

BANNIKOV, Yu.I., kand.tekhn.nauk; POPOV, Ye.F., inzh.

Drying of an GMS transformer using single-phase current. Energetik  
no.9:36-38 S '64. (MIRA 17:10)

POPOV, Ye.F.

Automatic sampler-degasser. Vop.rud.geofiz. no.4:103-105 1962.  
(MIRA 18:1)

POPOV, Ye.P., inzh.; PYASTOLOV, A.A., kand. tekhn. nauk

Drying of transformers with aluminum windings. Elek. sta.  
35 no.2:56-60 F '64. (MIRA 17:6)

ACCESSION NR: AT4017769

S/3037/63/003/000/0376/0397

AUTHOR: Popov, Ye. P. (USSR)

TITLE: Approximate methods for the study of nonlinear oscillations in automatic control systems

SOURCE: International Symposium on Nonlinear Oscillations. Kiev, 1961. Prilozheniya metodov teorii nelineyny\*kh kolebaniy k zadacham fiziki i tekhniki (Applying methods of the theory of nonlinear oscillations in problems of physics and technology); trudy\* simpoziuma, v. 3, Kiev, Izd-vo AN UkrSSR, 1963, 376-397

TOPIC TAGS: automation, control system, automatic control system, feedback, non-linear oscillation, control system oscillation, harmonic balance method

ABSTRACT: By automatic systems, the author means dynamic systems of any physical nature, containing at least one closed-loop circuit for the passage of signals, and the dynamics of which are described by means of an ordinary differential equation of arbitrary order containing nonlinearity of the type  $y = F(x, px)$ , where  $p = \frac{d}{dt}$ . Unlike the usual substitution (for the small-parameter method):

$$y = F(x, px) = k_1 x + k_2 px + \mu f(x, px),$$

Card 1/3

APPROVED FOR RELEASE: 08/25/2000

CIA-RDP86-00513R001342420008-7"

ACCESSION NR: AT4017769

where  $\mu$  is a small parameter, the author uses the substitution

$$y = F(x, px) = F(x_1, px_1) + \epsilon f(t),$$

where  $x_1 = A_1 \sin \Omega_1 t$  is the first harmonic of the unknown periodic solution  $x = x_1 + \epsilon z(t)$ , and  $\epsilon$  is a small parameter. A complete solution comprising all the harmonics is considered. This leads to approximate equations for the first harmonic (not a small one) and each of the higher harmonics which are small with respect to the variable  $x$  and not small with respect to the variable  $y$ . This is a generalization of the harmonic linearization method or the harmonic balance method. The solution is found to be true, provided a certain mathematical condition is satisfied, coinciding with the well known physical postulate regarding the filter property of the linear part of the system. Apart from these approximate forms for the first and higher harmonics of the periodic solution, the method can be made to apply to the study of slow processes in oscillatory systems, this being of considerable practical importance. A special method is proposed for splitting the system equation into two equations, the nonlinear interrelation between their solutions being retained. System oscillations superimposed on a slowly-changing component may be either self-oscillating or induced (forced). A similar approach may also be used when analyzing random processes in automatic systems. During the question and answer period that followed the reading of the report, the author made it clear that the

Card 2/3

POPOV, Ye.P.

Nonlinear laws of control in automatic control. Izv. AN  
SSSR. Otd. tekhn. nauk. Energ. i avtom. no.5:49-58 S-O '62.  
(MIRA 15:11)

(Automatic control)

POPOV, Yevgeniy Pavlovich; SOBOLEV, O.K., red.; BRUDNO, K.F., tekhn.red.

[Automatic regulation and control] Avtomaticheskoe regulirovanie  
i upravlenie Moskva, Fizmatgiz, 1962. 388 p. (MIRA 16:3)  
(Automatic control)

POPOV, Ye. P.

The dynamics of automatic control systems.  
Reading, Mass., Addison-Wesley; London, Pergamon  
Press, 1962.  
xiii, 761 p. diags. (ADINES International series in  
the engineering sciences)  
Translation of the original Russian: Dinamika  
sistem avtomaticheskogo Regulirovaniya, Moscow, 1956?  
"References": p. 759-761.

POPOV, Ye. P.; LOSKUTOV, <sup>G.M.</sup>~~S.~~; YUSUPOV, <sup>O.M.</sup>~~S.H.~~

"On Self-Adjusting Control Systems Without Searching Tentative Action."

Paper to be presented at the IFAC Congress, to be held in  
Basel, Switzerland, 27 Aug to 4 Sep 63



POPOV, Ye.P.; FEDOTENKO, N.M.

Emulsifier used for preparing emulsions. Rate. 1 izobr. predl. v  
stroj. no.5:26-27 '58. (MIRA 11:6)

1. Trest Mosotdelstroy No.2 Glavmosstroya, Moskva, Mzhayskoye  
shosse, d. 28/34.  
(Emulsions)

L 23852-65 EWT(1)  
ACCESSION NR: AR4046321

S/0044/64/000/008/V038/V038

SOURCE: Ref. zh. Matematika, Abs. 8V270

AUTHOR: Popov, Ye. P.

TITLE: Approximation methods of examining non-linear vibrations in automatic systems

CITED SOURCE: Tr. Mezhdunar. simpoziuma po nelineyn. kolebaniyam, 1961.  
T. 3. Kiyev, AN USSR, 1963, 376-396

TOPIC TAGS: non linear vibration, automatic system, approximation method, harmonic linearization, slowly changing process, divergent vibrational process, decaying vibrational process

TRANSLATION: The principal bases of the method of harmonic linearization are developed. Relation and differences of the given method from the small parameter method and the method of harmonic balance are examined. The approximative means of discovering the periodic solutions is shown; the possibility of finding

Card 1/2

L 23852-65

ACCESSION NR: AR4046321

not only first but also higher harmonics is explained. The method of harmonic linearization may be applied to finding the region of stability, detecting slowly changing processes in systems of automatic regulations, and studying decaying as well as divergent vibrational transitional processes. E. Barbashin

SUB CODE: MA

ENCL: 00

Card 2/2

1  
P. 100, 101  
KOLTUNOV, I.N.; SINYAGIVSKIY, N.L.; CHERNOV, P.P.; POPOV, Ye.S.;

From readers's letters. Geod. 1 kart. no.1:76-78 Ja '57. (MLRA 10:3)

1. Nachal'nik otryada No. 67 aero-geodezicheskogo predpriyatiya (for Koltunov)
2. Nachal'nik otryada No. 70 aero-geodezicheskogo predpriyatiya (for Sinyagivskiy)
3. Zamestitel' nachal'nika otryada (for Chernov)
4. Inspektor Otdela tekhnicheskogo kontrolya (for Popov)  
(Topographical surveying)

KOKAREV, N.I.; KAPICHEV, A.G.; KITAYEV, B.I.; SEMENENKO, P.P.;  
ALEKSANDROV, S.F.; POPOV, Ye.S.

Use of compressed air for the acceleration of thermal  
processes in open-hearth furnaces. Trudy Inst. met. i  
obog. AN Kazakh. SSR 5:149-154 '62. (MIRA 15:11)

1. Ural'skiy politekhnicheskiy institut i Metallurgicheskiy  
kombinat im. A.K. Serova.  
(Open-hearth furnaces) (Heat--Transmission)

KUDRIN, V.A.; AFONIKOV, S.M.; NECHKIN, Yu.M.; SOFOKIN, S.P.; TYURIN, Ye.I.;  
LAPSHOVA, M.P.; YUDSON, A.A.; POPOV, Ye.S.

Performance of a 30 ton open-hearth furnace with a roof gas  
and oxygen burner. Metallurg 10 no.1:14-16 Ja '65. (MIRA 18:4)

25(2); 18(3) *Popov, Ye. S.*

PHASE I BOOK EXPLOITATION

SOV/1573

Kokarev, Nikolay Ivanovich, Petr Pimenovich Semenenko, Nikolay Georgiyevich Kamkin, and Yevgeniy Stepanovich Popov

Uлучsheniye konstruktsiy i ekspluatatsii martenovskikh pechey s osnovnymi svodami (Improvements in Design and Operation of Open-hearth Furnaces With Basic Roofs) Sverdlovsk, Metallurgizdat, 1958. 55 p. 3,000 copies printed.

Ed.: S.D. Fedorov; Ed. of Publishing House: B.E. Berman;  
Tech. Ed.: Ye.M. Zef.

**PURPOSE:** The book is intended for foremen in open-hearth furnace shops and may be of use to production engineers and for students of vuzes and tekhnikums.

