with a self-adaptive level is indicated; it is connected with formulas (10) and (12). It is found that: (1) The quasi-optimal threshold

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L 36498-65

ACCESSION NR: AP5007084 0

value quickly converges to the optimal value as the signal-to-noise ratio increases; (2) The noise immunity of a quasi-optimal detector is only slightly lower than that of an optimal detector and approaches the latter asymptotically as the signal-to-noise ratio increases; here, the "noise immunity" means an ultimate probability of the signal-detection error at the output of a threshold-type detector; (3) With a specified measurand, the quasi-optimal detector is a closed-loop control system comprising a variable threshold device and an automatic stabilizer of the error-probability increment Δp. Orig. art. has: 5 figures and 40 formulas.

ASSOCIATION: none

SUBMITTED: 21Oct63 ENCL: 00 SUB CODE: EC, DP

NO REF SOV: 011 OTHER: 001

Card 2/2

L 42983-65 EEO-2/EWT(1)/EEC-4/EED-2/EWA(h) Pn-4/Peb/Pl-4 JM
ACCESSION NR: AP5010384 UR/0108/65/020/004/0066/0071 40 B

AUTHOR: Levin, G. A. (Active member); Zaytsev, D. L. (Active member)

TITLE: Evaluation of the noise immunity of one adaptive system

SOURCE: Radiotekhnika, v. 20, no. 4, 1965, 66-71

TOPIC TAGS: noise, noise immunity, signal detection, adaptive system

ABSTRACT: Based on the logarithm of a likelihood ratio and a functional scheme for calculating this logarithm, both suggested by E. M. Glaser (IRE Trans., IT-7, no. 2, 1961), this article presents formulas for evaluating the noise immunity of time-independent optimal and quasi-optimal signal detecting systems. A complex signal with $TF \gg 1$ and an incompletely known shape is assumed; here T is the duration of a unit signal occupying F-wide frequency band. The Glaser scheme comprises a coherent and an incoherent branch which contain weight coefficients of various components. The noise immunity formulas are developed for noise which can be simulated by a stationary random process having uniform spectral density within the signal band; formulas for the probabilities of false alarm and correct detection are derived. It follows from consideration of the theoretical characteristics of

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ACCESSION NR: AP5010384

on signal shape is available at the receiver, substantial simplification becomes feasible: the quadratic branch and weighing devices, in the above scheme, can be dispensed with. Performance is thereby impaired only slightly. Orig. art. has: 3 figures and 19 formulas. [03]

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi (Scientific and Technical Society of Radio Engineering and Telecommunication)

SUBMITTED: 05Nov63 ENCL: 00 SUB CODE: DC, GP

NO REF SOV: 005 OTHER: 002 ATD PRESS: 3238

Card 2/2

REYNET, Yan Yukhanovich, LEVIN, G.E., kand.tekhn.nauk, red.; UDAL'TSOV, A.N., red.

[Combination atmospheric ion counters] Kombinirovannyi schetchik atmosfernykh ionov. Moskva, In-t tekhniko-ekon. informatsii Akad. nauk SSSR, 1955. 16 p. (Pribory i stendy, Tema 4, no.PS-55-409)
(Nuclear counters) (MIRA 11:9)

MYURK, Kherman Yur'yevich; UD▸L'TSOV, A.N., glavnyy redaktor; LEVIN, G.E. kandidat tekhnicheskikh nauk, redaktor

[Actinometric rule for determining the coefficient of transparency of the atmosphere Pm and the factor of cloudiness Tm] Aktinometricheskaia lineika dlia opredeleniia koeffitsienta prozrachnosti atmosfery Pm i faktora mutnosti Tm. Tema 7, no.P-56-454. Moskva, Akad. nauk SSSR, 1956. 15 p. (MLRA 10:5)
(Actinometer) (Atmospheric transparency)

GONCHARSKIY, Lui Abramovich, kandidat tekhnicheskikh nauk; MAKSIMOVICH, Georgiy Grigor'yevich, kandidat tekhnicheskikh nauk; BOBROV, Ivan Grigor'yevich; UDAL'TSOV, A.N., glavnyy redaktor; LEVIN, G.E., kandidat tekhnicheskikh nauk, redaktor; KIRNOSOV, V.I., inzhener, redaktor; TOLCHINSKIY, Ye.M., inzhener, redaktor

