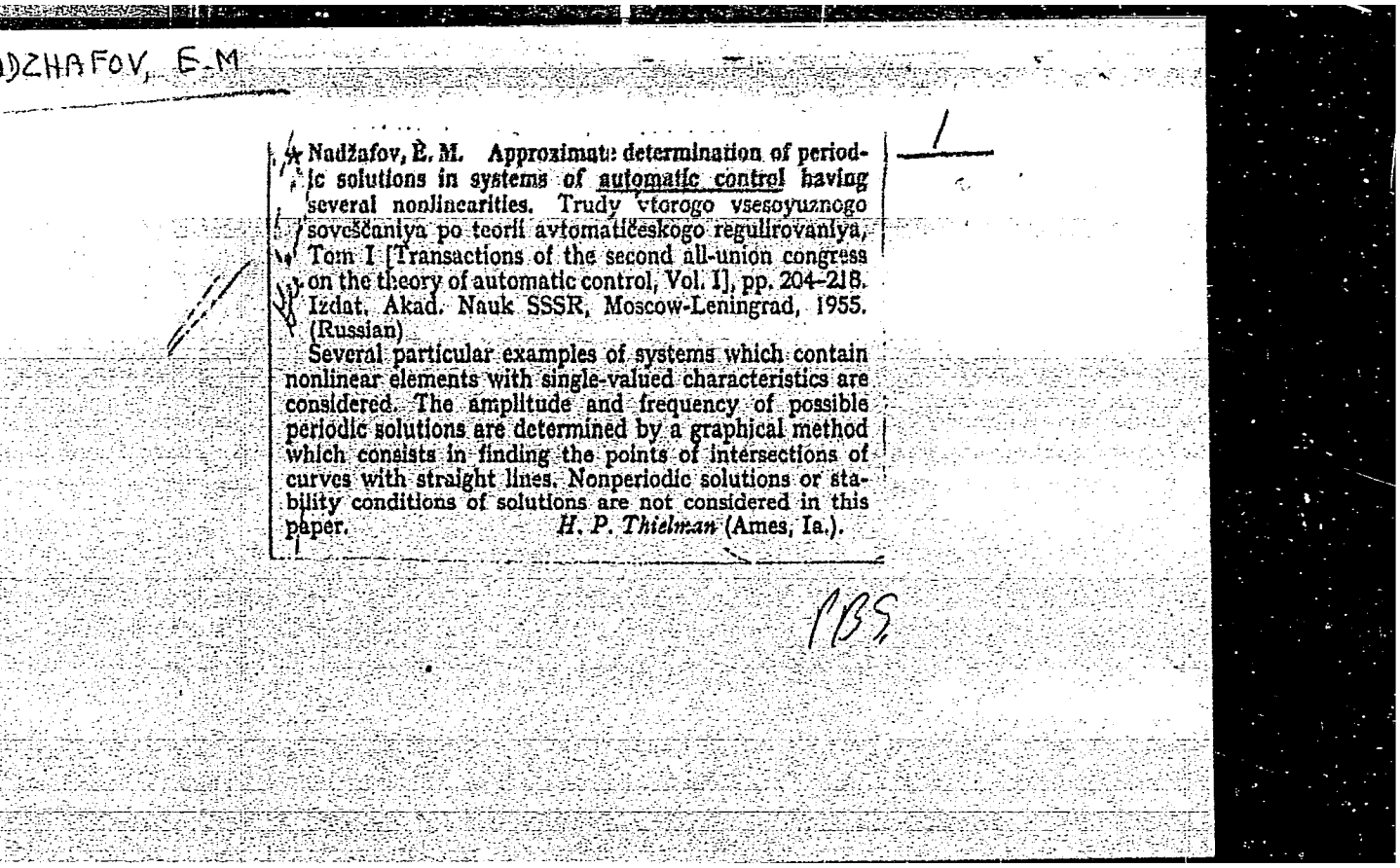


)ZHAFOV, E.M

1

Nadžafov, È. M. Approximate determination of periodic solutions in systems of automatic control having several nonlinearities. Trudy vtorogo vsesoyuznogo soveščaniya po teorii avtomatičeskogo regulirovaniya, Tom I [Transactions of the second all-union congress on the theory of automatic control, Vol. I], pp. 204–218. Izdat. Akad. Nauk SSSR, Moscow-Leningrad, 1955. (Russian)

Several particular examples of systems which contain nonlinear elements with single-valued characteristics are considered. The amplitude and frequency of possible periodic solutions are determined by a graphical method which consists in finding the points of intersections of curves with straight lines. Nonperiodic solutions or stability conditions of solutions are not considered in this paper. *H. P. Thielman* (Ames, Ia.).

185

NADZHAFOV, E. M.
/Electric ty - Regulation

FD-1667

1/2 Pub. 10-3/11

or : Nadzhafov; E. M.; Abdullayev, A. A.; and Krementulo, Yu. V. (Moscow)

e : Experimental investigation of the self-excited oscillations in the internal circuit of a pneumatic regulator

odical : Avtom. i telem., Vol. 16, 27-42, Jan-Feb 1955

ract : The authors describe procedure and results of an experimental investigation of the internal circuit of the pneumatic regulator type 04. They point out the influence of hydraulic resistance and capacity of the feedback line, its coefficient of amplification (quantity proportional to the range of throttling), capacity at regulator output, supply pressure, regulator's output pressure, diameter of the nozzle of regulator's secondary relay, all namely upon the frequency and amplitude of self-excited oscillations and upon the character of the course of transient processes. They indicate the possibility of applying the self-excited oscillatory regimes of the pneumatic regulators for improving the transient process. Three references: V. L. Lossivevskiy, Principles of automatic regulation of technological processes (in Russian), Oborongiz (Defense Press), 1950. V. V. Solodovnikov, "Frequency method of analyzing the quality of automatic regulation systems," Osnovy avtomaticheskogo regulirovaniya (Princiles of automatic

regulation), editor V. V. Solodovnikov, Mashgiz (Machine Press), 1954.
V. V. Petrov and G. M. Ulanov, "Stabilization of nonlinear servomechanisms," ibid.

itution : --

itted : June 16, 1954

NADZHAFOV, Ye.M.
USSR/Automatics and telemechanics-pneumatic regulator FD-2757

rd 1/2 Pub. 1[illegible] - 2/11

thor : Abdullayev, A. A.; Vayser, I. V.; Nadzhafov, E. M. (Moscow)

tle : Equations of the pneumatic regulator 04

riodical : Avtom. i telem., 16, Sep-Oct 1955, 431-453

stract : The authors derive the equations to pneumatic regulators of the type 04 (factory "Tizpribor"). Inspite of the fact that these regulators are issued serially (tens of thousands of them in the course of several years) and have been utilized in various branches of the national economy, the designing and computations of systems equipped with regulators of this kind have been made difficult, the authors note, by the fact that up til now equations have not been derived that describe the processes in the regulator and numerical values of the parameters entering these equations have not been determined. They conclude that the derived equations of type 04 regulator and numerical values of their coefficients corresponding to various static regimes permit one knowing the remaining elements of the regulation system (object, final-control mechanism, sensitive element) to write down in numerical form the equations of motion according to final formulas and graphs immediately.

One reference: V. L. Lossiyevskiy, Osnovy avtomaticheskogo regulirovaniya tekhnologicheskikh protsessov [Principles of the automatic regulation of technological processes], Defense Press, 1950.

stitution : -

bmitted : July 14, 1954

ABDULLAYEV, Asner Alekper ogly; NADZHAFOV, Enver Hamed ogly; AYZERMAN, M.A., professor, doktor tekhnicheskikh nauk, redaktor; GONCHAROV, I.A., redaktor izdatel'stva

[Automatic control in oil extraction using compressors] Avtomaticheskoye regulirovanie v kompressornoi neftedobyche. Baku, Azerbaidzhanskoe gos.izd-vo neft.i nauchno-tekhn.lit-ry, 1956. 242 p. (MLRA 10:9)
(Automatic control)
(Petroleum engineering)

[redacted]

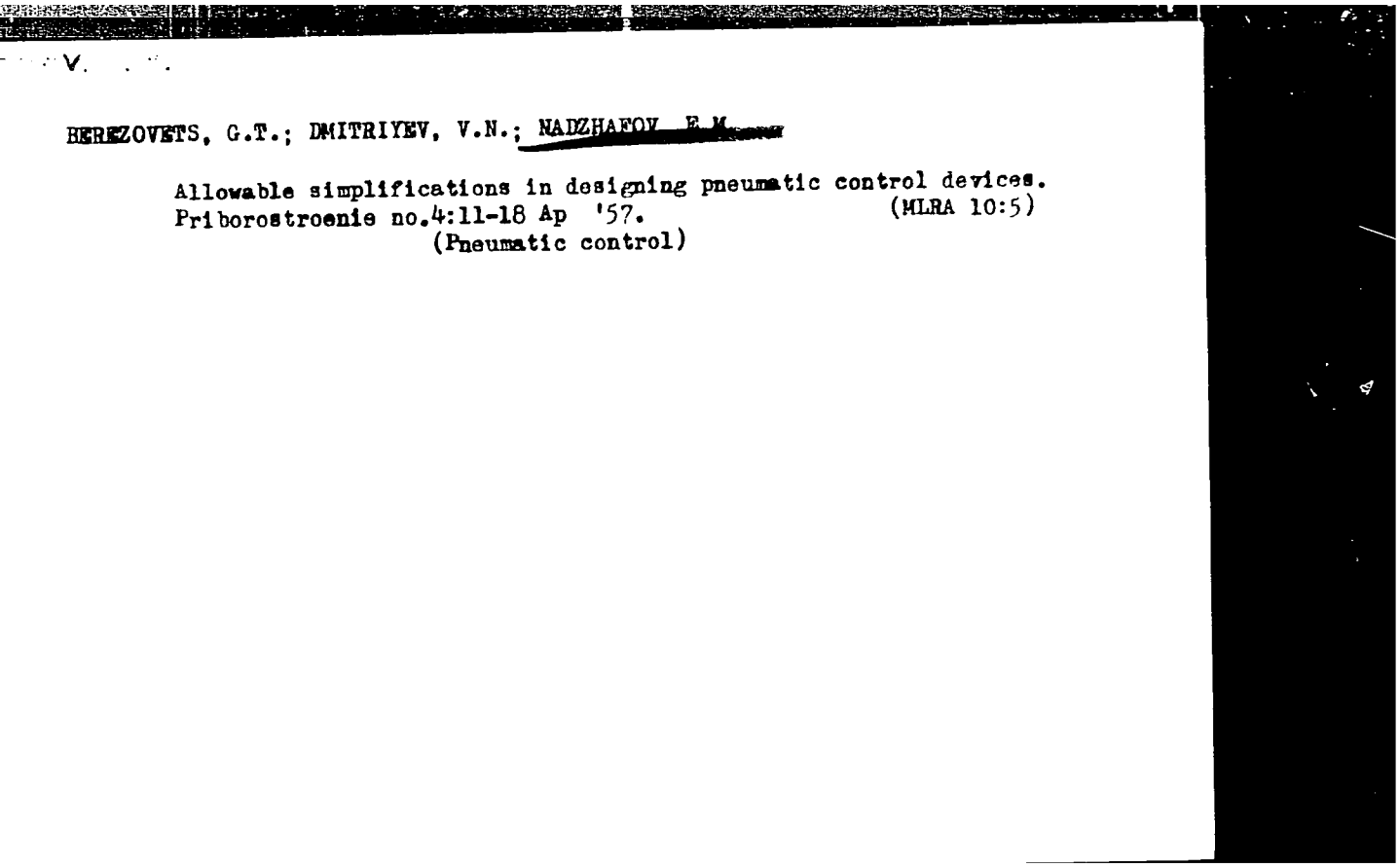
HADZHAFOV, E.M.

