L 4527-66 EWT(m)/FCC/T IJP(c)

ACC NR: AP5024641 SOURCE CODE: UR/0048/65/029/009/1714/1718

AUTHOR: Bakhtadze, A.K.; Guzhavin, V.V.; Ivanenko, I.P.

ORG: Scientific Research Institute of Nuclear Physics, Moscow State University im. M.V.Lomonosov (Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo gosudarstvennogo)

TITLE: On taking ionization losses into account in electromagnetic cascade theory /Report, All-Union Conference on Cosmic Ray Physics held at Apatity 24-31 August 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 9, 1965, 1714-1718

TOPIC TAGS: secondary cosmic ray, cosmic ray shower, electron, photon, mathematic method

ABSTRACT: The authors present without detailed proof differential operators which approximate under certain conditions the integral operator of electron-photon cascade theory. Such operators are presented for the four cases in which the cross sections are those of Bethe and Heitler with complete screening or with correct screening and ionization losses either included or neglected; such an operator is also presented for the case of completely screened Bethe-Heitler cross sections but with the electron angular distribution taken into account. The solutions of the cascade problem obtained with the aid of these operators are discussed. The authors have also solved

Card 1/2

L 4527-66

ACC NR: AP5024641

the one-dimensional cascade equations with the cross sections of M.L.Ter-Mikaelyan (Dokl. AN SSSR, 94, 1033, 1954; Izv. AN SSSR. Ser. fiz., 19, 657, 1955), which take account of polarization of the medium, and with the cross sections of A.B.Migdal (Dokl. AN SSSR, 96, 49, 1954; Zh. eksperim. i teor. fiz., 32, 633, 1957), which are valid at very high energies. The use of the Ter-Mikaelyan cross sections removes the low energy logarithmic divergence of cascade theory. The solutions of the very high energy cascade equations, using the Migdal cross sections at energies of 10^{18}-10^{20} eV, differ from those of the cascade equations valid at lower energies mainly in scale: the cascade unit is replaced by a length proportional to the square root of the primary energy. Orig. art. has: 20 formulas and 2 figures.

SUB CODE: NP/ SUBM DATE: 00/ ORIG REF: 005/ OTH REF: 003

Card 2/2

ACC NR: AP6037077 SOURCE CODE: UR/0056/66/051/005/1483/1491

AUTHOR: Vaskin, A. I.; Guzhavin, V. V.; Ivanenko, I. P.

ORG: Institute of Nuclear Physics, Moscow State University (Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta)

TITLE: New method of solving the equations of cascade theory

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 51, no. 5, 1966, 1483-1491

TOPIC TAGS: cascade, bremsstrahlung, electromagnetic interaction, approximate solution, particle distribution

ABSTRACT: This is an elaboration of an earlier communication (Izv. AN SSSR ser. fiz. v. 29, 1714, 1965), where a new method of solving the equations of electromagnetic cascade theory was outlined. The method is based on replacing the integral operator describing electron bremsstrahlung and pair production by photons by a simple approximate differential operator. In many cases this substitution greatly simplifies the integral differential equations of the cascade theory, reducing them to linear differential equations. An analysis of the solutions of the approximate differential equations shows that these solutions are in many important cases more accurate than the non-approximate solutions of the initial exact equations. By way of an example, the method was applied to the solution of the equations of one-dimensional cascade theory in the two approximation (A and B) defined by S. Z. Belen'kiy (Lavinnyye

Card 1/2

ACC NR: AP6037077

protsessy v kosmicheskikh luchakh [Cascade Processes in Cosmic Rays], Gostekhizdat, 1948). The method is applied to calculations with and without account of ionization losses. Among the problems that can be simplified by this method are the construction of a theory that accounts for the energy dependence of the absorption coefficient of the photons, and the determination of angular and spatial distributions of the particles. Orig. art. has: 5 figures, 24 formulas, and 1 table.