**COVERAGE:** In this book the author examines the problems of improving the design of open hearth furnaces with magnesiochromite basic roof linings. It has been established that open-hearth furnaces

Card 1/3

STOROZHEV, Mikhail Vasil'yevich; POPOV, Yevgeniy Aleksandrovich;  
VASIL'YEV, D.I., kand. tekhn.nauk, dots., retsenzent;  
KORNEYEV, V.A., red.; GOROKHOVA, S.S., tekhn.red.

[Theory of metalworking by pressure] Teoriia obrabotki me-  
tallov davleniem. Izd.2., perer. Moskva, Vysshaya shkola,  
1963. 388 p. (MIRA 17:2)



KOKAREV, Nikolay Ivanovich; SEMENENKO, Petr Pimenovich; KAMKIN, Nikolay  
Georgiyevich; POPOV, Yevgeniy Stepanovich; FEDOROV, S.D., red.;  
BERMAN, V.E., red. izd-va; ZIV, Ye.M., tekhn. red.

[Improving the design and operation of open-hearth furnaces with  
basic crowns] Uluchshenie konstruktsii i ekspluatatsii martenov-  
skikh pechei s osnovnymi svodami. Sverdlovsk, Gos. nauchno-tekhn.  
izd-vo lit-ry po cherno i tsvetnoi metallurgii. Sverdlovskoe  
otd-nie, 1958. 55 p. (MIRA 11:12)  
(Open-hearth furnaces) (Refractory materials)

POPOV, Ye.Ya.; TAGIROV, I.M.

Refining of low-grade cow hides for footwear uppers. Kozh.-obuv.  
prom. 3 no.4:33-34 Ap '61. (MIRA 14:5)

1. Glavnyy inzhener Kurskogo kozhevennogo zavoda imeni Seregina  
(for Popov). 2. Nachal'nik tekhnicheskogo otdela Kurskogo  
kozhevennogo zavoda imeni Seregina (for Tagirov).  
(Leather)

POPOV, Ye. Ya.,; MILYKH, A. A.

Salt treatment of cows' hides. Leg.prom. 15 no.4:34-37 Ap '55.  
(MLRA 8:7)

1. Glavnyi inzhener Kurskogo kozhevennogo zavoda imeni Seregina.
2. Nachal'nik khimicheskoy laboratorii Kurskogo kozhevennogo zavoda imeni Seregina.

(Hides and skins)

POPOV, YE. Y. BENTLY

DUBININ, Nikolay Petrovich, kandidat tekhnicheskikh nauk; ZHEVEJUNOV, Petr Prokhorovich, kandidat tekhnicheskikh nauk; STOROZHEV, Mikhail Vasil'yevich, kandidat tekhnicheskikh nauk; POPOV, Yevgeniy Aleksandrovich, kandidat tekhnicheskikh nauk; BAZANOV, Sergey Tikhonovich, kandidat tekhnicheskikh nauk; GLADILIN, Anatoliy Nikolayevich, kandidat tekhnicheskikh nauk; KRASAVIN, Vasiliy Stepanovich, kandidat tekhnicheskikh nauk; PANCEENKO, Konstantin Petrovich, kandidat tekhnicheskikh nauk; POPOV, Viktor Aleksandrovich, kandidat tekhnicheskikh nauk; ROSTORGUYEV, Ivan Sergeyevich, kandidat tekhnicheskikh nauk; SHEMSEURINA, Ye.A., redaktor; UVANOVA, A.S., tekhnicheskiy redaktor; KODEL', B.I., tekhnicheskiy redaktor

[Technology of metals] Tekhnologiya metallov. Pod red. N.P.Dubinina.  
 Izd. 3-e. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, (MLda 10:10)  
 1957. 564 p.  
 (Metals) (Metallwerk)

POPOV, Ye.Ya., inzh.

Improve the quality of chrome-tanned pig leather used for footwear.  
Leg.prom. 18 no.4:47-49 Ap '58. (MIRA 11:4)  
(Shoe manufacture)

POPOV, YU.

Agriculture - Bulgaria

Socialist transformation of agriculture in Bulgaria. Sots. sel'mash., no. 3,  
March 1952.

MONTHLY LIST OF RUSSIAN ACCESSIONS, LIBRARY OF CONGRESS, AUGUST 1952. UNCLASSIFIED.

*POPOV Yu.*  
POPOV, Yu., inzhener.

Automatic tugboat hook. Mor.flet 17 no.8:23-24 Ag '57.  
(MIRA 10:10)

1.Leningradskiy port.  
(Tugboats)

1957, 70.

Bulgaria - Agriculture

Socialist transformation of agriculture in Bulgaria. Sets. sel'khoz. no. 3,  
March 1952.

MONTHLY LIST OF RUSSIAN ACQUISITIONS, LIBRARY OF CONGRESS, AUGUST 1952. UNCLASSIFIED.



POPOV, Yu.; KAPITSKIY, R.; GOLOTA, D.; UVAROV, V.; KHAIS, A.; ZHUKOV, A.;  
insh.-geolog; ABUSHAYEV, I. (Kaliningrad).

Our readers' letters. NTO 3 no.3:57 Mr '61.

(MIRA 14:3)

1. Nachal'nik proizvodstvenno-tekhnicheskogo otdela i chlen soveta nauchno-tekhnicheskogo obshchestva tresta "Pechorlesosplav", g. Pechora (for Popov). 2. Zamestitel' predsedatelya Rostovskogo obshchestva, g. Rostov-na-Donu (for Kapitskiy). 3. Uchenyy sekretar' soveta nauchno-tekhnicheskogo obshchestva Krasnodarskoy geologicheskoy ekspeditsii (for Golota). 4. Zamestitel' direktora Gorodenkovskogo khlebopriyemnogo punkta g. Gorodenko, Stanislavskoy oblasti (for Uvarov). 5. Chlen Zapadno-Sibirskogo pravleniya nauchno-tekhnicheskogo obshchestva gornoye, st. Izhmorskaya, Kemerovskoy oblasti (for Zhukov).

(Technology--Information services)

TSAREV, V., inzh. (Astrakhan'); NIKOL'SKIY, V.; POPOV, Yu., starshiy master; ARKHIPOV, I., malyar (g. Cheboksary); PINDYURIN, F. (g. Biysk); PLAVIN, B.M., mekhanik; LOGINOV, B.

Advertising board. Izobr.i rats. no.2:32-33 F '62. (MIRA 15:3)

1. Rostovskiy-na-Donu kotel'no-mekhanicheskiy zavod (for Popov).  
(Technological innovations)

POPOV, Yu.

~~Making accumulator separators. Avt.transp. 35 no.11:30 N '57.~~  
(MIRA 10:12)

(Storage batteries)

22(3)

SOV/175-58-6-24/41

AUTHOR: Popov, Yu., Senior Lieutenant

TITLE: How We Service Tank Armament Under Field Conditions

PERIODICAL: Tankist, 1958, Nr 6, pp 35-37 (USSR)

ABSTRACT: The author refers to the common opinion concerning tank armament and its servicing under field conditions: "The present differs from the past; everything is simplified and armament is much more reliable". But in spite of the high degree of technical progress the need for proper maintenance is still valid. Adequate oiling of the working parts of the weapons is most important. The use of an lubricating oil (AU -Artilleriyskoye Upravleniye-Directorate of Artillery) is recommended. If a cartridge case jams in the barrel, it is clear that the stoppage is caused by dirt in the chamber. The latter, during firing, must be repeatedly cleaned. Serial numbers of all parts belonging to a machine

Card 1/3

SOV/175-58-6-24/41

### How We Service Tank Armament Under Field Conditions

gun must be collated to avoid wrong assembly and stoppages. The sighting mechanisms must be very carefully checked. The checking distance employed must be approximately equal to the calculated fire exercise range. But prior to combat activity, the checking distance must be 6,000 to 8,000 m. When preparing a machine gun for either exercise or combat fire, the use of heavy bullets is recommended, as they have more stable ballistic properties. It is also important to use the cartridges in batches in order to avoid abnormal dispersion. It is recommended to have a field kit at hand containing the necessary tools and outfit. The latter must include the metal cross reticles, an angle pointer and targets (Figure 1). It has become usual practice to clean the gun barrels with Diesel oil, though the instructions prescribe kerosene. The latter must be used, and containers for it must be prepared in

Card 2/3

BRAGINA, F., kand. ekon.nauk; POPOV, Yu., agronom-ekonomist.

Experience in shelterbelt afforestation. Nauka i pered. op. v  
sel'khoz. 8 no.6:20-21 Je '58. (MIRA 11:6)  
(Windbreaks, shelterbelts, etc.)