Automatic control of compressor wells. Trudy EMIN AN Azerb. SSR 13:85-116 '56. (MLRA 10:4)
(Oil wells) (Automatic control)

TOPCHIYEV, A.V., akademik, glavnyy redaktor; SHUMILOVSKIY, N.N., doktor tekhnicheskikh nauk, otvetstvennyy redaktor; LOSSIYEVSKIY, V.L., redaktor; MEZIN, I.S., redaktor; [redacted], redaktor; PLISKIN, L.G., redaktor; STRAKHOVA, L.P., redaktor; YARMOL'CHUK, G.G., redaktor; PRUSAKOVA, T.A., tekhnicheskiy redaktor

[Session of the Academy of Sciences of the U.S.S.R. on scientific problems in automatization of production, October 15-20, 1956. Overall automatization of production processes] Sessiia Akademii nauk SSSR po nauchnym problemam avtomatizatsii proizvodstva, 15-20 oktiabria 1956 g; kompleksnaia avtomatizatsiia proizvodstvennykh protsessov. Moskva, 1957. 310 p. (MLRA 10:4)

1. Akademiya nauk SSSR.
(Automatic control) (Automation)



BEREZOVETS, G.T.; DMITRIYEV, V.N.; NADZHAFOV, E.M.

Allowable simplifications in designing pneumatic control devices.
Priborostroenie no.4:11-18 Ap '57. (MLRA 10:5)
(Pneumatic control)

AUTHORS: Dmitriyev, V.N., Nadzhafov, E.M. 3[illegible], 1958, 7, 4/10

TITLE: The Movable Pneumatic Piston Drive of an Aggregate Unified System (AUS) (Porshnevoy sledyashchiy pnevmoprivod agregatnoy unifitsirovannoy sistemy (AUS))

PERIODICAL: Priborostroyeniye, 1958, Nr 7, pp. 17-19 (USSR)

ABSTRACT: The pneumatic piston drive (PSP) (developed at the Institut avtomatiki i telemekhaniki AN SSSR (Institute of Automatics and Telemechanics AS USSR)) was constructed on the basis of the following points of view:

1.) The connected value of pressure for the organs to be controlled must be within the range of from 0.2 to 1 kg/cm^2.
2.) Feeding is accomplished by pressure lines with a maximum working pressure of 4 kg/cm^2.
3.) Accuracy: 1%
4.) Operating speed should not be less than 50 mm/sec and transmission width should not be less than 3 cycles.
5.) The insensitivity range in input pressure should be below 0.008 kg/cm^2.
6.) No levers are allowed to be used for coupling.

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The Movable Pneumatic Piston Drive of an Aggregate 30/ 119 58-7 4/10

Only the control and distributing mechanisms the piston, and the cylinder are described in detail.
The experimental investigation of the apparatus for the determination of static and dynamic behavior was carried out with the following values: Feed pressure 2-4 atm excess pressure input pressure 0.7-1.0 atm excess pressure diameter of piston 150 mm. maximum stress brought to bear on the piston 700 kg. total piston path 280 mm.
In the course of the static test the amplification coefficient was measured as amounting to 79.4 mm/atm excess pressure. The average inherent stress does not exceed 0.005 atm excess pressure. The following values were measured in the course of the dynamic test. Maximum velocity of the piston 83 mm/sec. Resonance frequency: approximately f = 0.7 to 0.8 cycles. As an additional device a braking mechanism and a transducer are described in short. There are 9 figures.

1. [illegible] systems (transducers)

Card 2/2

AUTHORS: Ivlichev, Yu. I., [illegible] SOV, [illegible]
(Moscow)

TITLE: Universal Pneumatic Multiplication-Division Unit and Device for Automatic Square Rooting (Universal'noye pnevmaticheskoye mnozhitel'no-delitel'noye ustroystvo i ustroystvo dlya izvlecheniya kvadratnogo kornya)

PERIODICAL: Avtomatika i [illegible], [illegible], Vol [illegible], Nr [illegible], pp 997 - 1009 (USSR)

ABSTRACT: Two devices are described here. They were developed in the Laboratory for Pneumatic Automation of the Institute for Automation and Telemechanics AS USSR. The multiplying and dividing device is based on the [illegible]

$$P_4 = \frac{P_1 P_2}{P_3}$$

. P_4 - output pressure, P_1, P_2 and P_3 - input pressures. The multiplying and dividing device is described and in order to establish its static properties the equations of the processes which have taken place

Card 1/3

Universal Pneumatic Multiplication-Division Unit
and Device for Automatic Square Rooting

[illegible] are derived [illegible] errors of the block are examined. The [illegible] static error is [illegible]%. The equation of the block dynamics is derived [illegible]. From this it may be seen that the connections between the input and output pressures, even with the most simple model, are expressed by complicated differential equations. A linear block's equation with constant coefficients is obtained only with P_1 = const and P_2 = const. Derivation of the Universal Device for [illegible] square rooting follows, which operated in the same manner as the multiplication block, taking into consideration the equation $P_1 = P_2^2$. The static errors of this block are examined. The [illegible] total relative static error is of 0.[illegible]%. The equation for the dynamics of this block (47) is derived. It is essentially [illegible]. The results of the experimental examination of the blocks are given. The tests proved that both allow a specific rapid effect of [illegible] sec. From the examples given it may be seen that both blocks give exact [illegible]

Card 2/3

Universal Pneumatic Multiplication-Division Unit
and Device for Automatic Square Rooting

up to the third [illegible]. The [illegible]
Soviet references.

SUBMITTED: February 1, 1958

NADZHAFOV, E.M.

PHASE I BOOK EXPLOITATION SOV/3683

Berezovets, Galina Tarasovna, Aleksandr L'vovich Malyy, and Enver Mamedogly Nadzhafov

Pribory pnevmaticheskoy agregatnoy unifitsirovannoy sistemy i ikh ispol'zovaniye dlya avtomatizatsii proizvodstvennykh protsessov (Instruments for a Pneumatic Standard Unitized System and Their Application in the Automation of Manufacturing Processes) Moscow, Gostoptekhizdat, 1960. 162 p. 3,600 copies printed.

Exec. Ed.: M.P. Martynova; Tech. Ed.: L.V. Ganina.

PURPOSE: This book is intended for technical personnel designing automatic control systems for manufacturing processes in all branches of industry. It may also be used by students of schools of higher education and tekhnikums.

COVERAGE: The authors discuss the designing of typical automatic control systems based on pneumatic standard unitized systems (AUS). Standard block diagrams of regulation and automation systems are presented. No personalities are mentioned. There are 21 references, all Soviet.

Card 1/4

TABLE OF CONTENTS:

29748
S/194/61/000/006/005/077
D201/D302

9.7000

AUTHORS: Ivlichev, Yu.I. and Nadzhafov, E.N.

TITLE: Problems in designing pneumatic computers

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 6, 1961, 4, abstract 6 B25 (V sb. Vopr. pnevmo-i gidroavtomatiki, M., AN SSSR, 1960, 132-137)

TEXT: In designing pneumatic automation systems one may apply the principle of compensation forces, the principle of compensation of displacements, the characteristics of flow chambers, the consumption characteristics of throttle elements and the principle of comparison of dynamic pressures. The most promising seems to be the principle of compensation of forces and of the characteristics of flow chambers as applied respectively to a multiplying and an adding arrangement. The multiplication-division arrangement is designed as a balanced pneumatic bridge. Performing the operation $P_4 = \frac{P_1 - P_2}{P_3}$ it can multiply and square any signal within the

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2774⁸
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D201/D302

Problems in designing...

range from 0 to 1 atmosphere. It can also divide, multiply by a constant factor and obtain reciprocals by producing as the output signals not exceeding 1 atm. with an error of 0.35% and speed of operation of the order of 0.5 sec. The arrangement for square root extraction has an error of 0.5% and speed 0.5 sec. The adder uses the method of averaging pressures in a flow chamber. Addition is accomplished with an error of 2% with a speed of 0.1 sec. The arrangements are designed in two variants with metal plates 100 mm diameter and metal plates 40 x 40 mm. 3 figures. 1 reference.
/ Abstracter's note: Complete translation /

Card 2/2

BEREZOVETS, Galina Tarasovna; MALYY, Aleksandr L'vovich[deceased]; NADZHAFOV, Enver Mamed ogly; KARIBSKIY, V.V., red.; VRONSKIY, L.N., ved. red.; STAROSTINA, L.D., tekhn. red.

[Devices in a pneumatic multipurpose, standardized system and their use in automatically controlled production processes] Pribory pnevmaticheskoi agregatnoi unifitsirovannoi sistemy i ikh ispol'zovanie dlia avtomatizatsii proizvodstvennykh protsessov. Izd.2., perer. i dop. Moskva, Gostoptekhizdat, 1962. 213 p. (MIRA 16:1)
(Pneumatic machinery)
(Automatic control)

L 3934-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l)

ACCESSION NR: AR5014349 UR/0271/65/000/005/A037/A037
62-52

SOURCE: Ref. zh. Avtomatika, telemekhanika i vychislitel'naya tekhnika. Svodnyy tom, Abs. 5A256

AUTHOR: Nadzhafov, E. M.