SUB CODE: 20/ SUBM DATE: 20May66/ ORIG REF: 003/ OTH REF: 002

Card 2/2

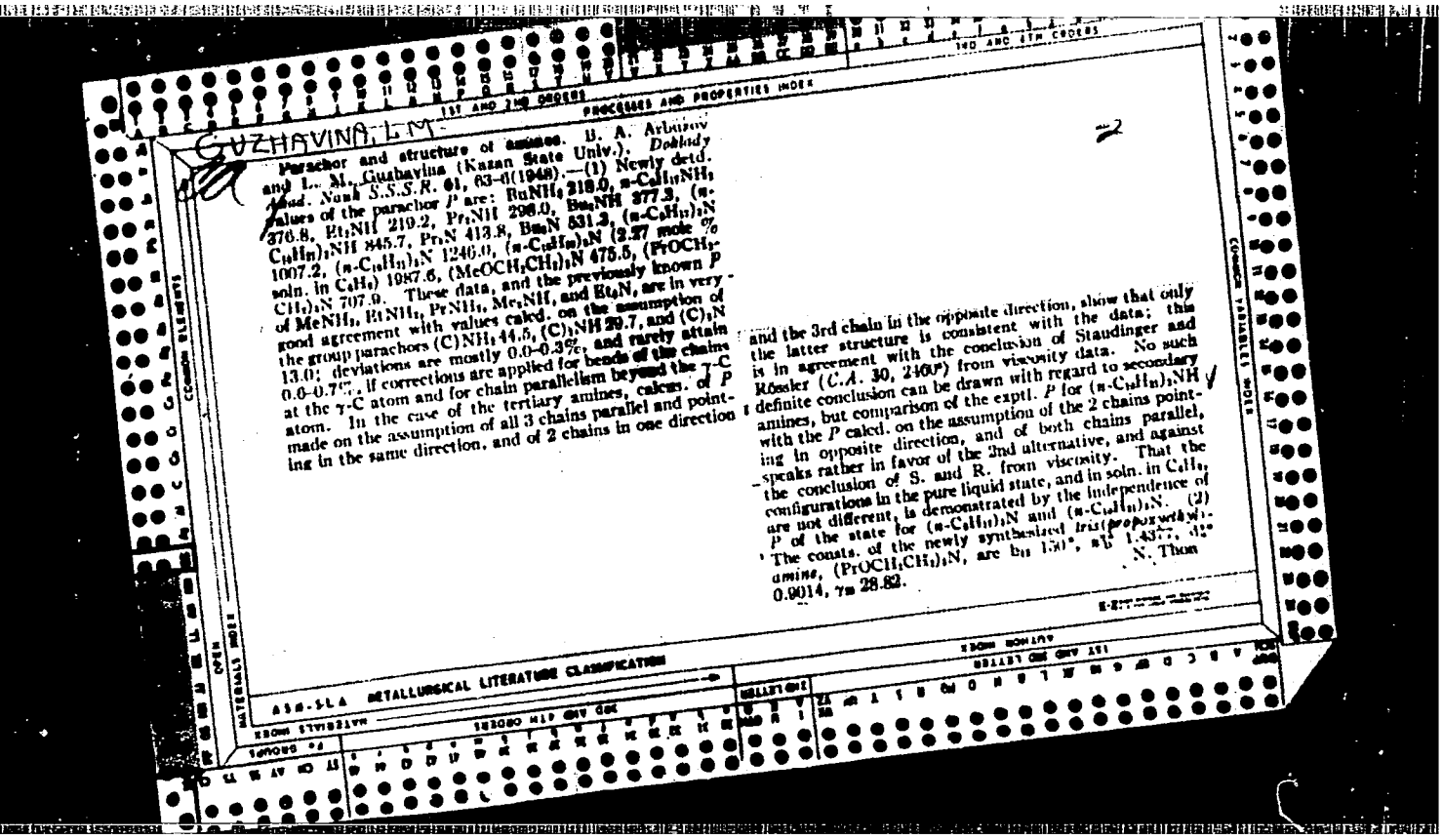
KRASIK, L.B.; YEGOROVA, A.I.; ŒEYKHMAN, K.P.; SKOROSPESHKINA, M.I.; KARKASHEVA, A.R.; PAREKHA, A.A.; GUZHAVINA, E.V.; STEPANOVA, N.I.

Physical development of pupils in the boarding schools of Perm (according to examination data of 1962). Zdrav. Ros. Feder. 7 no.6:22-26 Je '63. (MIRA 17:1)

1. Iz kafedry pediatrii (zav. - dotsent L.B. Krasik) Permskogo meditsinskogo instituta (rektor - dotsent T.V. Ivanovskaya).