POPOV, Yu.

Talents develop in the collective. Sov.profsoiuzy 19 no.4:16-17  
F '63. (MIRA 16:2)

(Amateur art activities)

PUKHNACHEV, Yu.: POPOV, Yu.

Today's air fleet; interview with B.M. Evteev. IUn.tekh.7 no.2:3-4  
F '63. (MIRA 16:4)

(Aeronautics, Commercial)



POPOV, Yu.

"A mathematician's miscellany" by John Edensor Littlewood. Reviewed  
by IU.Popov. Znan.-sila 37 no.8:47 Ag '62. (MIRA 16:5)  
(Mathematics--Curiosa and miscellany)  
(Littlewood, John Edensor)

1(

SOV/84-59-9-41/66

AUTHOR: Popov, Yu., Engineer

TITLE: How to Eliminate the "Ground Resonance" in a Helicopter?

PERIODICAL: Grazhdanskaya aviatsiya, 1959, Nr 9, pp 25-26 (USSR)

ABSTRACT: This article is a summary of experiences acquired by an unidentified sub-unit in handling the Ka-15 helicopters, which, according to the author, are also usable in handling the Ka-18 helicopters. The author enumerates a number of ways and methods of elimination of the so-called ground resonance, which is a state of violent vibrations developing sometimes in the Ka-15 helicopters in the course of a ground engine trial run. The ground resonance arises when the frequency of vibrations within the rotor system, which depend upon the number of revolutions, coincides with the frequency of vibrations developing in the whole helicopter structure, which depend mainly upon the specific properties of the shock-absorbing system. The preventive measures

Card 1/ 3

SOV/84-59-9-41/66

How to Eliminate the "Ground Resonance" in a Helicopter?

against ground resonance are based on precluding the above-mentioned vibration frequencies from coinciding. They include the right choice of the mooring ropes and their proper application, lowering the pressure in the front wheels, softening the shock-absorbers in the landing gear struts, proper regulation of the rotors, placement of the helicopter up-wind and far enough from another helicopter undergoing ground trial run. The ground resonance does not set in all of a sudden, but is usually preceded by an indication: the helicopter starts an irregular "tap-dancing", in a way harder and more violent than the usual soft oscillatory movements characteristic for every ground trial run. The article contains a series of advices on what to do at the appearance of such an indication, what to do once a ground resonance has already developed, how to operate the Ka-15 helicopter airborne testing while held back by the mooring ropes, and how to land ✓

Card 2/3

SOV/84-59-9-41/66

How to Eliminate the "Ground Resonance" in a Helicopter?

it from that position. ✓

Card 3/3

1(

SOV/84-59-9-41/66

AUTHOR: Popov, Yu., Engineer

TITLE: How to Eliminate the "Ground Resonance" in a Helicopter?

PERIODICAL: Grazhdanskaya aviatsiya, 1959, Nr 9, pp 25-26 (USSR)

ABSTRACT: This article is a summary of experiences acquired by an unidentified sub-unit in handling the Ka-15 helicopters, which, according to the author, are also usable in handling the Ka-18 helicopters. The author enumerates a number of ways and methods of elimination of the so-called ground resonance, which is a state of violent vibrations developing sometimes in the Ka-15 helicopters in the course of a ground engine trial run. The ground resonance arises when the frequency of vibrations within the rotor system, which depend upon the number of revolutions, coincides with the frequency of vibrations developing in the whole helicopter structure, which depend mainly upon the specific properties of the shock-absorbing system. The preventive measures ✓

Card 1/ 3

SOV/84-59-9-41/66

How to Eliminate the "Ground Resonance" in a Helicopter?

against ground resonance are based on precluding the above-mentioned vibration frequencies from coinciding. They include the right choice of the mooring ropes and their proper application, lowering the pressure in the front wheels, softening the shock-absorbers in the landing gear struts, proper regulation of the rotors, placement of the helicopter up-wind and far enough from another helicopter undergoing ground trial run. The ground resonance does not set in all of a sudden, but is usually preceded by an indication: the helicopter starts an irregular "tap-dancing", in a way harder and more violent than the usual soft oscillatory movements characteristic for every ground trial run. The article contains a series of advices on what to do at the appearance of such an indication, what to do once a ground resonance has already developed, how to operate the Ka-15 helicopter airborne testing while held back by the mooring ropes, and how to land ✓

Card 2/3

SOV/84-59-9-41/66

How to Eliminate the "Ground Resonance" in a Helicopter?

it from that position. ✓

Card 3/3

Abs Jour : Ref Zhur - Biol., No 1, 1958, 4078

Author : Yu. Popov

APPROVED FOR RELEASE: 08/25/2000

Title : On the Mechanism of the Effect of Beer on Gastric Secretion.

Orig Pub : Vopr. pitaniya, 1956, 15, No 5, 69-70

Abstract : The introduction of 250 ml of beer extract (without alcohol or CO<sub>2</sub>) through a probe into the stomach of 10 patients (4 - without any gastric disease; 3 with an ulcer; and 3 with a chronic gastritis) markedly increased the secretion of gastric juice as well as its acidity and digestive capacity. The effect on gastric secretion of this extract proved to be stronger than that of alcohol, caffeine or cabbage. In a patient with a fistula of the digestive tract, "sham-drinking" of 200-300 ml of beer increased the gastric secretion more

Card 1/2

POPOV, Yu.

Developing man's inner beauty. Sov. profsoiuzy no.17:42-43  
S '61. (MIRA 14:8)

1. Spetskorrespondent zhurnala "Sovetskiye profsoyuzy", g.  
Barnaul. (Barnaul--Auxillary police)



POPOV, Yu.

Peaceful coexistence and the class struggle. Komm.Voорuzh.Sil 1  
no.4:15-24 F '61. (MIRA 14:8)  
(Russia--Foreign relations) (World politics)

POPCV, Yu., kand.ekon.nauk

Possibilities for increasing the productivity of tractors. Tekh. v  
sel'khoz. 20 no.6:46-50 Je '60. (MIRA 13:10)  
(Tractors)

POPQV, Yu.

Close cooperation of socialist countries. Korm.Vooruzh.Sil 2  
no.2:10-18 Ja '62. (MIRA 15:3)  
(Russia--Foreign economic relations--Communist countries)  
(Communist countries--Foreign economic relations--Russia)

*POPOV, V.I.A.*

C-7

USSR/Nuclear Physics

Abs Jour : Ref Zhur - Fizika, No 5, 1957, 11266

Author : Popov, Yu.A.

Inst : Moscow State University

Title : Solution of the Fundamental Diffusion Equation for Cosmic Ray Particles from a Constant-Energy Concentrated Pulsed Source.

Orig Pub : Zh. eksperim. i teor. fiziki, 1956, 31, No 1, 80-85

Abstract : The fundamental diffusion equation, derived by Ya.P. Terletskiy (Referat Zhur Fizika, 1956, 12848), is solved for cosmic ray protons emitted in magnetized interstellar medium during a short period of time from a concentrated source of specified energy. It is shown that allowance for the particles that remain after the collision between the cosmic ray protons and the protons of the interstellar

Card 1/2

USSR/Nuclear Physics

C-7

Ads Jour : Ref Zhur - Fizika, No 5, 1957, 11266

gas leads to a power spectrum, similar to the experimentally-observed one, if one assumes the primary source to be a supernova which appeared at the center of the galaxy more than  $10^8$  years ago.

Card 2/2

Рогов, Yu. A

✓ 4511

SOLUTION OF THE FUNDAMENTAL DIFFUSION EQUATION FOR COSMIC RAY PARTICLES EMITTED BY A CONSTANT ENERGY CONCENTRATED PULSED SOURCE  
Yu. A. Rogov - Moscow State Univ. - Soviet Phys. JETP 4, 95-96 (1957) PM

*Handwritten initials*

The fundamental diffusion equation for cosmic ray protons emitted in magnetized interstellar space during a short period of time by a concentrated source of given energy is solved. It is shown that consideration of the particles which remain after collision of cosmic ray protons with protons of the interstellar gas leads to a power spectrum similar to that observed experimentally, if the source is assumed to be a supernova which appeared in the center of the galaxy over  $10^4$  years ago. (auth)

*smk up*

ACCESSION NR: AT3012132

S/2967/63/000/000/0157/0164

AUTHORS: Khetagurov, Ya. A.; Popov, Yu. A.; Lyubentsov, V. M.