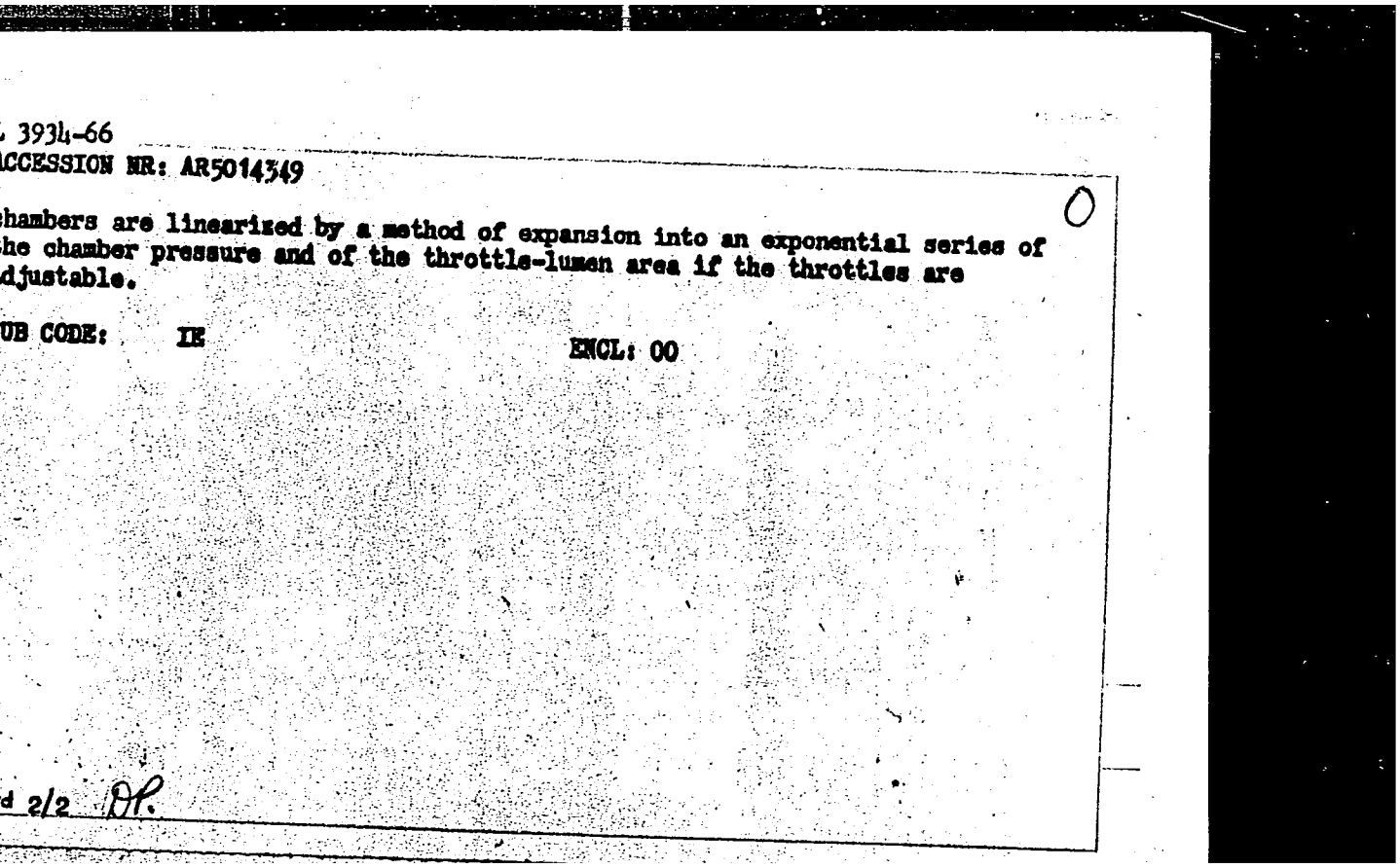
TITLE: Equations for the pneumatic controlling devices in the industrial controllers

CITED SOURCE: Uch. zap. Kom-t vyssh. i sredn. spets. obrazovaniya Sov. Min. AzerbSSR. Mekhan., mashinostr., energ., elektrotekhn., avtomatiz., vyshisl. tekhn., v. 9, no. 2, 1964, 111-119

TOPIC TAGS: pneumatic controller

TRANSLATION: Equations are set up which describe the dynamic processes in the elements of pneumatic controllers. A diaphragm-lever adder, a first-state nozzle-flapper amplifier, and a diaphragm-valve power amplifier are considered. The nonlinearities pertaining only to the limited variation of coordinates are taken into account in the equations. The nonlinear equations of the throttle flows and the equations describing the filling of pneumatic enclosed and flow-through

Card 1/2



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hambers are linearized by a method of expansion into an exponential series of he chamber pressure and of the throttle-lumen area if the throttles are djustable.

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GLINKOV, M.A.; KAGANOV, Yu.V.; NALZHAFOV, E.M.; BLINOV, O.M.; MUGARAB-SAMEDI, K.R.; MAGERRAM-ZADE, R.I.

Calculation method for obtaining current information on heat exchange processes in soaking pits. Izv. vys. ucheb. zav.; chern. met. 8 no.9:187-191 '65. (MIRA 18:9)

1. Moskovskiy institut stali i splavov.

KASYMOV, A.G., doktor biol. nauk; NADZHAFOV, G., red.

[Biological regimen of Mingechaur Reservoir] Biologicheskii rezhim Mingechaurskogo vodokhranilishcha. Baku, Azerbaidzhanskoe gos. izd-vo, 1965. 87 p.
(MIRA 18:10)

NADZHAFOV, I.G.

Eradication of a Taeniarhynchus infestation focus using compound medical measures. Report No.1: Organization of mass screening and treatment in the focus area. Med.paraz.i paraz.bol. 33 no.4: 454-458 Jl-Ag '64. (MIRA 18:3)

1. Institut meditsinskoy parazitologii i tropicheskoy meditsiny imeni Martsinovskogo Ministerstva zdravookhraneniya SSSR i Institut malyarii i meditsinskoy parazitologii Ministerstva zdravookhraneniya Azerbaydzhanskoy SSR, Baku.

KERIMOV, B.K.; NADZHAFOV, I.M.

Bremsstrahlung of an electron with oriented spin. Nauch. dokl. vys. skoly; fiz.-mat. nauki no.1:95-100 '58. (MIRA 12:3)

1.Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Bremsstrahlung) (Electrons)

9(3)

AUTHOR: Nadzhafov, I.M. SOV/55-58-3-7/30

TITLE: On Polarization Effects for Photon Deceleration Radiation of an Electron (O polyarizatsionnykh effektakh pri tormoznom izluchenii fotona elektronom)

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1958, Nr 3, pp 139 - 150 (USSR)

ABSTRACT: The author investigates the elliptic polarization of the photon for the deceleration radiation of an electron. The principal result of the explicit theoretical investigation of the processes is the statement that only polarized electrons can generate an elliptically polarized radiation. The author thanks Professor A.A. Sokolov for the guidance of the paper and B.K. Kerimov for the discussion. There are 2 figures, and 12 references, 3 of which are Soviet, and 9 American.

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

SUBMITTED: July 10, 1957

Card 1/1

21(1)

AUTHOR: Nadzhafov, I.M.

SOV/55-58-5-33/34

TITLE: Polarization Effects Under Deceleration Radiation and Pair Formation (Polyarizatsionnyye effekty pri tormoznom izluchenii i obrazovanii pary)

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya matematiki, mekhaniki, astronomii, fiziki, khimii , 1958,Nr 5,pp 209 - 212 (USSR)

ABSTRACT: The present contribution is declared as a letter to the editor and contains a short note on the generalization of the results of Mc Voy, K.W. and Dyson, F.G. [Ref 5]. The author considers deceleration radiation and formation of pairs in the general case (arbitrary distribution of angles and energies). The results have been partially already published by the author in [Ref 6].

There are 8 references, 3 of which are Soviet, 4 American, and 1 German.

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

SUBMITTED: September 30, 1958

Card 1/1

NADZHAFOV, I.M.

Polarization effects during bremsstrahlung and pair production. Vest.Mosk.un. Ser.mat.,mekh.,astron.,fiz.,khim. 13 no.5:209-211 '58. (MIRA 12:4)

1. Kafedra statisticheskoy fiziki i mekhaniki Moskovskogo gosudarstvennogo universiteta.
(Bremsstrahlung) (Nuclear reactions)

AUTHORS: Kerimov, B. K., Nadzhafov, I. A. SOV/48-22-7-26/28

TITLE: Bremsstrahlung From a Longitudinally Polarized Electron (Tormoznoye izlucheniye prodol'no-polyarizovannogo elektrona)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958, Vol. 22, Nr 7, pp. 886 - 892 (USSR)

ABSTRACT: A formula, which is deduced in this paper, determines the dependence of the circular polarization of bremsstrahlung photons on the angle and the energy. The formula obtained in this paper for the effective cross-section of bremsstrahlung is a generalization of the formula of Bethe-Heitler (Bete-Gaytler). It takes into account the longitudinal polarization of the electron spin and of the photon. In 1945 the theory of Dirac (Dirak)-particles with an oriented spin was developed by Sokolov (Refs 12, 13). This theory permits to find the dependence of the effective cross-section of a number of processes on the directions of the particle spins. According to this theory the quadratic forms of the matrix elements expressing the transition of the electron from the state (k,s,ε) to the state (k',s',ε') (Ref 12) are computed with formula (2). In a Born (Born) approximation the effective cross-section of the bremsstrahlung of electrons, which

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are polarized parallel or antiparallel to the direction of motion can be determined by formula (3). Using (2), (3) and (4) the effective cross-section of the bremsstrahlung through a longitudinally polarized electron can be determined. In order to investigate the circular polarization of the bremsstrahlung the amplitude of the vector potential of the photon field is split into two components: Formulae (5) and (6). Taking into account (2) and (5), formula (10) is obtained for the effective cross-section of the bremsstrahlung of the longitudinally polarized relativistic electron, after the final spin states of the electrons has been summed up. Only electrons which are polarized parallel or antiparallel to the direction of motion are able to produce "brems" photons with a circular polarization. The degree of circular polarization of the bremsstrahlung is determined from formula (14), whereas the degree of the circular polarization of the "brems" photons is determined from formula (20). The curves show, that the polarization P increases considerably with an increase of energy of the "brems" photon. The maximum polarization P increases with the increase of the electron energy and T_k = 3,5 MeV ($E=8m_0c^2$) reaches $\sim$100% The bremsstrahlung of an electron polarized antiparallel to the

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direction of motion partly shows a left-handed circular polarization. A.A.Sokolov discussed the paper with the authors. There are 2 figures and 13 references, 4 of which are Soviet.

ASSOCIATION: Kafedra statisticheskoy fiziki i mekhaniki Moskovskogo gos. universiteta im.M.V.Lomonosova (Chair of Statistical Physics and Mechanics at the Moscow State University imeni M V.Lomonosov)

NADZHAFOV, I. M., Candidate Phys-Math Sci (diss) -- "Polarization effects in the processes of inhibited irradiation and the formation of an electron-positron pair". Moscow, 1959. 9 pp (Moscow Order of Lenin and Order of Labor Red Banner State U im M. V. Lomonosov, Phys Faculty), 150 copies (KL, No 25, 1959, 126)

21(7)

AUTHOR: Nadzhafov, I. M.