KLIMANOVA, K., kand.tekhn.nauk; GUZHAVINA, K. [Huzhavina, K.], inzh.; YAMPOL'SKAYA, F. [IAmpol's'ka, F.], inzh.

Change in the structure of liquid glass in the process of hardening. Bud.mat.i konstr. no.5:51-53 S-O '62. (MIRA 15:11)
(Glass--Testing)



GUZHAVINA, L.M.

Parachor and structure of amines. B. A. Arbuzov and L. M. Guzhavina (Kazan State Univ.). *Doklady Akad. Nauk S.S.S.R.* 61, 63–6(1948).—(1) Newly detd. values of the parachor *P* are: BuNH$_2$ 218.0, *n*-C$_6$H$_{13}$NH$_2$ 376.8, Et$_2$NH 219.2, Pr$_2$NH 298.0, Bu$_2$NH 377.3, (*n*-C$_6$H$_{13}$)$_2$NH 845.7, Pr$_3$N 413.8, Bu$_3$N 531.3, (*n*-C$_6$H$_{13}$)$_3$N 1007.2, (*n*-C$_8$H$_{17}$)$_3$N 1246.0, (*n*-C$_6$H$_{13}$)$_4$N (2.27 mole % soln. in C$_6$H$_6$) 1987.6, (MeOCH$_2$CH$_2$)$_3$N 475.5, (PrOCH$_2$-CH$_2$)$_3$N 707.9. These data, and the previously known *P* of MeNH$_2$, EtNH$_2$, PrNH$_2$, Me$_2$NH, and Et$_3$N, are in very good agreement with values calcd. on the assumption of the group parachors (C)NH$_2$ 44.5, (C)$_2$NH 20.7, and (C)$_3$N 13.0; deviations are mostly 0.0–0.3%, and rarely attain 0.0–0.7%. If corrections are applied for bends of the chains at the γ-C atom and for chain parallelism beyond the γ-C atom. In the case of the tertiary amines, calcns. of *P* made on the assumption of all 3 chains parallel and pointing in the same direction, and of 2 chains in one direction and the 3rd chain in the opposite direction, show that only the latter structure is consistent with the data; this is in agreement with the conclusion of Staudinger and Rössler (*C.A.* 30, 2460[9]) from viscosity data. No such definite conclusion can be drawn with regard to secondary amines, but comparison of the expti. *P* for (*n*-C$_6$H$_{13}$)$_2$NH with the *P* calcd. on the assumption of the 2 chains pointing in opposite direction, and of both chains parallel, speaks rather in favor of the 2nd alternative, and against the conclusion of S. and R. from viscosity. That the configurations in the pure liquid state, and in soln. in C$_6$H$_6$, are not different, is demonstrated by the independence of *P* of the state for (*n*-C$_6$H$_{13}$)$_3$N and (*n*-C$_8$H$_{17}$)$_3$N. (2) The consts. of the newly synthesized *tris*(propoxyethyl)-*amine*, (PrOCH$_2$CH$_2$)$_3$N, are b_{11} 150°, n^{25}_D 1.4377, d^{25}_4 0.9014, γ_{25} 28.82.

N. Thon

GUZHAVINA, L.M.