TITLE: Matrix multiplication machine

SOURCE: Voprosy\* vy\*chislitel'noy matematiki i vy\*chislitel'noy tekhniki. Moscow, 1963, 157-164

TOPIC TAGS: matrix multiplication, calculating machine, multiplicand, partial product, summator, diode, pulse circuit, synchronizer, diode transformer  $\Pi 6$

ABSTRACT: Several different machines operating as matrix instruments for high-speed multiplication have been considered. Such a machine should contain  $m$  series with  $m + 1$  summators in each. On each series with output summator of preceding series, the preceding partial product sum is transmitted and shifted into a corresponding multiplicand form. The multiplicand is added to this partial product sum only if the corresponding digit in the multiplier is "1". An improved signal transfer scheme is proposed, with signals transmitted from one series to another. For an  $m$ -digit number multiplication, this is shown to require  $m-1$  summator series; for two digit multiplication  $m/2-1$  summator series are required. A two 13-digit multiplication scheme used at Moskovskiy inzhenerno-fizicheskiy institut (Moscow

Card 1/3

ACCESSION NR: AT3012132

Engineering Physics Institute) is described. This scheme calls for 870 summators. The circuit of this functional summator composed of diode-transformer ( $\pi$ 6) pulse circuits is discussed. The work is synchronized by pulse feed summator "un" (see Fig. 1 on the Enclosure). The working speed of the calculator for a 13-digit number multiplication is 60-70 thousand multiplications per second. Orig. art. has: 7 figures.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 22Oct63

ENCL: 01

SUB CODE: DP

NO REF SOV: 000

OTHER: 000

Card 2/3

810-3 |||

Card 3/3



L 25744-65 EWT(d)/EWP(1)/EED-2 Po-4/Pq-4/Pg-4/Pk-4 LJP(c) BB/GG

ACCESSION NR: AP5002087

S/0146/64/007/006/0048/0053

43  
28  
B

AUTHOR: Popov, Yu. A.; Sumarokov, L. N.; Khetagurov, Ya. A.

TITLE: Matrix methods of speeding-up arithmetical operations in a digital computer

16C

SOURCE: IVUZ. Priborostroyeniye, v. 7, no. 6, 1964, 48-53

TOPIC TACS: digital computer, arithmetical operation

ABSTRACT: Two matrix methods for speeding-up the multiplication operation are described in which the amount of equipment is proportional to the square of the number of digits  $m$  of the cofactors. The first method -- a modification of the carry-storage method -- includes a "complete" matrix of  $m^2$  functional adders. In practice, the amount of equipment required can be considerably cut by (a) eliminating the adders that receive only one signal and the adders that correspond to lower-order  $m-k$  digits of the  $2m$ -digit product ( $k$  being the number

Card 1/2

L 25744-65

ACCESSION NR: AP5002087

of buffer digits required to round off the product) and (b) using improved logical circuits. This method also permits the summation of numbers. The second method — a modification of the first — is based on conversion of the multirow product code into a two-row code, and then — by means of a parallel adder — into a single-row code. Formulas for determining the amount of equipment are supplied. Orig. art. has: 3 figures and 18 formulas.

ASSOCIATION: Moskovskiy inzhenerno-fizicheskiy institut (Moscow Engineering and Physics Institute)

SUBMITTED: 10Mar64

ENCL: 00

SUB CODE: DP

NO REF SOV: 003

OTHER: 000

Card 2/2

POPOV, Yu. A.

Metal

✓ Blast Furnace Operation with Ores of Low Bulk Density.  
 L. Z. Khudak and Yu. A. Popov (Stal', 1965, (5), 408-417).  
 In Russian. A comprehensive account is given of experience  
 at the Chelyabinsk Metallurgical works on the smelting of  
 lean, low bulk density, dusty ores. On basic practice the  
 volume of the burden exceeded that of the soko, leading to  
 considerable redistribution of materials at the stockline and  
 concentration of fines at the centre, to excesses of ore at the  
 centre resulting in peripheral working, a condition which  
 could not be corrected, and the uneven working facilitated  
 scaffold growth. Control from the top was limited to securing  
 an adequate peripheral flow of gas. The lowest temperatures  
 were observed in the central part of the stack, but the hearth  
 worked normally. The use of the ores was least disadvan-  
 tageous when making ferro-silicon. It is considered that better  
 results would have been obtained in a lower furnace with  
 reduced stack batter. a. x

2

of

Popov, Yu. A.

133-1-3/24

AUTHORS: Popov, Yu.A., Umrikhin, K.G., Shaposhnikov, A.K., Engineers.

TITLE: A Rational Charging Equipment for a Blast Furnace (Ratsional'noye zasypnoye ustroystvo domennoy pechi)

PERIODICAL: Stal', 1958, No.1, pp. 7 - 14 (USSR)

ABSTRACT: A description of the design and operation of a new charging equipment is given. The distribution of burden materials, in the blast furnace throat and the possibilities of controlling this distribution with the charging equipment in use at present is outlined. The distribution of materials in a model and an operating blast furnace is shown in Figs. 2 and 3, respectively. It is pointed out that at present the success in controlling this distribution depends to a large extent on the qualifications of the operating personnel and the available equipment, the influence of the individual controlling parameters (size of coke and ore charge, system of charging, stock level and the sequence of rotation of the distributor) on the distribution of materials in the throat is not certain. This uncertainty is caused by the following factors: non-uniformity of raw materials in the chemical and size composition, the influence of the gas stream on the distribution of materials during their fall from the large bell. The design of charging equipment proposed by the authors (Fig.4) can secure the

Card 1/3

Репев, Ю. А.

133-1-7/24

**AUTHORS:** Kolosov, M.I., Engineer, Morozov, A.N., Doctor of Technical Sciences, Stroganov, A.I., Candidate of Technical Sciences, Popov, Yu.A., Engineer, Vaynshteyn, O.Ya., and Keys, N.V.

**TITLE:** The Quality of Steel from Pig Iron Produced with a Constant Moisture Blast (Kachestvo stali iz chuguna, vyplavlenogo na dut'ye postoyannoy vlazhnosti)

**PERIODICAL:** Stal', 1958, No.1, pp. 24 - 27 (USSR).

**ABSTRACT:** The influence of moisture content of blast on the hydrogen content in pig iron and the influence of hydrogen content of pig iron on the hydrogen content of steel as well as flake sensitivity of steel on the hydrogen content in the liquid metal were investigated. Nos. 1 and 3 blast furnaces on the above works were transferred to operation with a constant moisture blast (15-20 g/m<sup>3</sup>). This resulted in the smoother operation, higher blast temperatures 750 - 800 °C (against previous 450 - 500 °C), increase in output (No.1 - 3%; No.3 - 1.3%) and a decrease in the coke rate (No.1 - 6.5%; No.3 - 1.3%). As the works produce quality steel it was considered necessary to check the possible effect of higher moisture in blast on the steel quality. It was found that with increasing moisture content in blast, the hydrogen content of pig iron increases but not proportionally. However, the mean content of hydrogen in the

133-1-7/24

The Quality of Steel from Pig Iron Produced with a Constant Moisture  
Blast

ASSOCIATION: Chelyabinsk Metallurgical Works (Chelyabinskiy  
metallurgicheskiy zavod)

AVAILABLE: Library of Congress  
Card 3/3

OSTROUKHOV, M.Ya.; KHOLZAKOV, V.I.; POPOV, Yu.A.

Large capacity blast furnace operations. Metallurg 5 no. 12:4-9  
D '60. (MIRA 13:11)

1. Chelyabinskiy metallurgicheskiy zavod i Nauchno-issledovatel'skiy  
institut matematiki. (Blast furnaces)

POPOV, Yuriy Afrikanovich; OSTROUKHOV, M.Ya., kand.tekhn. nauk,  
red.; SVET, Ye.B., red.; KOLBICHEV, V.I., tekhn. red.

[Making high-silicon cast iron] Vyplavka vysokokremnistykh  
chugunov. Pod red.M.IA.Ostroukhova. Cheliabinsk, Che-  
liabinskoe knizhnoe izd-vo, 1961. 106 p. (MIRA 15:7)

1. Chelyabinskiy metallurgicheskiy zavod (for Popov).  
(Cast iron--Metallurgy)



KOCHINEV, Ye.V.; STARSHINOV, B.N.; KORNEV, V.K.; POPOV, Yu.A.

Blowing-in of blast furnaces of a capacity of 1719 m<sup>3</sup>. Metallurg  
6 no.6:3-7 Je '61. (MIRA 14:5)

1. Gipromez; Ukrainskiy institut metallov; Nizhne-Tagil'skiy  
metallurgicheskiy kombinat i Chelyabinskiy metallurgicheskiy zavod.  
(Blast furnaces---Design and construction)

LUKIN, P.G.; POPOV, Yu.A.; SHAPOSHNIKOV, A.K.