SOV/56-36-1-58/62

TITLE: The Production of a Pair by a Photon Polarized Circularly (Obrazovaniye pary fotonom, polyarizovannym po krugu)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 1, pp 337-339 (USSR)

ABSTRACT: This paper deals with pair production in the field of a point-like nucleus by a circularly polarized photon for the general case which can be applied to any angle and energy. First, an expression is given for the pair production in Born's approximation. The terms figuring in this expression are discussed in detail. The cross section is then integrated over the angle Θ_- at which the electron flies off. In the ultra-relativistic case, the formulas become by far more simple. Finally, formulas are defined for the polarization degree of a pair. The author thanks Professor A. A. Sokolov for supervising the present paper and B. K. Kerimov for discussing results. There are 6 references, 3 of which are Soviet.

Card 1/2

The Production of a Pair by a Photon Polarized Circularly

SOV/56-36-1-58/62

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: October 14, 1958

Card 2/2

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AUTHORS: Kerimov, B. K., Nadzhafov, I. M.

TITLE: Polarization in electron-positron pair production by gamma quanta

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya 3, fizika, astronomiya, no. 2, 1961, 41-53

TEXT: The present paper was read at the tenth annual conference on nuclear spectroscopy, Moscow, January 1960. The authors calculated, in Born approximation, the angular and energy distribution of longitudinally polarized electron-positron pairs produced by circularly polarized gamma quanta in the nuclear Coulomb field. This article is based on an earlier paper on bremsstrahlung (Ref. 1: Kerimov, B. K., Nadzhafov, I. M. Izv. AN SSSR, ser. fiz., 886, 1958; NDVSh No. 1, 95, 1958). In the calculation of the polarization, the authors adopted a method suggested by A. A. Sokolov (Ref. 12: Vvedeniye v kvantovuyu elektrodinamiku (Introduction into quantum electrodynamics). M., 1958, section 21). For the differential production cross section of $e^+ - e^-$ pairs, integrated over the solid angle of departure

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Polarization in ...

of the electrons $d\Omega_- = \sin\theta_- = \sin\theta_- d\theta_- d\varphi_-$ and taking into consideration the direction of the particle spins and of the incident gamma quanta, the following expression is obtained

$$d\sigma_{ls_+s_-}(\theta_+)\,d\Omega_+ = d\Omega_+ \int d\sigma_{ls_+s_-}(\theta_+, \theta_-)\,d\Omega_- =$$

$$= \frac{Z^2}{\pi^2}\left(\frac{e^2}{c\hbar}\right)^2 \frac{K_+K_-k_+k_-dK_+d\Omega_+}{\varkappa}\int \frac{1}{q^4}|M_\rho|^2\,d\Omega_- =$$

$$= 2\pi\eta_\rho\,|\Phi_0(\theta_+) + s_+s_-\Phi_1(\theta_+) - ls_+\Phi_2(\theta_+) - ls_-\Phi_3(\theta_+)|\,d\Omega_+, \qquad (2)$$

$$\cos\theta_+ = \frac{\vec{k}_+\vec{\varkappa}}{k_+\varkappa}, \quad \eta_\rho = Z^2\left(\frac{e^2}{c\hbar}\right)^2 \frac{k_+k_-dK_+}{4\pi^2\varkappa^2}.$$

..., where $E_\pm = c\hbar K_\pm = c\hbar\sqrt{k_\pm^2 + k_0^2}$, $\vec{p}_\pm = \hbar\vec{k}_\pm$ denotes total energy and momentum of positron and electrons, respectively, $\varepsilon_\phi = c\hbar\varkappa = E_+ + E_-$, $\vec{p}_\phi = \hbar\vec{\varkappa}$ energy and momentum of the incident gamma quanta, $\hbar\vec{q}$ - the momentum transferred to the nucleus, $k_0 = \frac{m_0c}{\hbar}$ - the

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Polarization in ...

electron mass at rest, $s_+ = \pm 1$, $s_- = \pm 1$ - the eigenvalues of the vector projection $\frac{\vec{\sigma}_\pm \vec{p}_\pm}{p_\pm}$ that characterizes the longitudinal electron and positron spin, $l = \pm 1$ determines the circular polarization of the incident gamma quanta. M_p is the matrix element of the polarized-pair production. In the cross section of Eq. (2), which depends on the angle θ_+ only, the spin correlation terms $\sim s_+ s_-$, ls_+, and ls_- are a correction to the known Bethe-Heitler cross section, due to polarization. Integration of Eq. (2) over the solid angle of positron departure, $d\Omega_+$, yields the following expression for the integral cross section of pair production:

$$d\sigma_{ls_+s_-}(E_+, E_-) = \int d\sigma_{ls_+s_-}(\theta_+)\, d\Omega_+ =$$

$$= 4\pi^2 r_{lp}^2 \left(\frac{\hbar}{m_0 c}\right)^2 |Q_0 + s_+ s_- Q_1 - ls_- Q_2 - ls_+ Q_3|. \qquad (6)$$

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Polarization in ...

This formula represents the cross section in terms of the particle energy only. In the case of relativistic energies, E_+, $E_- \gg m_0c^2$, the complicated functions Q_i ($i = 0, 1, 2, 3$) become simpler, converting Eq. (6) into

$$d\sigma_{ls_+s_-}(E_+, E_-) = \bar{\varphi} dE_- \frac{1}{\varepsilon_\Phi^3}\left(\ln\frac{2E_+E_-}{\varepsilon_\Phi m_0c^2} - \frac{1}{2}\right)\left\{(E_-^2 + E_+^2 + \frac{2}{3}E_-E_+) - \right.$$
$$\left. - s_+s_-\frac{1}{3}(E_- - E_+)^2 + ls_+e_\Phi\left(E_+ - \frac{1}{3}E_-\right) + ls_-e_\Phi\left(E_- - \frac{1}{3}E_+\right)\right\}, \quad (10)$$

where $\bar{\varphi} = Z^2r_0^2\alpha$, $r_0 = \frac{e^2}{m_0c^2}$, $\alpha = \frac{e^2}{\hbar c}$. [Abstracter's note: The functions $\Phi_i(\theta)$ and Q_i for $i = 0, 1, 2, 3$, given in an appendix, are too voluminous to be cited in full in this abstract]. The spin correlation between electron and positron is more likely to be $s_+s_- = -1$ than $s_+s_- = 1$. The degree of longitudinal polarization, according to the two types of spin correlation, is given by the formulas

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$$P_1 = \frac{\left| [d\sigma]_{s_+ - s_- - 1} - [d\sigma]_{s_+ - s_- - - 1} \right|}{\left| [d\sigma]_{s_+ - s_- - 1} + [d\sigma]_{s_+ - s_- - - 1} \right|}, \qquad (12)$$ (12),

$$P_2 = \frac{\left| [d\sigma]_{s_+ - - s_- - 1} - [d\sigma]_{s_+ - - s_- - - 1} \right|}{\left| [d\sigma]_{s_+ - - s_- - 1} + [d\sigma]_{s_+ - - s_- - - 1} \right|}. \qquad (13)$$ (13).

or any general case, these expressions are transformed into

$$P_{1,2}(\theta_+) = -l \frac{\Phi_2(\theta_-) \pm \Phi_3(\theta_+)}{\Phi_0(\theta_+) \pm \Phi_1(\theta_+)}, \qquad (14)$$

$$P_{1,2}(E_\pm) = -l \frac{Q_2 \pm Q_3}{Q_0 \pm Q_1}. \qquad (15)$$

he upper signs holding for P_1, and the lower ones for P_2. Figs. 1 and 2 how the results of a numerical computation. The relative probability of air production in states with spin correlation $s_+ s_- = \pm 1$ may be determined

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from the following formulas:

$$N_1(\theta_+) = \frac{[d\sigma]_{s_+ s_- = 1}}{[d\sigma]_{s_+ s_- = 1} + [d\sigma]_{s_+ s_- = -1}}, \quad (16)$$

$$N_2(\theta_+) = \frac{[d\sigma]_{s_+ s_- = -1}}{[d\sigma]_{s_+ s_- = 1} + [d\sigma]_{s_+ s_- = -1}} = 1 - N_1(\theta_+). \quad (17)$$

or, simpler, from

$$N_{1,2}(\theta_+) = \frac{\Phi_0(\theta_-) \pm \Phi_1(\theta_-)}{2\Phi_0(\theta_-)}, \quad (18)$$

$$N_{1,2}(E_-) = \frac{Q_0 \pm Q_1}{2Q_0}. \quad (19)$$

This is illustrated in Fig. 4. For ultrarelativistic energies, the formation of ($s_+ s_- = -1$) pairs is the more probable one. For the differential

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and integral bremsstrahlung cross sections, the authors obtain the following expressions:

$$d\sigma^T_{lss'}(\theta)\,d\Omega = d\Omega \int d\sigma^T_{lss'}(\theta, \theta')\,d\Omega' = \frac{Z^2}{\pi^2}\left(\frac{e^2}{c\hbar}\right)^3 \frac{KK'k'_x dx}{k} \int \frac{|M_T|^2}{q^4}\,d\Omega' =$$

$$= 2\pi\eta_T \left[\Phi^T_0(\theta) + ss'\Phi^T_1(\theta) + ls\ \Phi^T_2(\theta) + ls'\Phi^T_3(\theta)\right] d\Omega \qquad (21)$$

$$d\sigma^T_{lss'}(E, E') = 4\pi^2\eta_T\left(\frac{\hbar}{m_0 c}\right)^2 \left|Q^T_0 + ss' Q^T_1 + ls Q^T_2 + ls' Q^T_3\right|$$

$$\eta_T = Z^2\left(\frac{e^2}{\hbar c}\right)^3 \frac{k'dx}{4kx}. \qquad (22)$$

Here, θ denotes the angle at which the gamma quanta of the bremsstrahlung are emitted, $d\Omega'$ - the electron scattering angle; E, $\vec{p}$, E', $\vec{p}'$ - the electron total energy and momentum before and after the bremsstrahlung. After

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summation over the final spin state of the electron ($s' = \pm 1$), the expression

$$d\sigma_{ls}^{T}(\vartheta)\,d\Omega = 4\pi\eta_T\left|\Phi_0^T(\vartheta) + ls\;\Phi_2^T(\vartheta)\right|d\Omega. \qquad (23)$$

is obtained for the angular distribution of circularly polarized bremsstrahlung caused by longitudinally polarized relativistic electrons. For ultrarelativistic energies ($E, E' \gg m_0c^2$), the integral bremsstrahlung cross section reads as follows:

$$d\sigma_{lss'}^{T}(E, E') = \frac{1}{2}\,\bar{\varphi}\,\frac{d\epsilon_\Phi}{E}\,\frac{E'}{\epsilon_\Phi}\left(2\ln\frac{2EE'}{\epsilon_\Phi m_0c^2} - 1\right)\left\{\left(\frac{E^2+E'^2}{EE'} - \frac{2}{3}\right) + \right.$$
$$\left. + ss'\,\frac{(E+E')^2}{3EE'} + ls\,\frac{\epsilon_\Phi(3E+E')}{3EE'} + ls'\,\frac{\epsilon_\Phi(3E'+E)}{3EE'}\right\}. \qquad (24)$$

where E and E' denote the kinetic energies before and after emission. The authors thank Professor A. A. Sokolov for his interest and help in this work. There are 5 figures and 19 references: 9 Soviet-bloc and 10 non-Soviet-bloc. The latest two references to English-language publications:

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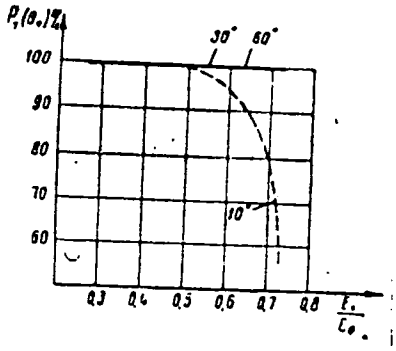
Polarization in ...

read as follows: Page L. A. Rev. Mod. Phys., 31, 759, 195 ; Wu C. S. idem, 783.