[Gas discharge gauge used in longitudinal control. Thermal tensometer for measuring deformation of elements of models. Devices for determining deformations caused by measuring pressure using contact method] Gazorazriadnye datchiki prodol'nogo upravleniia. Teplovoi tenzometr dlia izmereniia deformatsii elementov modelei. Prisposobleniie dlia opredeleniia deformatsii, voznikaiushchikh ot izmeritel'nogo davleniia pri kontaktnom metode izmereniia. Tema 1, no.P-56-444. Moskva, 1956. 21 p. (MLRA 10:5)

1. Moscow. Institut tekhniko-ekonomicheskoy informatsii.
(Gauges)

VINOGRADOV, Aleksandr Fedorovich; CHIGAREV, Leonid Ivanovich; MORDVINOVA, N.P., inzh., ved. red.; LEVIN, G.E., inzh., red.; SOROKINA, T.M., tekhn. red.

[Scintillation counter with type-B counting system]Stsintilliatsionnye schetchiki so schetnoi ustanovkoi tipa B. Moskva, Filial Vses. in-ta nauchn. i tekhn. informatsii, 1958. 15 p. (Peredovoi nauchno-tekhnicheskii i proizvodstvennyi opyt. Tema 41. No.P-58-23/1) (MIRA 16:2)
(Scintillation counters)

AUTHOR: Levin, G.E. SOV/120-59-5-17/46

TITLE: New Induction and Tribo-induction Electrostatic Generators

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 5, pp 80 - 85 (USSR)

ABSTRACT: The induction type, which is seen in Figure 1, is illustrated by Figure 2. The system can provide up to 50 kV at up to 0.1 mA (Figure 3 - the various lines relate to different speeds of the driving motor; the numbers on the curves are the voltages applied to the motor). The points (brushes) on the collectors C have the function of transferring the charge to the insulating disc (which carries no metal strips). The system is very much that of a sophisticated Wimshurst machine; it works on the principle of the electrophorus. The polarity of the output is determined either by charging the disc appropriately at the start from a low-voltage source or by using frictional methods (these methods are used to generate the charges in the second type).
Figure 4 shows a development from the system of Figure 2.
Figure 5 shows load curves for the two systems; the slope

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New Induction and Tribo-induction Electrostatic Generators

of the load curve at the working voltage has been reduced from 2 kV/μA to 0.8 kV/μA (System III has a single needle instead of a brush; otherwise, it is the same as System II). Figure 6 shows the operation of the friction part of the second type of generator; this system is used only to provide a high voltage for a machine of induction type, since the load curves for the two output polarities are poor (Figure 7). Figure 8 shows a generator of this type giving outputs of both signs; Figure 9 shows the system used, with the friction source on the left. Figure 10 resembles Figure 3; this instrument is pressurized (P is the pressure in atm.). This latter design allows of electronic stabilization since the output voltage can be coupled to a triode that controls the current to the charging brushes. Figure 11 shows a system designed to give outputs of both polarities. There are 11 figures and 23 references 10 of which are Soviet, 7 German, 2 French and 4 English.

SUBMITTED: July 22, 1958

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E073/E535

24.6800

AUTHORS: Yergakov, V.A., Levin, G. E., Melamid, A.Ye., Trebukhovskiy, Yu.V. and Khlebnikov, N.S.

TITLE: Electron multiplier with an axially symmetrical inlet window of 24 cm^2 area

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No.3, pp.157-158

TEXT: For recording wide beams of recoil nuclei, electron multipliers are required with an as large as possible area of the cathode from which the recorded particles eject electrons. Fig.1 shows a sketch of the electron multiplier. In this paper an electron multiplier is described, the cathode of which is in the shape of a hemisphere of 60 mm diameter with a central opening of 10 mm diameter. Along the axis a short 6 mm diameter cylinder is placed which is electrically connected with the first dynode. In the gap between the cylinder and the edges of the cathode opening, a ring, with welded on 0.15 mm diameter tungsten wires which are located along the generating lines of the 8 mm diameter cylindrical surface inside the cathode cavity, is fixed onto glass insulators. A potential slightly higher than the cathode