Making blast furnace ferrosilicon. Metallurg 8 no.4:8-11 Ap '63.  
(MIRA 16:3)

(Ferrosilicon—Metallurgy)

VYATKIN, N.B., inzh.; LUKIN, P.G., inzh.; POPOV, Yu.A., inzh.; NEKIPELOV, S.P.,  
inzh.; SHAPOSHNIKOV, A.K., inzh.; PROKHOROV, V.N., inzh.

Making pig iron with an oxygen-enriched blow. Stal' 23 no.4:293-296  
Ap '63. (MIRA 16:4)  
(Cast iron—Metallurgy) (Oxygen—Industrial applications)

KHOLZAKOV, V.I.; BRATCHENKO, V.P.; OSTROUKHOV, M.Ya.; LUKIN, P.G.; NEKIPELOV, S.P.;  
POPOV, Yu.A.; GAVRILYUK, L.Ya.

Investigating the processes in the stack and hearth of a blast furnace  
during smelting with sinter of Bakal and Sokolovka-Sarbay ores. *Stal'*  
23 no.4:297-300 Ap '63. (MIRA 16:4)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii i  
Chelyabinskiy metallurgicheskiy zavod.  
(Blast furnaces)

VYATKIN, N.P.; NEKIPELOV, S.P.; POPOV, Yu.A.; GAVRILYUK, L.Ya.; FONTALIN, V.N.;  
VYATKIN, G.P.; OSTROUKHOV, M.Ya.

Experience of five years of operating a 1,719<sup>m</sup><sup>3</sup> capacity furnace.  
Stal' 24 no.11:964-968 N '64. (MIRA 18:1)

BOLDAREV, A.M. (Novosibirsk); POPOV, Yu.A. (Novosibirsk)

Motion of a liquid near a free surface under the action of a  
shock wave. Nauch.-tekh. probl. gor. i vzryva no.1:114-116 '65.  
(MIRA 18:9)

STARSHINOV, B.N.; OSTROUKHOV, M.Ya.; KOCHINEV, Ye.V.; Primalni uchastiye:  
TARASOV, D.A.; SOROKA, P.F.; KARACHENTSEV, M.D.; OS'KIN, V.T.;  
KORNEV, V.K.; POPOV, Yu.A.; DOLMATOV, V.A.; AYUKOV, A.S.

Blowing-in of large blast furnaces. Sbor.trud. UNIIM  
no.11:27-32 '65. (MIRA 18:11)

POPOV, Yu.A.; PROKHOROV, Ye.N.

Deformation of metal components in pulsed magnetic fields.  
Trudy MEI no.64:213-232 '65. (MIRA 17:1)



ALEKSEYEV, Yu.V.; POPOV, Yu.A.

"Reaction zone" on the surface of a partially immersed electrode  
in a concentrated solution. Elektrokhimiia 1 no.4:422-426 Ap '65.  
(MIRA 18:6)

1. Nauchno-issledovatel'skiy fiziko-khimicheskiy institut imeni  
Karpova, Moskva.

ALEKSEYEV, Yu.V.; POPOV, Yu.A.

Motion of a three-component gas mixture in a capillary adjoining the surface of electrochemical reaction. *Elektrokhimiya* 1 no.6:702-706 Je '65.  
(MIRA 18:7)

1. Fiziko-khimicheskiy institut imeni Karpova, Moskva.

KULEBAKIN, Viktor Sergeyevich; NAGORSKIY, Valentin Dmitriyevich; POPOV,  
Yu.A., kand.tekhn.nauk, dotsent, retsenzent; LARIONOV, A.N.,  
prof., retsenzent; SENKEVICH, A.M., dotsent, kand.tekhn.nauk, red.;  
TUBYANSKAYA, F.G., izdat. red.; ROZHIN, V.P., tekhn.red.

[Electric drives for airplane power units and mechanisms] Elektro-  
privod samoletnykh agregatov i mekhanizmov. Moskva, Gos. izd-vo  
obor. promyshl., 1958. 386 p. (MIRA 12:1)

1. Zaveduyushchiy kafedroy aviatsionnogo elektrooborudovaniya  
Moskovskogo aviatsionnogo instituta imeni Ordzhonikidze (for Popov).
2. Chlen-korrespondent AN SSSR. Zaveduyushchiy kafedroy elektro-  
oborudovaniya samoletov i avtomobiley Moskovskogo energeticheskogo  
instituta (for Larionov).  
(Electric drive) (Airplanes--Electric equipment)

SOV/26-59-12-31/45

(

AUTHOR: Popov, Yu.A. (Irkutsk)

TITLE: Ball Lightning Discharge on the Fuselage of an Aircraft

PERIODICAL: Priroda, 1959, Nr 12, pp 111-112 (USSR)

ABSTRACT: The author refers to an article on a similar subject which appeared in "Priroda" 1957, Nr 6, written by G.I. Kogan-Beletskiy, Candidate of Technical Sciences. The present article is an account of how the aircraft was struck by a ball of fire while flying through a stormcloud. Some rivets on the fuselage were melted and there was an error of up to 100° in the readings of the magnetic compass. There is a diagram. ✓

Card 1/1

GUTOVSKIY, Mikhail Vasil'yevich; ANDREYEV, V.V., kand.tekhn. nauk, dots.,  
retsenzent; DEKATOV, V.N., kand.tekhn.nauk, dots., retsenzent;  
POPOV, Yu.A., prof., red.; GRIGORASH, K.I., red.izd-va; NOVIK, A.Ya.,  
tekhn. red.

[Manual for the design of components and systems of aeronautical  
electric equipment] Posobie po proektirovaniu i raschetu elementov i  
sistem aviatsionnogo elektrooborudovaniia. Moskva, Gos.nauchno-tekhn.  
izd-vo Oborongiz. No.1. [Electric circuits for airplanes] Samoletnye  
elektroseti. Pod red. IU.A.Popova. 1961. 136 p. (MIRA 14:11)  
(Airplanes—Electric equipment)

POPOV, Yu.A.; LOSKUTOV, Yu.M.

Theory of unit-spin polarized particles. *Izv.vys.ucheb.zav.; fiz.*  
no.3:20-27 '61. (MIRA 14:8)

1. Mskovskiy gosuniversitet im. M.V.Lomonosova.  
(Nuclear spin)

S/188/61/000/002/005/010  
B113/B203

24.6600

AUTHOR: Popov, Yu.A.

TITLE: Polarization of spin-1 particles on elastic scattering

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya 3, fizika, astronomiya, no. 2, 1961, 26 - 33

TEXT: The polarization properties of free particles of spin  $\vec{s}$  are determined by two quantities: the angle  $\delta$  between the components of  $\vec{s}$  in the plane perpendicular to the momentum  $\vec{k}$ , for which Eq. (6)  $\cos \delta = \frac{s_1}{\sqrt{s_1^2 + s_2^2}}$ ,

$\sin \delta = \frac{s_2}{\sqrt{s_1^2 + s_2^2}}$  holds, and the angle  $\alpha$  between  $\vec{s}$  and  $\vec{k}$ , for which

Eq. (7)  $\tan \alpha = \frac{\sqrt{s_1^2 + s_2^2}}{s_3}$  holds. The energy  $U$  of the elastic interaction of particles with an immovable center is given by Eq. (8)  $U = \int V(\vec{r})$ . To ob-

Card 1/10

21610

S/188/61/000/002/005/010  
B113/B203

Polarization of spin-1...

tain a scalar U, the matrices  $\gamma$  must be properly chosen:  $\gamma' = S^{-1} \gamma S$ .  
 $T_{\mu\nu} = \beta_\nu \beta_\mu$  is a tensor of the second rank, and the unit matrix is a scalar.

Pseudovector and pseudoscalar are obtained from Eq. (16)

$T_{\mu\sigma\nu} = \frac{1}{2} \{ \beta_\mu S_{\nu\sigma} + \beta_\sigma S_{\mu\nu} + \beta_\nu S_{\sigma\mu} \}$  and Eq. (17)  $S_{\mu\nu} = \beta_\mu \beta_\nu - \beta_\nu \beta_\mu$ .  $T_{\mu\sigma\nu}$  is an antisymmetrical tensor of the third rank. The components of the pseudovector  $A_\mu$  are determined from Eq. (18).

$$\begin{cases} A_1 = T_{234} = -\beta_4 (i\hat{S}_1) + \beta_2 \beta_4 \beta_3, \\ A_2 = T_{314} = -\beta_4 (i\hat{S}_2) + \beta_3 \beta_4 \beta_1, \\ A_3 = T_{124} = -\beta_4 (i\hat{S}_3) + \beta_1 \beta_4 \beta_2, \\ A_4 = -T_{123} = \beta_3 (i\hat{S}_3) - \beta_1 \beta_3 \beta_2. \end{cases} \quad \text{Eq. (18)}$$



S/188/61/000/002/005/010  
B113/B203

Polarization of spin-1 ...