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

SUBMITTED: October 7, 1960



Legend to Fig. 1: Dependence of the degree of longitudinal polarization $P_1(\theta_+)$ of the pairs with $s_+ = s_-$ on positron energy at $l = 1$, $\varepsilon_\Sigma = 4m_0c^2$, $\theta_+ = 10^0, 30^0, 60^0$.

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L 10035-63 EWT(1)/FCC(w)/RDS/EEC(b)-2--AFFTC/ASD--IJP(C)

ACCESSION NR: AR3000350 S/0058/63/000/004/B015/B015

SOURCE: RZh. Fizika, Abs. 4B109

55

AUTHOR: Nadzhafov, I. M.

TITLE: Bremsstrahlung of electron in the field of extended nuclei

CITED SOURCE: Uch. zap. Azerb. un-t. Ser. fiz.-matem. i khim. n., no. 4, 1961, 113-118

TOPIC TAGS: quantum electrodynamics, bremsstrahlung of electrons, extended nucei

TRANSLATION: The results of preceding work by the author (RZhFiz 1959, no 3, 5242; no 5, 9838) on the investigation of the polarization properties of bremsstrahlung of a longitudinally polarized relativistic electron in the Coulomb field of a point nucleus generalized to include the case of an extended nucleus. In the Born approximation, an expression is arrived for the bremsstrahlung cross-section of a longitudinally polarized ultrarelativistic electron, integrated over the solid angle of scattered electron and summed over

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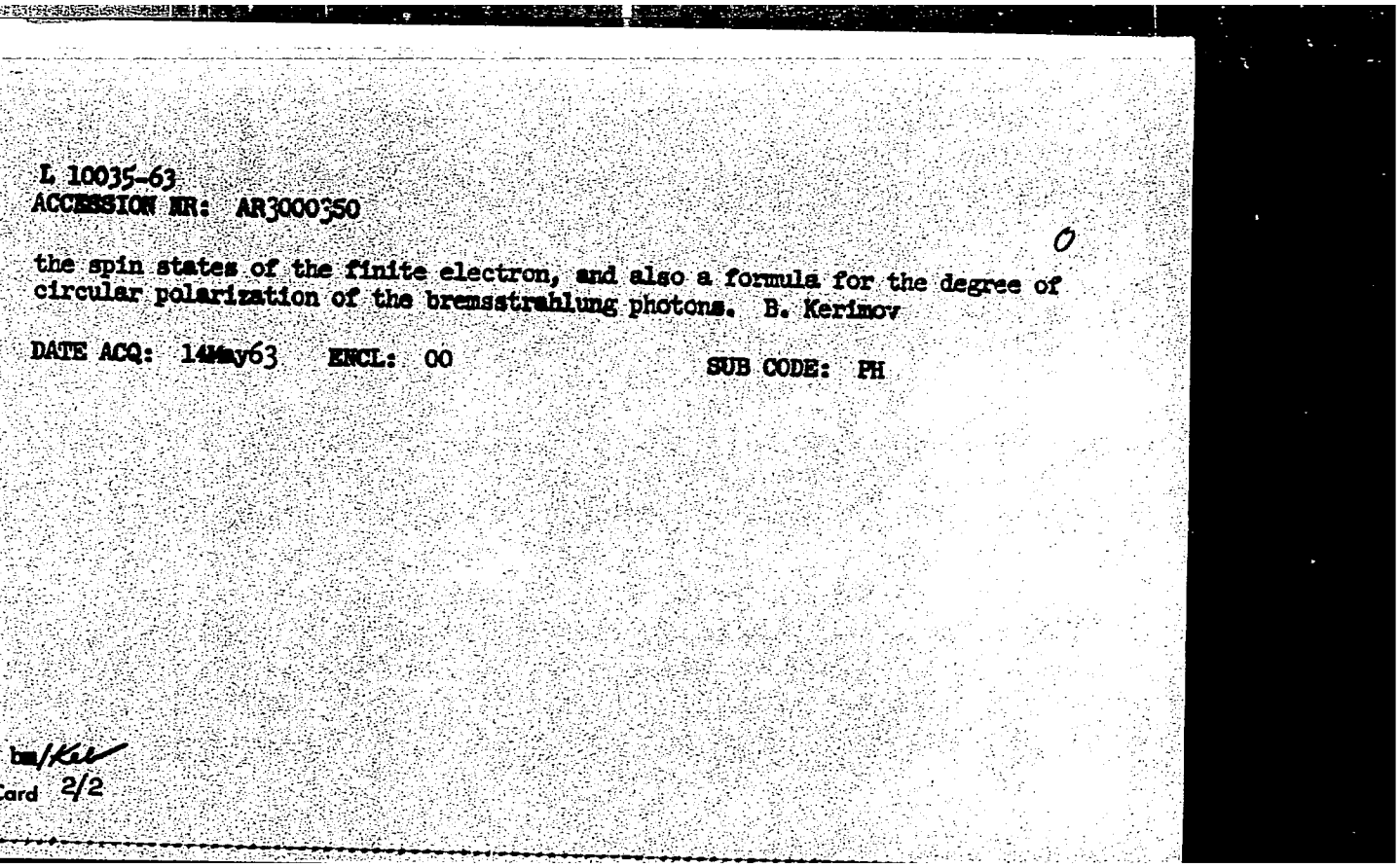

L 10035-63
ACCESSION NR: AR3000350

the spin states of the finite electron, and also a formula for the degree of circular polarization of the bremsstrahlung photons. B. Kerimov

DATE ACQ: 14May63 ENCL: 00 SUB CODE: PH

bm/Kal
Card 2/2

89264

S/048/61/025/001/030/031
B029/B063

24.6900

AUTHORS: Kerimov, B. K., Nadzhafov, I. M.

TITLE: Electron-positron correlation in pair production by a polarized gamma quantum

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25, no. 1, 1961, 163-165

TEXT: The present paper deals with 1) the determination of the production cross sections for electron-positron pairs by photons, which are integrated over all angles, and 2) with electron bremsstrahlung in the nuclear field in the case of fixed longitudinal polarization of all particles involved in the process. Taking account of the longitudinal polarization of electron, positron, and incident gamma quantum, the pair production cross sections integrated over the directions of emission of the electron ($d\Omega_- = \sin\theta_- d\theta_- d\varphi_-$) and positron ($d\Omega_+ = \sin\theta_+ d\theta_+ d\varphi_+$), in Born approximation, take the form

$$d\sigma_{l_+s_-}(E_+, E_-) = \int d\Omega_+ \int d\sigma_{l_+s_-}(\theta_+, \theta_-)\, d\Omega_- = \frac{1}{4} d\sigma_{\text{n.r.}}(E_+, E_-) + \\ + Z^2\alpha^3 \frac{c^2 p_+ p_- dE_+}{\varepsilon^2 \gamma} (s_+ s_- q_1(E_+, E_-) - l s_+ q_2(E_+, E_-) - l s_- q_3(E_+, E_-)); \quad (1)$$

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The eigenvalues $s_+ = \pm 1$, $s_- = \pm 1$ of the projecting operator $\frac{\vec{\sigma}_\pm \vec{p}_\pm}{p_\pm}$ characterize the longitudinal polarization of the electron and positron spins. If $s_+ = 1 (s_- = 1)$, the spin of the positron (electron) has the same direction as the momentum, and if $s_+ = -1 (s_- = -1)$, it has the opposite direction. $l = \pm 1$ is the circular polarization of the incoming gamma quantum ($l = 1$ indicates right-hand circular, and $l = -1$ left-hand circular). $E_\pm$, $p_\pm$ denote the total energies and momenta of the positron and electron, respectively; and $\varepsilon_\gamma = E_+ + E_-$ is the energy of the incoming gamma quantum. The very complicated function $q_1(E_+, E_-)$ is not explicitly given. The above expression is a generalization of the well-known cross section of Bethe-Heitler, which takes the spin correlations $e^-\gamma$, $e^+\gamma$, e^-e^+ into account. At extremely relativistic energies (if $\varepsilon_\gamma, E_+, E_- \gg m_0c^2$), the above formula becomes very simple, and the following relation is valid for

follow for the relative probabilities of pair production in states with the spin correlations $s_+s_- = 1$ and $s_+s_- = -1$. If the energy of the incoming gamma quantum is symmetrically distributed among electron and positron, then $E_+ = E_- = \frac{1}{2}\varepsilon_\gamma$ and $dW_1 = dW_2$ will hold. Using the substitution $E_+ \to -E$, $E_- \to E'$, $\varepsilon_\gamma \to -\varepsilon_\gamma$, $s_+ \to s$, $s_- \to s'$, $l \to -l$, the integral cross section for circularly polarized bremsstrahlung ($l = \pm 1$) of a longitudinally polarized ($s = \pm 1$), ultrarelativistic electron is given by

$$dW_1 = \frac{(d\sigma)_{s_+s_-=1}}{(d\sigma)_{s_+s_-=1} + (d\sigma)_{s_+s_-=-1}} = \frac{\varepsilon_\gamma^2}{3E_+^2 + 3E_-^2 + 2E_+E_-}, \quad dW_2 = \frac{(d\sigma)_{s_+s_-=-1}}{(d\sigma)_{s_+s_-=1} + (d\sigma)_{s_+s_-=-1}} = \frac{2\left(E_+^2 + E_-^2\right)}{3E_+^2 + 3E_-^2 + 2E_+E_-}$$

if the longitudinal polarization of the latter in the final state ($s' = \pm 1$) is taken into account. Here, $E = cp$ and $E' = cp'$ denote the kinetic energy of the electron before and after emission of bremsstrahlung, and ε_γ is the