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potential is fed to the wire "cylinder" and this produces an additional field that accelerates the electrons which are released from the cathode surface by the primary particles so that the collection of electrons from the peripheral regions of the cathode into the dynode system is considerably improved. To eliminate field distortions in the cathode cavity, the inlet window is covered by a grid to which an independent potential can be fed. Electrons from the cathode, which come into the near-axial region of the cathode with only low energies (due to the accelerating field produced by the wire cylinder), are under the effect of a strong focusing field of the cylinder of the first dynode which collects them onto the active part of its surface. Then follows the ordinary process of multiplication in the dynode system, which has 17 dynodes instead of the usual 11 in the type 1C (1S) multipliers. The cathode and the dynodes are made of an Al-Mg alloy with an addition of silicon with thicknesses of 0.2 mm and 0.1 to 0.12 mm, respectively. Activation is by alternating heating in vacuum and in an O_2 atmosphere at $t \sim 450°C$ until the required quantity of oxygen (4 to 5 $\mu g/cm^2$) is absorbed. An

important advantage of this alloy against other alloys (Ag-Mg, Cu-Mg, Cu-Al-Mg, Cu-Be) is its reactivation after standing in air (heating in vacuo at 340°C for 30-60 min). The operation of an electron multiplier is as follows: onto each section of the cathode a narrow, 8 mm wide, beam of α-particles is directed and the number of pulses at the output is recorded. Fig.3 shows the focusing curves (N - pulses/sec) taken on displacing the source along the cathode diameter. The half-width of the curve equals 55 mm (which coincides with the diameter of the inlet window) but does not change on changing the efficiency of the recording of the α-particles (curves 1, 2 and 3 were recorded for α-particle recording efficiencies of 100, 45 and 19%, respectively). The best amplitude distribution of the pulses (Fig.4) was obtained for the following operating conditions:

Number of Electrodes	Potential difference, V
Grid-cathode	27 $\pm \frac{60}{15}$
Cathode-wire cylinder	46 ± 20
Wire cylinder - 1st dynode	380 ±100
1st dynode - 2nd dynode	210
17th dynode - collector	210

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Electron multiplier with an axially ... S/120/61/000/003/027/041
E073/E535

The authors also investigated the integral amplitude distribution of the pulses at the output end of the multiplier. Fig.4 shows the integral amplitude distribution of the pulses of the multiplier for α and β particles; the bias on the discriminator (V) is recorded on the abscissa whilst on the ordinate the number of pulses per second N are recorded, the amplitude of which is larger than the bias voltage (top curve - α-particles Po^{210}, bottom curve - γ-particles Co^{60}). The plateau of the counting in the range of small discriminations is characterized by 100% efficiency of recording the α-particles. The background of the electron multiplier for the 70% range of α-particle recording is 2 pulses/sec and in the range of 50% it does not exceed 1.5 pulses/sec.
Ye. P. Yurlova and V. F. Ivanov participated in the design and building of the multiplier. There are 4 figures.

[Abstractor's Note: Complete translation.]

SUBMITTED: June 6, 1960

Card 4/5

S/120/62/000/001/001/061
E032/E514

AUTHORS: Levin, G.E. and Prudkovskiy, G.P.

TITLE: Trajectographs - automatic devices which compute and plot charged particle trajectories (a review)

PERIODICAL: Pribory i tekhnika eksperimenta, no.1, 1962, 7-19

TEXT: The authors review published designs of "trajectographs", i.e. automatic computing machines which can solve the equations of motion of charged particles in an electromagnetic field. The solution is obtained either from the variation in the radius of curvature, the angle turned through by the tangent to the trajectory, or by integrating the components of the forces acting on the particle in a given plane. The principles of operation of these devices are described and schematic drawings of typical devices are reproduced. There are 8 figures.

SUBMITTED: November 27, 1961

Card 1/1

REEBEN, Vello Avgustovich; LYUSTIBERG, V.F., inzh., ved. red.; LEVIN, G.E., kand. tekhn. nauk, red.; SOROKINA, T.M., tekhn. red.

[FUAZ-2 photometer with automatic protection and linear and logarithmic scales]Avtomaticheski zashchishchennyi fotometr FUAZ-2 s lineinoi i logarifmicheskoi shkalami. Moskva, Filial Vses. in-ta nauchn. i tekhn. informatsii, 1958. 9 p. (Peredovoi nauchno-tekhnicheskii i proizvodstvennyi opyt. Tema 37. No.P-58-97/4) (MIRA 16:3)

(Photometers)

LYAPIDEVSKIY, Viktor Konstantinovich, kand. fiz.-mat. nauk; LYUSTIBERG, V.F., inzh., ved. red.; LEVIN, G.E., kand. tekhn. nauk, red.; SHVETSOV, G.V., tekhn. red.