Pseudoscalar P must satisfy the conditions of Eq. (19)  $\tau_4^{-1} P \tau_4 = -P$ ,

$S_{x,y,z}^{-1} P S_{x,y,z} = P$ . Then, the pseudoscalar is formed as follows:

$P_{14} = P_{25} = P_{36} = 1, P_{41} = P_{52} = P_{63} = -1$ . All the other matrix elements are zero. When considering the behavior of the spin of bosons on elastic scattering, the author restricted himself to deal with the scattering of longitudinally polarized particles, where the spin lay in the direction of the momentum  $\vec{k}$  before scattering. He determined the angle  $\alpha'$  between the spin  $\vec{s}$  of the scattered particle and its new momentum  $\vec{k}'$ . When considering the time component of the pseudovector interaction

$A_{time} = i\beta_3 \hat{s}_3 - \beta_1 \beta_3 \beta_2$  and the spatial part of the vector interaction  $V_{space} = \beta_n$ , the component of the polarization vector  $\xi_2 = 0$  as in all the other interactions considered. Therefore, the spin will always lie in the plane of the vectors  $\vec{k}$  and  $\vec{k}'$ . For  $\tan \alpha'$  and  $s'$

Card 3/10

X

21610

S/188/61/000/002/005/010  
B115/B203

X

Polarization of spin-1 ...

Eq. (21)  $\text{tg } \alpha' = \frac{1}{2} \left( 1 + \frac{K^2}{k_0^2} \right) \text{tg } \frac{\theta}{2},$

$$s_0 = \frac{1}{4} \frac{K^2}{k_0^2} \left\{ n_x^2 \left[ \frac{1}{2} \sin^2 \theta + \frac{k_0^2}{K^2} (1 + \cos \theta)^2 \right] + \right.$$

$$\left. + (n_x^2 + n_y^2) \left[ \frac{1}{2} (1 - \cos \theta)^2 + \frac{k_0^2}{K^2} \sin^2 \theta \right] \right\}, \quad \text{Eq. (21)}$$

is obtained,  $\vec{n}$  being a three-dimensional unit vector, and  $\theta$  the angle between the vectors  $\vec{k}$  and  $\vec{k}'$ . For S-type interactions and  $v^{\text{time}} = \beta_1,$

Card 4/10

21010

S/188/61/000/002/005/010  
B113/B203

Polarization of spin-1 ...

Eq. (22)

$$\operatorname{tg} \alpha' = \frac{\left(1 + \frac{k_0^2}{K^2}\right) \sin \theta}{\cos \theta \left(1 + \frac{k_0^2}{K^2}\right) - 1 - \left(\frac{k_0^2}{K^2}\right)},$$

$$s'_0 = \frac{1}{2} \sin^2 \theta + \frac{1}{4} \left(\frac{k_0^2}{K^2}\right) (1 + \cos \theta)^2 + \frac{1}{4} \left(\frac{K^2}{k_0^2}\right) (1 - \cos \theta)^2; \quad (22)$$

and Eq. (23)

$$\operatorname{tg} \alpha' = \frac{1}{4} \left(1 + \frac{K^2}{k_0^2}\right) \left(1 + \frac{k_0^2}{K^2}\right) \operatorname{tg} \theta,$$

$$s'_0 = \frac{1}{2} (1 + \cos^2 \theta) + \frac{1}{8} \sin^2 \theta \left(1 + \frac{K^2}{k_0^2}\right).$$

are obtained, respectively. In the non-relativistic case, both variants

Card 5/10

21610

S/188/61/000/002/005/010  
3113/2203

Polarization of spin-1 ...

offer the same result:  $\tan \alpha' = \tan \theta$ . In non-relativistic approximation, the spin maintains its original direction. When considering the pseudo-scalar interaction,

Eq. (24)

$$\begin{aligned} \operatorname{tg} \alpha' &= -\frac{1}{2} \left( 1 + \frac{k_0^2}{K^2} \right) \operatorname{ctg} \frac{\theta}{2}, \\ s_0 &= \frac{1}{4} \frac{k^2}{k_0^2} \left\{ \sin^2 \theta \left( n_x^2 + n_y^2 + n_z^2 \frac{1}{2} \frac{k_0^2}{K^2} \right) + \right. \\ &\left. + \frac{1}{2} \frac{k_0^2}{K^2} (n_x^2 + n_y^2) (1 + \cos \theta)^2 + n_z^2 (1 - \cos \theta)^2 \right\}. \quad \text{Eq. (24)} \end{aligned}$$

is obtained, where  $n_x = n_y = 0$ ,  $n_z = 1$ . In the case of  $S_{mk}$  - type interaction,

Card 6/10

21010

S/188/61/000/002/005/010  
B113/B203

Polarization of spin-1 ...

Eq. (25)

$$\begin{aligned} \operatorname{tg} \alpha' &= \frac{n_x^2 \left(1 + \frac{k_0^2}{K^2}\right) \sin \theta + (n_x^2 + n_y^2) \cos \theta}{(n_x^2 + n_y^2) \sin \theta + n_x^2 \left[ \cos \theta \left(1 + \frac{k_0^2}{K^2}\right) - \left(1 - \frac{k_0^2}{K^2}\right) \right]} \\ s_0' &= \frac{1}{2} [(n_x^2 + n_y^2) \cos^2 \theta + n_x^2 \sin^2 \theta] + \frac{1}{4} \left( \frac{k_0^2}{K^2} + \frac{K^2}{k_0^2} \right) \times \\ &\times \left[ (1 + \cos \theta)^2 n_x^2 + \sin^2 \theta (n_x^2 + n_y^2) \right] + \frac{1}{2} \cos \theta \left( \frac{k_0^2}{K^2} - \frac{K^2}{k_0^2} \right) n_x^2 \end{aligned}$$

is obtained. A comparison of the formulas of Eqs. (21) - (25) with similar results (Ref. 1: A.A. Sokolov and M.M. Kolesnikov, ZhETF, 38, 165, 1779, 1960) shows that, in contrast to Fermi particles, bosons do not maintain their longitudinal polarization in elastic scattering. In the case of V- and A-type interactions, they are transversely polarized (at high energies). By means of the results obtained it is possible to study

Card 7/10

21610  
S/188/61/000/002/005/010  
B113/B203

Polarization of spin-1 ...

the scattering of particles with mixed interactions. Such interactions consist of linear combinations. When considering the scattering in a center having only one charge ( $e' \neq 0, \mu' = 0$ ),  
Eq. (27)

$$\operatorname{tg} \alpha' = \frac{1}{4} f(k) K \frac{\left( ek_0 - \mu k^2 \sin^2 \frac{\theta}{2} \right) \left[ e \left( 1 + \frac{k_0^2}{K^2} \right) - \mu k \frac{kk_0}{K^2} \right] \sin \theta}{e^2 k_0^2 \cos \theta - \mu k^2 \sin^4 \frac{\theta}{2} (k^2 \mu - 2ek_0)} \quad \text{Eq. (27)}$$

and Eq. (28)

$$d\sigma = \frac{K^2}{k_0^2} \frac{e'^2 d\Omega}{4k^4 c^4 h^2} \left[ e^2 k_0^2 \operatorname{ctg}^4 \frac{\theta}{2} + (ek_0 - k^2 \mu)^2 + \frac{1}{2K^2} \operatorname{ctg}^2 \frac{\theta}{2} [e(k_0^2 + K^2) - \mu k^2 k_0] \right] \quad \text{Eq. (28)}$$

are obtained for  $\alpha'$  and the cross section of scattering ( $d\sigma$ ); hence, it follows that in non-relativistic approximation  $k \ll K \sim k_0$  and, with Dirac particles, the Coulomb interaction plays the principal part while the spin

Card 8/10

S/188/61/000/002/005/010  
B113/B203

Polarization of spin-1 ...

must keep its original position. With increasing energy, the dipole terms start playing the principal role. When considering the scattering process in an immovable center which has only a magnetic moment  $\mu'$  parallel to the initial momentum  $\vec{k}$ ,  
Eq. (29)

$$\text{tg } \alpha' = \frac{1}{2} \frac{K}{k_0} f(k) \text{tg } \frac{\theta}{2}$$

and Eq. (30)

$$d\sigma = \frac{\mu'^2 \cos^2 \frac{\theta}{2}}{2c^2 \hbar^2 k_0^2} (e + k_0 \mu)^2 \left[ 2k_0^2 \cos^2 \frac{\theta}{2} + K^2 \sin^2 \frac{\theta}{2} \right] d\Omega$$

are obtained. If the vectors  $\vec{\mu}'$  and  $\vec{k}$  lie orthogonally,

Eq. (29')

$$d\sigma_{\perp} = \frac{\cos^2 \frac{\theta}{2}}{c^2 \hbar^2} \left\{ \mu_x'^2 (e + k_0 \mu)^2 \sin^2 \frac{\theta}{2} + \mu_y'^2 \left( e + k_0 \mu \sin^2 \frac{\theta}{2} \right)^2 \right\} d\Omega$$

Card 9/10

21610

S/188/61/000/002/005/010

B113/B203

Polarization of spin-1 ...