Longitudinally polarized e^+-e^- pairs:

$$d\sigma_{ls_+s_-}(E_+, E_-) = \bar{\varphi}\frac{dE_+}{e_\gamma^3}\left(\ln\frac{2E_+E_-}{e_\gamma m_0c^2} - \frac{1}{2}\right)\left\{\left(E_+^2 + E_-^2 + \frac{2}{3}E_+E_-\right) - \right. \quad (2)$$

$$\left. - s_+s_-\frac{1}{3}(E_- - E_+)^2 + ls_+\, e_\gamma\left(E_+ - \frac{1}{3}E_-\right) + ls_-e_\gamma\left(E_- - \frac{1}{3}E_+\right)\right\}. \quad (2)$$

with $\bar{\varphi} = Z^2r_0^2\alpha$, $r_0 = \frac{e^2}{m_0c^2}$, $\alpha = \frac{e^2}{\hbar c} = \frac{1}{137}$. The integral production cross section of longitudinally polarized pairs, which is averaged over the two polarizations of the gamma quantum, reads as follows:

$$d\sigma_{s_+s_-}(E_+, E_-) = \bar{\varphi}\frac{dE_+}{e_\gamma^3}\left(\ln\frac{2E_+E_-}{e_\gamma m_0c^2} - \frac{1}{2}\right)\left\{\left(E_+^2 + E_-^2 + \frac{2}{3}E_+E_-\right) - \right. \quad (3),$$

$$\left. - s_+s_-\frac{1}{3}(E_- - E_+)^2\right\}. \quad (3)$$

wherefrom the relations

$$d\sigma_{ss'}(E, E') = \bar{\varphi}\frac{E'de_\gamma}{Ee_\gamma}\left(\ln\frac{2EE'}{e_\gamma m_0c^2} - \frac{1}{2}\right)\times$$

$$\times\left\{\left(\frac{E^2 + E'^2}{EE'} - \frac{2}{3}\right) + ss'\frac{(E + E')^2}{3EE'} + ls\frac{e_\gamma(3E + E')}{3EE'} + ls'\frac{e_\gamma(3E' + E)}{3EE'}\right\};$$

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energy of the emitted gamma quantum. A. A. Sokolov is thanked for interest and a discussion. This is the reproduction of a lecture read at the Tenth All-Union Conference on Nuclear Spectroscopy, Moscow, January 19-27, 1960. There are 7 references: 3 Soviet-bloc and 4 non-Soviet-bloc.

ASSOCIATION: Fizicheskiy fakul'tet Moskovskogo gos. universiteta im. M. V. Lomonosova
(Division of Physics, Moscow State University imeni M. V. Lomonosov)

NADZHAFOV, K. A.

NADZHAFOV, K. A. — "Points of Branching of Solutions of a Single Class of Non-Linear Integral Equations." Min Higher Education USSR. Azerbaydzhan State U imeni S. M. Kirov. Azerbaydzhan Order of Labor Red Banner Industrial Inst Imeni M. Azizbekov. (Dissertation for the Degree of Candidate in Physico-Mathematical Sciences)

SO: Knizhnaya Letopis', No 1, 1956, pp 102-122, 124

NADZHAFOV, K.A.

Single-valued continuation of the solution of a class of integrodifferential equations. Trudy Azerb. ind. inst. no.17: 5-12 '57. (MIRA 11:9)
(Integral equations)

NADZHAFOV, K.A.

Branch points of solutions of a class of nonlinear integrodifferential equations. Trudy Azerb. ind. inst. no.19:202-225 '57. (MIRA 11:9)
(Integral equations)

S/044/62/000/003/032/092
C111/C444

16.4500

AUTHOR: Nadzhafov, K. A.

TITLE: The unique continuation of the solutions of a system of non-linear integral equations

PERIODICAL: Referativnyy zhurnal, Matematika, no. 3, 1962, 67, abstract 3B288. ("Uch. zap. Azerb. un-t, Ser. fiz.-matem. i khim. n.," 1960, no. 1, 35-43)

TEXT: Considered is the system of non-linear integral equations

$$\varphi_i(x) = \sum_{j=1}^{n} \int_0^1 K_{ij}(x,s;\lambda)\, f_j(s, \lambda, \varphi_1(s), \ldots, \varphi_n(s))ds, \qquad (1)$$

$(i = 1,2,\ldots, n)$

where K_{ij} for fixed λ are regular kernels, being analytic with respect to λ, $f_j(s, \lambda, u_1, u_2, \ldots, u_n)$ being continuous functions with respect to $s \in [0, 1]$, being analytic with respect to all other arguments. One supposes that the system (1) possesses the solution $(\varphi_{10}(s), \varphi_{20}(s), \ldots$

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S/044/62/000/003/032/092
C111/C444

The unique continuation of the ...

..., $\varphi_{n0}(s)$) for $\lambda = \lambda_0$; it is proved that in case of 1 not being a characteristic number of a certain linear operator, given in addition, and an additional condition being satisfied, the system (1) possesses a unique solution in a certain neighborhood of λ_0 which is representable in the form

$$\tau_i(x) = \rho_{i0}(x) + \sum_{k=1}^{\infty} (\lambda - \lambda_0)^k \psi_{ik}(x), \quad i = 1,2,\ldots, n .$$

[Abstracter's note: Complete translation.]

Card 2/2

NADZHAFOV, K.A.

Branching points of the solutions of one system of nonlinear integral equations. Izv. AN Azerb. SSR Ser. fiz.-mat. i tekh. nauk no.3:15-22 '60. (MIRA 13:11)
(Integral equations)

NADZHAFOV, K.A.

Study of a certain class of nonlinear loaded integral equations with various parameters. Izv.AN Azerb.SSR.Ser.fiz.-mat.i tekh. nauk no.1:29-34 '62. (MIRA 15:4)
(Integral equations)

NADZHAFOV, K.A.

Holomorphic solutions to a certain class of nonlinear integro-differential equations with different parameters. Dokl. AN Azerb. SSR 19 no.6:3-10 '63 (MIRA 17:7)

1. Predstavleno akademikom AN AzSSR S.I.Khalilovym

MAD'IIAFOV, L. A. - TAL', A. A.

"On the production of computers."

report presented at the Second Conf. on the Problem of Pneumatic Hydraulic Automation, at Inst. of Automation, AS USSR, 17-19 Mar. '58.

NADZHAFOV, M.

[redacted] of reflection as the philosophical basis of materialistic psychology [in Azerbaijani with summary in Russian]. Uch. zap. AGU no.5:87-96 '57. (MIRA 11:1)
(Knowledge, Theory of)

USSR / Farm Animals. Cattle. Q-2

Abs Jour : Ref Zhur - Biol., No 14, 1958, No 64417

Author : Rzayev, E. A.; Nadzhafov, N. A.; Guseynov, R. A.
Inst : Not given
Title : The Milkiness and Fat Content in the Milk of the Zebu Cattle of Azerbaydzhan.

Orig Pub : Zhivotnovodstvo, 1957, No 8, 76-77

Abstract : Under extensive conditions of individual farming, the Azerbaydzhan Zebu produced an average of 470 liters of milk, with a fat content of 4.15%. The experiments carried out in 5 kolkhozes showed that with the improvement of feeding without concentrates (supplementation of feeding during the autumn-winter period by hay, rice, straw and corn silage, and in the summer by grass and vegetable waste), the milk production of the Azerbaydzhan Zebu considerably increased. In 1954, 80 Zebu cows produced an average of 514 kg. each;

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USSR/ Farm Animals. Cattle. Q-2

Abs Jour : Ref Zhur - Biol., No 14, 1958, No 64417

in 1955, 256 cows produced 789 kg. each; and in 1956, 188 cows yielded 937 kg. each. The best cows produced from 1,006 to 1,817 kg. of milk. The fat content of milk in 40% of Zebu cows was from 5.1 to 6.8%, in 48% of cows, from 4.1 to 5%, and only in 12% of cows it was up to 4%. It is recommended to utilize the best breeding Zebu sires for the improvement of the fat content of the milk in certain breeds of cattle with small fat content in the milk by the method of inbreeding.

Card 2/2

DZHALIL-ZADE, G.N.; ASKEROV, A.G.; RAGIMOV, A.I.; NADZHAFOV, N. I.; DZHABAROVA, N.M.

Effect of depth on technical and economic indices of test well drilling. Trudy AzNII DN no.9:194-202 '60. (MIRA 14:5)
(Azerbaijan—Oil well drilling)

DZHALIL-ZADE, G.N.; NADZHAFOV, N.I.

Outlook for using the turbodrilling method in test drilling. Azerb. neft.khoz. 40 no.8:20-23 Ag '61. (MIRA 15:2)
(Azerbaijan—Turbodrills)

NADZHAFOV, N.I.; PERETS, S.A., red.; NASIROV, N., tekhn. red.

[Use of small turbodrills in test drilling] Primenenie malogabaritnykh turboburov v strukturno-poiskovom burenii. Baku, Azerneshr, 1962. 70 p. (MIRA 16:5)
(Boring) (Turbodrills)

NADZHAFOV, N.I.

Lowering hydraulic losses in the circulating system in structure drilling. Azerb.neft.khoz. 41 no.2:21-22 F '62.
(MIRA 15:8)

(Oil well drilling fluids)

NADZHAFOV, N.N.

Clearing out sand in the exploitation of oil wells. Neft. khoz. 42 no.7:48-51 Jl '64. (MIRA 17:8)

NADZHAFOV, R. Kh.

Well bore reamer. Neftianik 5 no.10:21 O '60. (MIRA 13:10)

1. Glavnyy inzhener tsekha KRS Upravleniya Neftechalaneft'.
(Reamers)

NADZHAFOV, R.Kh., starshiy inzh.

Hinge attachment for a mud pump hose. Neftianik 6 no.8:19-20 Ag '61. (MIRA 14:10)

1. Neftepromyslovoye upravleniye Neftechalaneft'.
(Oil well pumps)

GUSEYNOV, B.Z.; NADZHAFOV, Sh.G.

Effect of saturation irrigation in winter and irrigation during the growing period on the water economy of some trees. Izv. AN Azerb. SSR. Ser. biol. i med. nauk no. 4:27-34 '60. (MIRA 14:2)

(AZERBAIJAN—TREES—WATER REQUIREMENTS)

GUSEYNOV, E.Z.; NADZHAFOV, Sh.G.

Effect of winter saturation and seasonal irrigation on water metabolism and top growth in certain tree varieties. Dokl. AN Azerb. SSR 16 no. 11:1101-1104 '60. (MIRA 14:2)

1. Institut botaniki AN AzerSSR.
(Trees) (Plants, Effect of soil moisture)
(Irrigation)

NADZHAFOV, Sh.G.

Effect of proper irrigation and fertilizing on the metabolism, growth, and development of certain kinds of trees in arid regions. Izv. AN Azerb. SSR. Ser. biol. i med. nauk no.11:11-19 '61. (MIRA 15:3)

(FORESTS AND FORESTRY)
(IRRIGATION)
(FERTILIZERS AND MANURES)

NADZHAFOV, Sh.G.

Effect of irrigation and fertilization [illegible] nitrogen metabolism.
Izv. AN Azerb. SSR. Ser. biol. nauk no.[illegible]-4 '[illegible].
(MIRA 18:[illegible])

NADZHAFOV, Sh.T.