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2

The parachor and structure of aromatic amines. B. A. Arbuzov and L. M. Guzhavina. *Zhur. Fiz. Khim.* 23, 1070-4(1949); cf. *C.A.* 43, [illegible].—Surface tension γ was detd. at 20° by the max. bubble-pressure method and the parachor *P* calcd. $PhNH_2$ had γ 43.60, *P* 234.0, PhNHMe [illegible] and 272.[illegible], $PhNMe_2$ [illegible], 318.3; Ph-PhNHMe [illegible]; $PhNEt_2$ 34.17, [illegible]; *o*-toluidine [illegible]; *o*-$MeC_6H_4NEt_2$ 40.78, 370.[illegible]; *m*-toluidine [illegible]; *o*-$MeOC_6H_4NH_2$ 44.01, [illegible]; PhNHPr 38.19, [illegible] (from $PhNH_2$, HCl, and PrOH at 180-200°, b_{11} 101-3°, d_4^{20} [illegible]) 34.17, [illegible]; PhNHBu (from $PhNH_2$ and *p*-$MeC_6H_4SO_3Bu$, b_{12} 111.5-13.5°, n_D^{20} 1.5[illegible], d_4^{20} 0.[illegible]) [illegible].70, [illegible]; *n*-$C_6H_{13}NHPh$ (from $PhNH_2$ and $C_6H_{13}Br$ at 140-60°, b_{10} [illegible].5-3°, n_D^{20} 1.5130, d_4^{20} 0.[illegible]) [illegible], 548.0; (*n*-C_6H_{13})$_2$NPh (from *n*-C_6H_{13}NH-Ph and $C_6H_{13}Br$ at 1[illegible]°, b_{10} [illegible], n_D^{20} 1.[illegible], d_4^{20} 0.[illegible]) 31.7, [illegible]. Diarylaniline (from $PhNH_2$ and C_6H_5[illegible] on water bath), m. 24°, was dissolved in PhH and the *P* calcd. ([illegible].1) from the γ of the soln. This *P* and those for PhNHEt and *p*-toluidine (literature data) agree with the values calcd. from the "group values" C_6H_5(N) [illegible].4, C(NH_2) 44.[illegible], C(NH)-(C) [illegible].7, (C)-N(C)(C) 12.0, and (C)-C_6H_4-(N) 174.0 and several corrections of which the largest is for the parallel arrangement of the 2 chains in (C_6H_{13})$_2$NPh (−[illegible].2) and in dicetylaniline (−[illegible]). Only for *m*-toluidine and *n*-C_6H_{13}NHPh are the calcd. *P*s more than by 0.7% smaller than the exptl. *P*s.

I. I. Bikerman

Guzhavina, L. M.

3

Solubility of copper in nitric acid. A. G. Repa and L. M. Guzhavina. J. Appl. Chem. U.S.S.R. 25, 1333-7 (1952) (Engl. translation); Zhur. Priklad. Khim. 25, 1277-82 (1952). The mechanism of the soln. of metallic Cu in a wide range of HNO_3 concns. was investigated. The soln. of Cu in a rotating disk and under stationary conditions was measured. The primary action of Cu with HNO_3 is one of Cu oxidation to CuO, $Cu + NO_2 = CuO + NO + 23.68$ cal. In HNO_3 free from traces of NO_2, Cu does not dissolve until the HNO_3 is protected from decompn. The Cu oxidation heat, Q, activates HNO_3 mols. or $HNO_3 + Q = HNO_3^*$. However, this amt. of heat is insufficient for the decompn. of HNO_3. The activated HNO_3^*, upon reaction with HNO_2, produces new active centers in the form of NO_2 for oxidizing the Cu, according to the equation $HNO_3^* + HNO_2 = H_2O + 2NO_2 + 14.00$ cal. Only in concd. solns. does NO_2 exist in the free form. Thus, for dil. solns. (up to 35% HNO_3) an induction period is observed for the soln. of the Cu. The Cu oxidation heat causes a heating of the dissolving sample, and the heat of CuO soln. in HNO_3 acts analogously. The role of the metal surface is that of activating the HNO_3 mols. Rotation of the Cu sample leads to a useless dissipation of surface heat. Thus, the chain mechanism for the soln. of Cu in HNO_3 proceeds as follows: (1) $Cu + NO_2 = CuO + NO + Q$, (2) $CuO + 2HNO_3 = Cu(NO_3)_2 + H_2O + Q'$, (3) chain development by $Cu + NO_2 = CuO + NO + Q$, (4) HNO_3 at the metal surface is activated by HNO_3^*, (5) $HNO_3^* + HNO_2 = H_2O + 2NO_2 + Q''$. Chain breaking occurs as a result of volatilization or useless dissipation of energy from the reaction products. Thus, with an increase in the concn. of HNO_3, the HNO_2 content decreases; this results in a break in chain development concurrent with surface oxidation proceeding so rapidly under the action of the NO_2 mols. present that the metal surface is covered with a thick film of CuO. This produces a sharp decrease in the soln. reaction rate. The induction period, the inversion of the Cu soln. kinetic curves, the inhibiting effect of impurities, and the aging effect of HNO_3 solns. are all readily explained by the proposed scheme. Herbert Liebeskind

SHARKOV, V.I.; GUZHAVINA, V.