Eq. (30')

$$d\sigma_{s'_{-0}} = \frac{1}{2} \frac{K^2}{k_0^2 c^2 \hbar^2} \left\{ \mu_x^2 \sin^2 \frac{\theta}{2} (e + k_0 \mu)^2 + \mu_y^2 (e - k_0 \mu \cos \theta)^2 \right\} d\Omega.$$

and Eq. (31)

$$d\sigma_{s'_{-1}} = \frac{K^2 \mu_y^2 \mu^2}{4 k_0^2 c^2 \hbar^2} \sin^2 \theta d\Omega.$$

are obtained for the cross sections. The author thanks Professor A.A. Sokolov and Yu.M. Loskutov for assisting in the investigation. There are 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Kafedra statisticheskoy fiziki i mekhaniki (Department of Statistical Physics and Mechanics)

SUBMITTED: September 21, 1960

Card 10/10



PGICV, Yu. A.

Scattering of transversely polarized particles with spin 1.  
Vest. Mosk. un. Ser. 3: Fiz., astron. 16 no.5:90-96 3-0 161.  
(NIPA 24,710)

1. Kafedra elektrodinamiki i kvantovoy teorii Moskovskogo  
universiteta.

(Nuclear spin)

(Scattering(Physics))

BORISOV, Konstantin Nikolayevich; POPOV, Yu.A., prof., red.;  
ZAKHAROV, Yu.G., kand. tekhn.nauk, red.; Prinsipala ucha-  
stiya POLYAKOVA, G.Ya., kand. tekhn. nauk; KURBAKOVA, I.P.,  
red. izd-va; GARNUKHINA, L.A., tekhn. red.

[Fundamentals of aircraft electric driving]Osnovy aviatsion-  
nogo elektroprivoda. Moskva, Oborongiz. Pt.1. [Noncontrol-  
led drive]Nereguliruemyi privod. Pod red. IU.A.Popova. 1962.  
203 p. (MIRA 15:10)

(Airplanes--Electric driving)

24.4400  
24.6610

S/056/62/043/001/020/056  
B102/B108

AUTHORS: Loskutov, Yu. M., Popov, Yu. A.

TITLE: Theory of vector particles with oriented spin

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43,  
no. 1(7), 1962, 126 - 130

TEXT: A method is described of finding the wave function for bosons, taking all possible spin states into account. The behavior of the polarization vector in elastic scattering of vector particles with non-vanishing rest mass is studied for vectorial, pseudovectorial, tensorial and pseudo-scalar interaction. The formulas derived are used to investigate (a) elastic scattering of longitudinally polarized particles with their spin parallel or antiparallel to the momentum, (b) Coulomb scattering of transversally polarized particles, vectorial interaction, (c) dc for scattering of particles of both types of polarization in the case of combined interaction. For the latter case at low energies Coulomb interaction plays the main role in scattering; at higher energies tensorial forces arising in the interaction between charge and magnetic field predominate.  
Card 1/2

√B

40592

S/535/62/000/145/001/002  
1011/1211

26.2152

**AUTHORS:** Gutovskiy, M. V., Candidate of Technical Sciences, and Popov, Yu. A., Professor  
**TITLE:** Frequency discharge repetition in electric ignition systems  
**SOURCE:** Moscow. Aviatsionnyy institut. Trudy, no. 145, 1962, Voprosy elektroavtomatiki i elektrooborudovaniya samoleta, 60-77

**TEXT:** The duration of the discharge is neglected and thus the charging time alone must be calculated to find the discharge repetition rate. Two types of charging circuits are analyzed. In both of them the discharge gap is connected across the operating capacitor which is charged by the secondary of a transformer through a half-cycle rectifier. The primary of the transformer is fed by a chopped d.c. voltage in the first type and by an a. c. voltage in the second. The circuit of the first type is analyzed by a linear differential equation, and it is shown that the charging time is contained implicitly in the equation derived. For practical purposes a calculation based on energy relations is suggested. An equation for the charging time is derived, assuming equal capacitor energy increments in each charging pulse. This equation is used in a numerical example. The charging time in the circuit of the second type is calculated by the method of S.S. Khukhrikov [Priblizhenny chislenny metod rascheta perekhodnykh protsessov v lineynykh i neulineynykh sistemakh (an approximate

Card 1/2

KERIMOV, B.K.; POPOV, Yu.A.; LOSKUTOV, Yu.M.; GALKINA, L.P.

Problem of polarizational characteristics of electrons from the  $\Lambda^+$ -meson decay. Vest.Mosk.un.Ser.3.Fiz., astron. 17 no.2:29-35  
Mr.-Ap '62. (MIRA 16:2)

1. Kafedra statisticheskoy fiziki i mekhaniki Moskovskogo universiteta.

(Electrons) (Mesons)  
(Angular momentum (Nuclear physics))

LOSKUTOV, Yu.M.; POPOV, Yu.A.

Theory of vector particles with oriented spin. Zhur. eksp. i  
teor. fiz. 43 no.1:126-130 J1 '62. (MIRA 15:9)

1. Moskovskiy gosudarstvennyy universitet.  
(Nuclear spin) (Wave mechanics)

KERIMOV, B.K.; POPOV, Yu.A.; LOSKUTOV, Yu.M.

Polarization properties of electrons in  $\Lambda^+ \bar{\pi}$  meson (II) decay.  
Vest.Mosk.un.Ser.3:Fiz.,astron.18no.1:62-65 Ja-F '63.  
(MIRA 16:5)

(Mesons—Decay)

(Electrons)

L 10840-67

ACC NR: AR6032060

SOURCE CODE: UR/0271/66/000/007/B013/B013

2

AUTHOR: Poletayev, A. S.; Popov, Yu. A.

TITLE: Current shaper and reading amplifier for a high-speed storage system

SOURCE: Ref. zh. Avtomatika, telemekhanika i vychislitel'naya tekhnika, Abs. 7B93

REF SOURCE: Sb. Poluprovodnik, elementy v vychisl. tekhn. M., 1965, 61-66

TOPIC TAGS: storage, storage system, high speed storage system, reading amplifier

ABSTRACT: A recording current shaper is described. The shaper has a 5-cascade rheostatic amplifier with high-frequency transistor, the latter 3 cascades included in the circuit with the common collector to operate the total load and the first 2 cascades to serve for shaping the amplitude and pulse length using RC-coupling elements. The maximum operational frequency of the amplifier is 5 Mc, the amplitude of the input pulses is 6 v, and the amplitude of output current is 0.7 amp. The duration of output pulses is 100 nanoseconds, the front is 40 nanoseconds,

Card 1/2

UDC: 681.142.65



L 10840-67

ACC NR: ARG032060

0

while the delay, with respect to the input pulses, is 15 to 20 nanoseconds. The load inductance is  $0.7 \mu\text{h}$ . The reading amplifier is made with high-frequency transistors, which are incorporated in the circuit with the general emitter having low collector load resistors. The input signal is amplified by a linear amplifier and enters two valves controlled by gating pulses. The signal of one valve is used for rerecording, while the signal of the other valve is amplified by the terminal amplifier for dispensing information from the storage system. With a change in the input signal from 60 to 160 mv, the amplitude of the output signal remains constant and equals 8 v, the duration is 70 nanoseconds, and the front is 70 nanoseconds (at 200 ohm load resistance and  $130 \mu\mu\text{f}$  capacitance). The pulse delay in the amplifier is 30 to 40 nanoseconds. [Translation of abstract]

SUB CODE: 09/

Card

2/2

*lms*

ACC NR: AP6035706

(A, N)

SOURCE CODE: UR/0413/66/000/019/0053/0053

INVENTOR: Popov, Yu. A.