Effect of saturation watering and water applied during the vegetation period on the water regimen of some arboraceous species. Izv. AN Azerb. SSR. Ser. biol. i med. nauk no.3:41-51 '60. (MIRA 13:7)
(AZERBAIJAN—TREES—WATER REQUIREMENTS)

GADZHIYEV, S.N.; NADZHAFOV, Yu.B.; SHARIFOV, K.A.

Synthesis of semiconductor compounds with volatile components.
Izv. AN Azerb. SSR. Ser.fiz.-mat. i tekh.nauk no.5:51-54 '61.
(MIRA 15:2)
(Semiconductors)

NADZHAFOV, Yu.B.; SHARIFOV, K.A.

Heat capacity of gallium telluride. Trudy Inst. fiz. AN Azerb. SSR 13: 31-35 '63. (MIRA 16:4)
(Gallium telluride—Thermal properties)

[redacted]

MAI-CHAFOV, Yu.B.; SHAULOV, Yu.Kh.

Heats of combustion of ethoxysilanes. Determination of the heat of combustion of tri- and tetraethoxysilane. Zhur. fiz. khim. 38 no.12:2975-2979 D '64. (MIRA 18:2)

NAZHAFOV, Yu.B.; SHAYLOV, Yu.Kh.

Heat of combustion of tetramethylsilane. Izv. AN Azerb. SSR. Ser.fiz.-tekh. i mat. nauk no.1:47-52 '65. (MIRA 18:5)

NADZHAROV, Yu.B.; SHAGIDOV, Yu.Kh.

Determination of the heat of formation of some derivatives of ethoxysilane series. Plast. massy no.3:16-18 '65.

(MIRA 18:6)

NADZHAFOV, Yu.B.; LOSEV, V.B., SHAGLOV, Yu.Kh., [illegible]
TUBYANSKAYA, V.S.

Heats of combustion of some nitrogen-containing [illegible]
Zhur. fiz. khim. 39 no.5:1226-12[illegible] My '65. [illegible]

[redacted]

[redacted]

80

NADZHAFOVA, A.A.

Treatment of congenital clubfoot in infancy. Ortop.travm.i protez. 21 no.2:48-52 F '60. (MIRA 13:12)
(FOOT—ABNORMITIES AND DEFORMITIES)

MEDZHIDOV, B.F.; KYAZIMOVA, A.A.; GADZHIYEVA, Z.G.; NADZHAFOVA, F.K.

Epidemiological and virological characteristics of influenza in the Azerbaijanian S.S.R.. Zhur.mikrobiol.epid.i immun. 33 no.5: 124 My '62. (MIRA 15:8)

1. Iz Azerbaydzhanskogo instituta epidemiologii i mikrobiologii.
(AZERBAIJAN--INFLUENZA)

GAZANOV, T.G.; NADZHAFOVA, F.K.

Role of adenoviruses in the pathogenesis of acute diseases of the upper respiratory tract. Azerb. med. zhur. no.10:62-66 O '62.

(MIRA 17:10)

ADZHAFOVA, G.A.

PHASE I BOOK EXPLOITATION SOV/[illegible]

Konferentsiya po voprosam teorii i primeneniya diskretnykh avtomaticheskikh sistem, Moscow, 1958

Teoriya i primeneniye diskretnykh avtomaticheskikh sistem; trudy konferentsii (Theory and Application of Discrete Automatic Systems; Transactions of the Conference) Moscow, AN SSSR, 1960. 574 p. 5,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Natsional'nyy komitet SSSR po avtomaticheskomu upravleniyu. Institut avtomatiki i telemekhaniki.

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PURPOSE: These transactions are intended for the members of the conference and other specialists in automatic control.

COVERAGE: The Conference on the Problems of Theory and Application of Discrete Automatic Systems took place in Moscow from September 22 to 26, 1958. It was the first conference devoted to discussions of the present status of the theory and techniques of discrete automatic systems and to planning for future development. The papers discussed at the conference have been divided into four groups. In the first group optimization switching circuits are discussed as well as methods of relay control systems in particular plant lag control systems in which are realized optimal processes as to quick response. The second group of papers is devoted to the analysis and synthesis of pulse systems [illegible] of pulse systems with several [illegible] [illegible] pulse systems. Problems of simulating pulse systems and [illegible] pulse regulators have also been [illegible]. The third group of papers deals with digital systems. Problems of using elements of digital technique and digital computers for the automation of various fields of engineering, i.e., power engineering, mining, radio communication, metallurgy, etc., are discussed. Problems of analog-digital conversion and vice versa as well as problems of developing specialized functional converters have been included in this group. The fourth group of papers includes theoretical elements and certain practical applications of the simplest types of self-adjusting systems [illegible] systems which are developed as relay, pulse and digital devices. There are also found papers describing various methods of investigating [illegible] conditions in optimalizing systems, results of studying the effects [illegible] factors on the process of automatic scanning, and examples of existing optimalizing control systems. Some of the more interesting communications and observations made during the discussion of the various conference papers have also been included in the Transactions. Personalities and references accompany most of the papers.

Adzhafova, G.A. (Moscow). Limit Dynamic Interval of Standard Objects Controlled by an Astatic Servomechanism With Limited Speed and Limited Motion of the Regulating Device 45

In studying the problem the author uses the method of isochrones and develops equations for isochrones in the cases of astatic object and astatic servomotor, as well as static object and astatic servomotor. She also investigates cases of the absence and presence of lags, presence of one and two limitations, and change in the assignment and in the load. The author derives equations for optimalizing processes by integrating the differential equations of the permanent part of the system when the input signal is changed. There are four references, all Soviet.

Kornilov, Yu.G. (Kiyev). Selection of Optimalizing Parameters of the Controller During a Discrete Readjustment of the Servomotor 48

The author investigates two types of servomotors, one with step readjustment, the other, a relay regulator operating in slip conditions. There are 8 references, all Soviet.

VADZHAFOVA, G.A.

28(1) SOV/30-59-1-48/57

AUTHOR: Naumenov, I. S.

TITLE: Development of the Theory and the Application of Discreet Automatic Systems (Razvitiye teorii i primeneniy diskretnykh avtomaticheskikh sistem)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 1, pp 138-139 (USSR)

ABSTRACT: The conference dealing with this problem took place in Moscow from September 22 to 26, 1958 and was opened by V. A. Trapeznikov, chairman of the Natsional'nyy komitet SSSR po avtomaticheskomu upravleniyu (National Committee of the USSR for Automatic Control). In the Plenary Meeting Ya. Z. Tsypkin reported on discreet automatic systems and their development prospects. The work of the conference was undertaken by 5 sections. Reports were held by:
G. P. Tartakovskiy and V. P. Perov reported on new investigation results in the case of pulse systems with variable parameters.
Fan Ch'ung-wu dealt in his report with his successful procedures of analysis of pulse systems with several elements.
F. M. Kilin spoke about the problem of an increase of the perturbation stability of the systems.

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Ya. Z. Tsypkin investigated the possibilities of pulse systems.
A. A. Krasovskiy investigated one of the possible ways of constructing an automatic control system with a discreet correcting device.
E. A. Kroginе analysed pulse systems.
A. V. Fyshkin investigated the conditions of eigen oscillations (avtokolebaniye) in a system with wide range pulse modulation.
Ya. V. Dolgolenko reported on the method of determining parameters of a boundary cycle for an extreme system.
V. V. Kazakevich dealt with the results of approximation calculation methods of extreme systems.
A. A. Fel'dbaum investigated the influence of perturbations.
A. G. Butkovskiy and S. N. Domanitskiy reported on the construction of optimum control systems for objects with retardation.
G. A. Vadzhafova investigated methods of determining the maximum effect of control systems.
G. G. Varshavskiy spoke about the construction of an automatic machine for objects with retardation which permits the best possible control systems.

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M. A. Gavrilov analysed modern telemechanical equipment from the viewpoint of the so-called "finite automatic machines" (consisting of systems of a finite number of elements).
P. P. Parkhomenko reported on the effect and construction of a special logical machine for the analysis of relay orders.
Ya. Ya. Bazilevskiy investigated accurate "finite automatic machines" which in the case of an unvariable structure furnish arbitrary items of several arguments.
G. K. Berends and A. I. Tal' reported on a pneumatic system of elements of "finite automatic machines" with the logical elements described as "not", "and", "or" by means of which further logical functions can be put into practice.
The participants in the conference considered the technical working out of the papers presented to them insufficient. In the last session the heads of the committees summarized the results obtained at the conference and briefly mentioned the important tasks in further developing the theory and the application of discreet automatic systems.

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MADZHAROVA, G.A. (Moskva)

Limited dynamic properties of power units of servosystems, Part 1. [with summary in English]. Avtom. i telem. 21 no.7:973-981 Jl'60. (MIRA 13:10)
(Servomechanisms)

NADZHAFOVA, G.A. (Baku)

Limited dynamic characteristics of executive power devices in servomechanisms. Part 2. Avtom. i telem. 22 no.2:185-198 F '61. (MIRA 14:4)

(Servomechanisms)

S/103/62/023/003/007/016
D201/D301

16.8000 (1031, 1132, 1329)

AUTHOR: Nadzhafova, G.A. (Baku)

TITLE: Optimum reduction ratio of the reduction gear in high-speed servo-systems

PERIODICAL: Avtomatika i telemekhanika, v. 23, no. 3, 1962, 342 - 347

TEXT: The author considers the problems related to the choice of the optimum value of the reduction ratio and of the excitation flux of the motor of an electric d.c. servo-system with independent excitation. The system under consideration is not a high-speed reversing one, so that the heating of the motor and its effects may be neglected. The method used by the author for the analysis is the isochrone method. Since the isochrones are closed surfaces filling everywhere a given region of the phase space, in which, for fixed values of the parameters of the dynamic system, they are single-valued functions of isochrone time, they must also be functions of the reduction gear ratio. Hence the choice of the reduction ratio

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in a high-speed servo is governed by the value of j which would minimize the function $\beta_*(j)$; $j = \omega_1/\omega_2$, where ω_1 and ω_2 are the motor shaft speed before and after the reduction gear and β_* - the duration of the optimum transient response. It follows that $d\beta_*/dj = 0$ and $j = i_R/i_L$, where i_R - the relative driving torque and i_L - the relative load torque. The resulting equations show that the optimum reduction gear ratio depends in general on the value of initial mismatch existing in the servo and in order that the best possible use be made of the output of the system a varying gear ratio should be made available. Analysis of equation $d\beta_*/df = 0$ shows that the isochrone time has no extremum with respect to f, so that the choice of f must depend on the condition of the greatest acceleration to be obtained, for $f = 1$. The design formulas obtained in the article make it possible to determine the optimum ratio of the reduction gear which results in a substantial increase in the speed of operation of automatic control and servo-systems. There are 5 figures and 7 Soviet-bloc references.

SUBMITTED: June 22, 1961

Card 2/2

BAGBANLY, I.L.; NADZHAFOVA, K.A.