Double compounds of glucose with mineral salts. Zhur.prikl.khim. 31 no.11:1759-1761 N '58. (MIRA 12:2)

1. Leningradskaya lesotekhnicheskaya akademiya.
(Salts) (Glucose)

GUZHENKO, T.

Two years of operation according to plan. Mor.flot. 20 no.8:1-3 Ag '60. (MIRA 13:8)

1. Nachal'nik Sakhalinskogo parokhodstva.
(Merchant marine--Accounting)

GUZHEV, Yu.L.

Studying dormancy in fruit corps [with summary in English]. Zhur.ob. biol. 18 no.4:298-311 Jl-Ag '57. (MLRA 10:9)

1. Institut genetiki Akademii nauk SSSR
(DORMANCY (PLANTS)) (FRUIT TREES)

GUZHEV, Yu.L.

Changing the time of the beginning of growth in fruit and oak seedlings by regulating moisture conditions of the soil. Izv. AN SSSR Ser.biol. 23 no.1:104-111 Ja-F '58. (MIRA 11:1)

1.Institut genetiki AN SSSR.
(SOIL MOISTURE) (FRUIT CULTURE)
(OAK)

GUZHEV, Yu.L.

Dormancy in fruit crops. Trudy Inst. gen. no.24:195-204 '58.
(MIRA 11:9)

(Fruit culture) (Dormancy (Plants))

GUZHEV, Yu. L., Candidate Biol Sci (diss) -- "Changes in the times of beginning vegetation among fruit seedlings by regulating the soil moisture". Moscow, 1959, published by the Acad Sci USSR. 16 pp (Acad Sci USSR, Inst of Genetics), 175 copies (KL, No 23, 1959, 163)

GLUSHCHENKO, I.Ye., otv.red.; GUZHEV, Yu.L., red.; KAGANOV, V.M., red.; KUSHNER, Kh.F., red.; NUZHDIN, N.I., red.; PLATONOV, G.V., red.; FEYGINSON, N.I., red.izd-va; BRUZGUL', V.V., tekhn.red.

[Darwinism lives and develops; transactions of the jubilee conference dedicated to the 100th anniversary of the publication of C.Darwin's "Origin of species" and the 150th anniversary of the publication of J.Lamarck's "Philosophy of zoology," Nov.19-21, 1959] Darvinizm zhivet i razvivaetsia; trudy iubileinoi konferentsii, posviashchennoi 100-letiiu opublikovannia "Filosofii zoologii" Zh.Lamarka, 19-21 noiabria 1959 g. Moskva, 1960. 217 p. (MIRA 14:2)

1. Akademiya nauk SSSR. Institut genetiki.
(Evolution--Congresses)

GUZHEV, Yu.L.

Effect of gibberellic acid on the dormancy period of arboraceous plants. Izv. AN SSSR. Ser. biol. 26 no.1:61-68 Ja-F '61. (MIRA 14:3)

1. Institute of Genetic, Academy of Sciences of the U.S.S.R., Moscow.
(GIBBERELLIC ACID) (DORMANCY IN PLANTS)
(TREES)

GUZHEV, Yu.L.

Importance of temperature and light factors for the period of dormancy in plants. Trudy Inst. gen. no.29:149-155 '62.
(MIRA 16:7)

(Woody plants) (Dormancy in plants)

GUZEYEV, Yu.M., dotsent

Results of histologic examination of the bronchi following pulmonary resection and their comparison with bronchoscopic data. Prob. tub. no.1:79-83 '65. (MIRA 18:12)

1. Klinika legochnogo tuberkuleza (zav. - kand. med. nauk V.K. Dargevich) i patologoanatomicheskoye otdeleniye (zav. - kand. med. nauk A.A. Smirnov) Yaltinskogo nauchno-issledovatel'skogo instituta meditsinskoy klimatologii i klimatoterapii imeni Sechenova (dir. B.V. Bogutskiy).

LOGINOVA, L.G.; GUZIEVA, E.P.