ORG: none

TITLE: A device for a digital measuring instrument. Class 21, No. 186561 [announced by Institute of Automation and Electrometry, Siberian Branch, AN SSSR (Institut avtomatiki i elektrometrii Sibirskogo otdeleniya AN SSSR)]

SOURCE: Izobreneniya, promyshlennyye obraztuy, tovarnyye znaki, no. 19, 1966, 53

TOPIC TAGS: electric measuring instrument, digital system, *electrometry*

ABSTRACT: This Author Certificate presents a device for a digital measuring instrument. The device includes a comparison element, a compensation voltage indication element, and a compensation voltage shaping element. The design provides for combining the functions of the main elements of the digital instrument and for simplifying the digital instrument. The device is made of a transistor switch with a limiting resistance in the collector circuit (the input of which is fed a transformer voltage) and of a neon lamp with a standard resistance in the cathode circuit. The transistor switch and the neon lamp are connected in parallel (see Fig. 1). The compensation voltage is taken off the standard resistance in the cathode circuit of the neon lamp. The base of an emitter follower is connected to the common point where the transistor switch and the neon lamp are connected. The output of the emitter follower is connected to a divider (which sets the triggering threshold) and

UDC: 621.317.7.024:681.142.07

Card 1/2

ACC NR: AP6035706

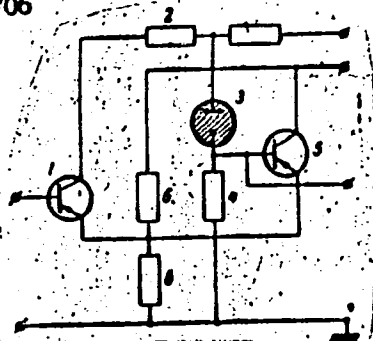


Fig. 1. 1 - transistor switch;  
2 - limiting resistance;  
3 - neon lamp; 4 - standard  
resistance; 5 - emitter  
follower; 6 - divider

also to the emitter of the input switch. Orig. art. has: 1 figure.

SUB CODE: 09, 14/ SUBM DATE: 31May65

Cord 2/2

STARSHINOV, B.N.; SIMITSKIY, V.D.; SEN'KO, G.Ye.; GULYGA, D.V.; BABIY, A.A.;  
KHORUZHIY, A.G.; Primali uchastiye: OSTROUKHOV, M.Ya.; SAVELOV,  
N.I.; PLISKANOVSKIY, S.T.; MOISEYEV, Yu.G.; LAVRENT'YEV, M.L.;  
TARASOV, F.P.; ZAGREBA, A.V.; KAMENEV, R.D.; TKACHENKO, A.A.;  
FREYDIN, L.M.; LUKIN, P.G.; POPOV, Yu.A.; MISHIN, P.P.; KARACHENTSEV,  
M.D.; DOLMATOV, V.A.; AYUKOV, A.S.; PALAGUTA, V.P.; VYAZOVSKIY, Yu.V.;  
SOLODKIY, Yu.A.; KONAREVA, N.V.; SAPRONOV, Yu.V.; SIMITSKAYA, S.K.;  
SAPRONOV, B.V.; LEKAREV, V.L.; STOLYAR, V.V.; PROKHORENKO, Z.A.;  
BANDINA, Ye.Ye.

Results of the first year of operation of large capacity blast  
furnaces. Sbor. trud. UNIIM no.11:34-46 '65.

(MIRA 18:11)

ROSHCHUPKIN, D.V., kand. tekhn. nauk; TSERNANT, A.A., inzh.;  
POPOV, Yu.A., inzh.

Clay cutting and ripping machine. Stroi. i dor. mash. 10 no.4:  
11-13 Ap '65. (MIRA 18:5)

BYKHOVSKIY, Yakov Lazarevich; ~~POPOV, Yu. A.~~, nauchnyy redaktor; LYUBINSKAYA,  
A.G., redaktor; KUZ'MIN, D.G., tekhnicheskiy redaktor.

[Telemechanics and its application] Telemekhanika i ee primeneniye.  
Moskva, Vses.uchebno-pedagog.izd-vo Trudrezervizdat. 1956. 78 p.  
(MLRA 10:5)

(Remote control)

*Popov, Yu. A.*  
MOROZOV, Ye.M. (Moskva); POPOV, Yu.A. (Moskva); TAMBOVTSEV, Ye.P. (Moskva)

Relation between strains and deformations in media with various  
cohesions. Izv.AN SSSR.Otd.tekh.nauk no.2:123-124 F '57.  
(MIRA 10:5)

(Deformations (Mechanics))

Popov, Yu. A.

USSR /Chemical Technology. Chemical Products  
and Their Application

1-27

Wood chemistry products. Cellulose and its  
manufacture. Paper.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 32691

Author : Lysenko V.P., Stakhovyak F., Popov Yu. A.

Inst : Leningrad Technological Institute imeni Lensovet

Title : Fractionation of Technical Ethyl Cellulose

Orig Pub: Sb. stud. rabot Leningr. tekhnol. in-ta im.  
Lensoveta, L., 1956, 126-130

Abstract: A study was made of the fractional composition  
of technical ethyl cellulose (EC) (by the  
method of precipitation and by the method of

Card 1/2



88-88-1/5

**AUTHOR:** Popov, Yu. A., Candidate of Technical Sciences, Docent, Editor

**TITLE:** Foreword (Predisloviye)

**PERIODICAL:** Trudy Moskovskogo Aviatsionnogo Instituta, 1957, Nr 88: Some Problems of Electric Drive and Thermal Protection of Electric Motors (Nekotoryye voprosy elektroprivoda i temperaturnaya zashchita elektrodvigateley), pp. 3-4 (USSR)

**ABSTRACT:** The articles included in the collection are the result of the scientific research of members of the staff of the Moscow Aviation Institute and concern the problems of electric drive and thermal protection of motors. The following articles are included in this collection: (1) Polyakova, G. Ya., Engr. Synchronous Electric Servomechanism in Aircraft; (2) Tomashevskiy, M. A., Candidate of Technical Sciences. Force Transmitted in an Electromagnetic Clutch with a Ferromagnetic Filler; (3) Petrov, B. I., Candidate of Technical Sciences. Two-Phase Induction Motor Operating as a Servomotor in a Servomechanism; (4) Kolosov, S. P., Candidate of

Card 1/2

POPOV, Yu.A.

Distribution of true bugs as related to the nature of  
the vegetation cover in the northeastern region of the  
Chatkal Range. Vest. Mosk. un. Ser. 6: Biol., pochv.  
15 no.2:31-39 '60. (MIRA 13:6)

1. Kafedra entomologii Moskovskogo universiteta.  
(Chatkal Range--Heteroptera)

POPOV, Yu.A.

New subfamily of terrestrial hemipterans from upper Jurassic  
deposits of the Kara-Tau Range (Hemiptera - Gymnocerata, Lygaeidae).  
Dokl. AN SSSR 141 no.5:1211-1213 D '61. (MIRA 14:12)

1. Paleontologicheskii institut AN SSSR. Predstavleno akademikom  
Yu.A. Orlovym.

(Kara-Tau--Lygaeidae, Fossil)

AYZENBERG, Ye.Ye.; BEKKER-MIGDISOVA, Ye.E.; VISHNYAKOVA, V.N.;  
DANILEVSKIY, A.S.; MARTYNOVA, O.M.; NOVOZHILOVYY, N.I.;  
PONOMARENKO, A.G.; POPOV, Yu.A.; RODENDORF, B.B.; CHERNOVA,  
O.A.; SHAROVYY, A.G.; ORLOV, Yu.A., glav. red.; MARKOVSKIY,  
B.P., zam. glav. red.; RUZHENTSEV, V.Ye., zam. glav. red.;  
SOKOLOV, B.S., zam. glav. red.; OSIPOVA, L.S., red. izd-va;  
MAKUNI, Ye.V., tekhn. red.

[Fundamentals of paleontology; reference book in 15 volumes  
for paleontologists and geologists of the U.S.S.R.] Osnovy  
paleontologii; spravochnik dlia paleontologov i geologov  
SSSR v piatnadtsati tomakh. Glav. red. I.U.A.Orlov. Moskva,  
Izd-vo Akad. nauk SSSR. Vol.9.[Arthropoda: Tracheata,  
Chelicerata] Chlenistonogie: trakheinye i khelitserovye. Otv.  
red. toma B.B.Rodendorf. 1962. 559 p. (MIRA 16:3)  
(Arthropoda, Fossil)