Volumetric-iodatometric method for the determination of cobalt using Reinecke salt. Izv. AN Azerb. SSR Ser. no. 6:21-23 '64. (MIRA 17:9)

AJZHAKOV, B.

"Regime of Economy, Socialist Principal of Managing Industrial Enterprises." p. 5,
(LEKA PROMISHLENOST, Vol. 3, No. 3, 1954, Sofiya, Bulgaria)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4 No. 5, May 1955, Uncl.

[redacted]

[redacted], P.

"More important shortcomings, causes for financial difficulties and losses during 1956, in some light industry enterprises."

p. 5 (Leka Promishlenost, Vol. 6, no. 5, 1957, Sofiia, Bulgaria.)

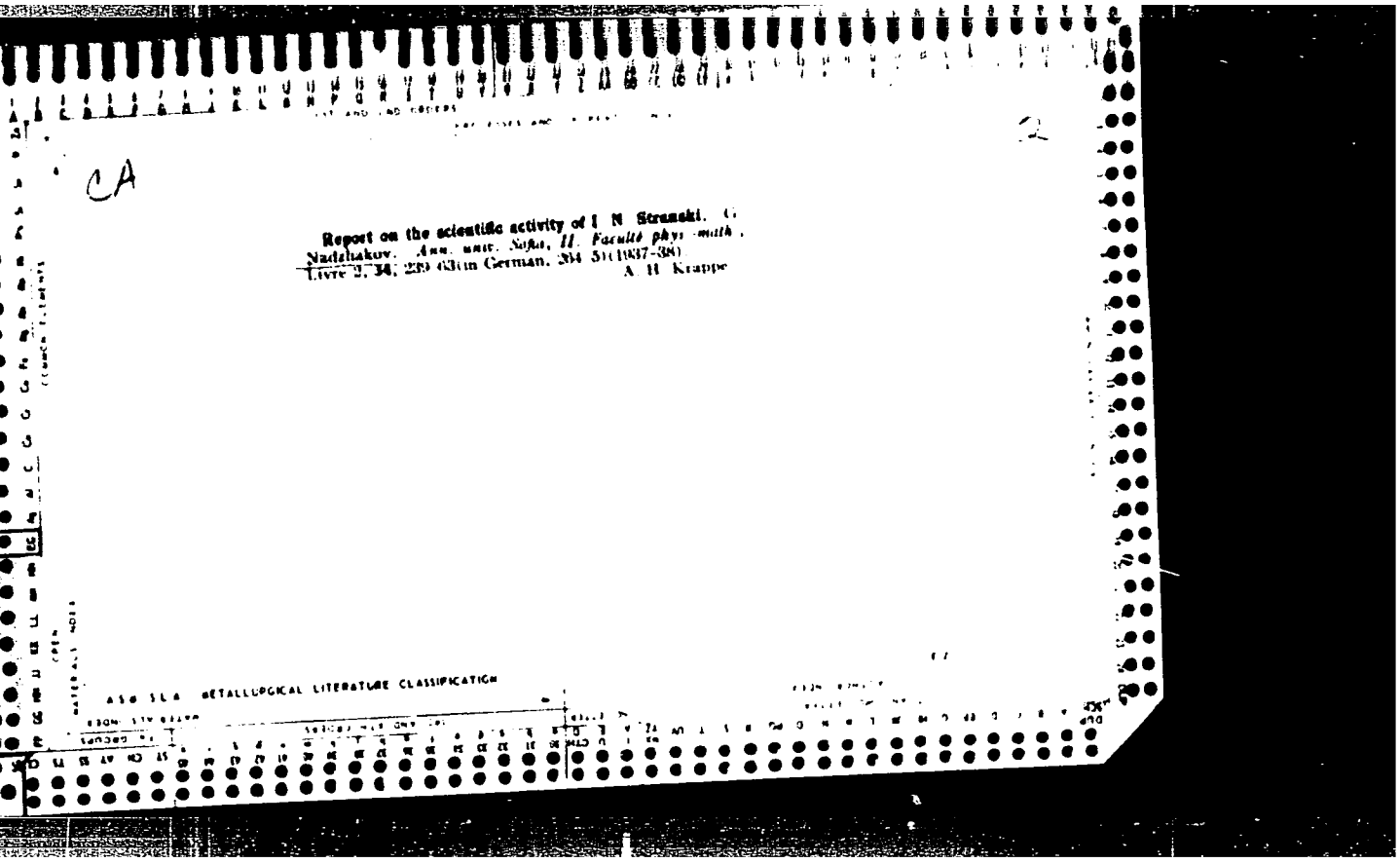
Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 7, June 19[illegible]

NADZHAKOV, B.

Speeding up the circulation of the working capital and preventing the shortage by constant financial control. Leka promishl 2 no.8: 4-8 '53.

NADZHAKOV, Georgi, akad.

Academician Prof. Nikola Obreshkov; obituary. Fiz mat spisanie BAN 6 no. 4:232-235 '63.



2

A method of registration of the electric beats for measurement of variations of the dielectric constant of phosphors. G. Nedelchev and S. Tvarov (Univ. Sofia, Bulgaria). *Proc. Tokyo Conf. Pure and Applied Chem.* (London) 11, 577-80(1967)(in English).—The method of elec. beats used to measure variations in capacity is modified to permit objective measurements. A sound frequency obtained by superimposing the vibrations from 2 high-frequency oscillators is in turn superimposed with the vibrations from a 3rd oscillator in a one-valved amplifier to produce the required sound beats. The beats are registered on a moving strip of photographic paper. As little as 1/10 of the capacity change corresponding to a single beat, when length of beat is 15-20 mm., can be measured with certainty. Small variations in the dielec. const. of a medium can be measured with the app. and certain conclusions regarding the changes that occur in phosphors can be drawn from the form of the curves, Δc vs. time. The capacity change for moist phosphors (ZnS—CdS_{10}—Cu) is greater than for dry phosphors. Mech. action like grinding or pressing decreases the effect of light on the dielec. const. of phosphors. The latter phenomenon parallels the decrease in phosphorescence due to the same cause.

F. N. Ward

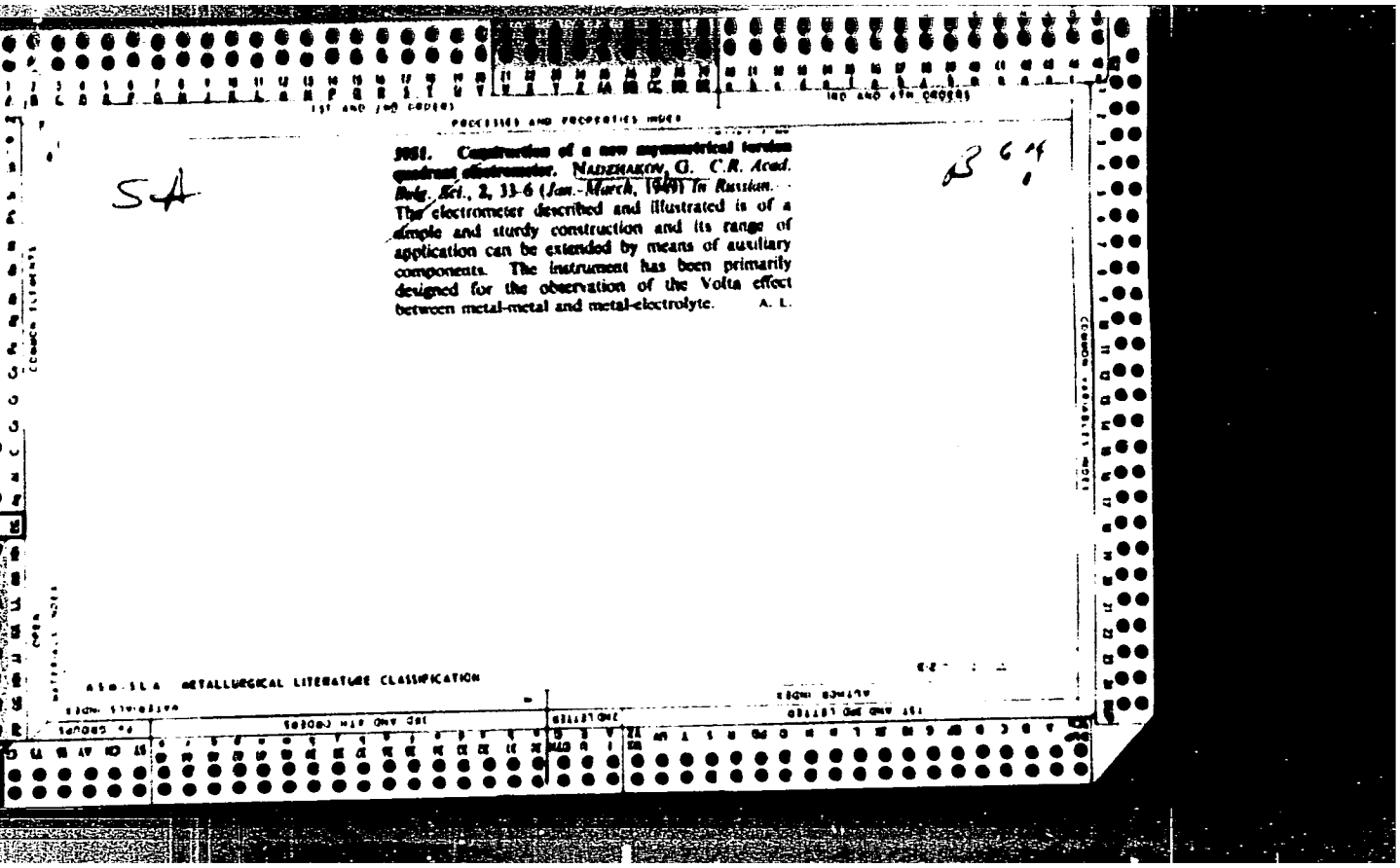
19.17

B. Ch.

C-4 Gen. Techniques + Lab. Apparatus (Electrical)

[illegible]. Recording of electric beats for measuring variations of dielectric constant. G. Nadiakus and S. [illegible] (C. R. Acad. Hung. Sci. math. nat., 1948, [illegible], 1, 35—38).—Circuit details are described for the adaptation of the method of electric beats for measuring variations of dielectric const. (ε) to photographic recording. The smallest variations may be measured and their behaviour studied. The use of the apparatus to study the effect of light and humidity on ε is described (cf. A., 1950, I, 20).

H. R. CRUMPLER.



5081. Construction of a new asymmetrical torsion quadrant electrometer. NADEZHAKOV, G. C.R. Acad. Bulg. Sci., 2, 33-6 (Jan.-March, 1949) In Russian.
The electrometer described and illustrated is of a simple and sturdy construction and its range of application can be extended by means of auxiliary components. The instrument has been primarily designed for the observation of the Volta effect between metal-metal and metal-electrolyte. A. L.

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