[Diffusion chamber for determining slight α- and β-activities] Diffuzionnaia kamera dlia opredeleniia malykh α- i β-aktivnostei. Moskva, Filial Vses. in-ta nauchn. i tekhn. informatsii, 1958. 15 p. (Peredovoi nauchno-tekhnicheskii i proizvodstvennyi opyt. Tema 41. No. P-58-77/3) (MIRA 16:3)

(Cloud chamber) (Radioactive fallout)

L 27445-66 EWT(l)/EWA(h)

ACC NR: AP5028468 SOURCE CODE: UR/0286/65/000/020/0042/0042

AUTHOR: Levin, G. E.

52
B

ORG: none

TITLE: A photomultiplier. Class 21, No. 175570

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 20, 1965, 42

TOPIC TAGS: photomultiplier, electrode, electron beam

ABSTRACT: This Author Certificate presents a photomultiplier with a split anode. The anode consists of several elements. The photomultiplier has a coaxial dynode system in the form of annular dynodes situated in two opposing planes (see Fig. 1). In order to improve the time resolution, between the focusing system and the first dynode there are electrodes for circular scanning of an electron beam over the surface of the first dynode. The anode elements are collectors of the electrons of the multiplication channels that are produced during scanning of the electron beam.

Card 1/2 UDC: 621.383.292

L 27445-66

ACC NR: AP5028468

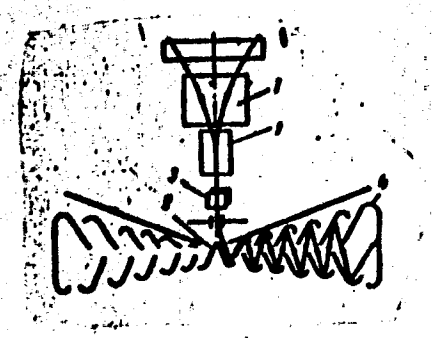

Fig. 1. 1 - Focusing system;
2 - first dynode;
3 - circular-scanning electrodes;
4 - anode.

Orig. art. has: 1 figure.

SUB CODE: 09/ SUBM DATE: 23Jun61/

Card 2/2

LEVIN, G. G.

Review of Applied Mycology

LEVIN (G. G.). Динамика витамина B_2 у гриба Aspergillus niger в зависимости от условия его развития. [Dynamics of vitamin B_2 in the fungus *Aspergillus niger* according to the conditions of its development.]—Микробиология [*Microbiology*], 20, 5, pp. 406–414, 1951.

All strains of *Aspergillus niger* [*R.A.M.*, 24, p. 67] tested at the Zhdanov State University, Leningrad, were able to synthesize vitamin B_2, this being connected with the assimilation of nitrogen [ibid., 29, p. 509] by the fungus. Vitamin B_2 content reaches its maximum in the first days of growth and as the fungus matures it is reduced, but if nitrogen is added to the nutritive media the reduction is halted to a certain extent so that the old pellicles are as rich in vitamin B_2 as the young.

Lemngrad State U

LEVIN, G.G., kandidat biologicheskikh nauk, uchitel'.

Some experiments with Infusoria. Est. v shkole no.4:84-85 Jl-Ag '56. (MLRA 9:9)

1.Shkola No.297 goroda Leningrada.
(Infusoria) (Zoology--Study and teaching)

LEVIN, G.G., kand.biol.nauk, uchitel'.

Lessons in studying the development of the plant kingdom on the earth.
Biol. v shkole no.2:20-26 Mr-Ap '58. (MIRA 11:4)

1. Srednyaya shkola No.297, Leningrad.
(Botany--Study and teaching)

LEVIN, G.G., kand.biolog.nauk, uchitel'

Studying the processes of assimilation and dissimilation in grade 8. Biol.v shkole no.6:47-49 N-D '59. (MIRA 13:3)

1. Shkola No.297 g.Leningrada.
(Plants--Metabolism--Study and teaching)

LEVIN, G.G.

Alternation of generations, life cycle and ontogeny of plants.
Bot. zhur. 44 no.7:943-953 Jl '59. (MIRA 12:12)
(Generations, Alternating) (Ontogeny (Botany))