Dehydrogenase activity of thermotolerant yeasts. Mikrobiologiia 30 no.5:917-920 S-O '61. (MIRA 14:12)

1. Institut mikrobiologii AN SSSR.
(DEHYDROGENASE) (SACCHAROMYCES CERVISIAE)

GUZHEVAYA, A.F.

Relief of the range of hills on the ice contact slopes in the northern part of the East European Plain. Izv.AN SSSR.Ser. geog. no.2:61-69 Mr-Ap '63. (MIRA 16:4)

1. Institut geografii AN SSSR.
(East European Plain--Eskar)
(East European Plain--Landforms)

KHRUSTSELEVSKIY, V.P.; GUZHEVNIKOV, I.A.

Materials on the extermination of marmots in southeastern Transbaikalia by mechanical and combined methods. Izv. Irk.gos.protivochum. inst. 13:41-54 '54. (MIRA 10:12)
(TRANSBAIKALIA--MARMOTS) (RODENT CONTROL)

RODD, V.Ye.; GUZHEVNIKOV, I.A.

Control of the Daurian pika and its ectoparasites by saturating its burrow with calcium arsenite. Inv.Irk.gos.nauch.-issl.protivochum.inst. 16:239-243 '57. (MIRA 13:7)
(RODENT CONTROL) (CALCIUM ARSENITES) (PIKAS)

GUZHEVNIKOV, Ye. A.

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So: Knizhnaya letopis', No 8, 1956, pp 97-103

GUZHEVNIKOV, Ye.A., kand. tekhn. nauk

All-Union conference on the mechanization of auxiliary operations in pits. Gor. zhur. no.10:73-74 O '63. (MIRA 16:11)

1. Nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut po dobyche poleznykh iskopayemykh otkrytym sposobom, Chelyabinsk.

GUZHEVNIKOV, Ye.A., kand. tekhn. nauk

Conference on the mechanization of auxiliary operations in strip mines. Ugol' 38 no.12:55-56 '63. (MIRA 17:5)

1. Respublikanskiy nauchno-issledovatel'skiy i proyektno-konsttruktorskiy institut po dobyche poleznykh iskopayemykh otkrytym sposobom.

GUZHIN, G. S.

Regional Studies

Dissertation: "Eastern Regions of the Issyk Kul Area (Economic-Geographic Features)." Cand Geog Sci, Moscow City Pedagogical Inst imeni V. P. Potemkin, 22 Mar 54. (Vechernyaya Moskva Moscow, 10 Mar 54)

SO: SUM 213, 20 Sep 1954

GUZHIN, G.S.

Economic geography of Przheval'sk. Uch.zap.Geog.fak.Kir.un.no.1: 54-62 '55. (MLRA 10:2)
(Prsheval'sk--Economic geography)

GUZHIN, Georgiy Semenovich; YAKHONTOV, Leonid Valeriyevich; KARTAVOV, M.M., red.; BEYSHENOV, A., tekhn. red.

[Around the Issyk-Kul'; popular geographical study]Vokrug ozera Issyk-Kul'; populiarnyi geograficheskii ocherk. Frunze, Kirgizskoe gos. izd-vo, 1959. 67 p. (MIRA 15:11)
(Issyk-Kul' region--Economic geography)

GUZHIYENKO, O.N., kand med. nauk; CHISKODANOVA, M.M.

Treatment of skin manifestations of an exudative and catarrhal diathesis with sodium salicylate. Pediatriia 36 no.11:7-11 N '58. (MIRA 12:8)

1. Iz kafedry detskikh bolezney Voyenno-meditsinskoy ordena Lenina akademii im. S.M. Kirova (nachal'nik - deystvitel'nyy chlen AMN SSSR, zasluzhennyy deyatel' nauki, prof. M.S. Maslov).

(SKIN--DISEASES) (SODIUM SALICYLATE--THERAPEUTIC USE)

GUZHIYENKO, G.N., kand.med.nauk; SOKOLOVA, K.A.

Sanatorium therapy in bronchial asthma in children. Pediatriia 37 no.9:48-53 S '59. (MIRA 13:2)

1. Iz kafedry detskikh bolezney Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova (nachal'nik - deystvitel'nyy chlen AMN SSSR zasluzhennyy deyatel' nauki prof. M.S. Maslov) i detskogo sanatoriya v Ushkovo (glavnyy vrach K.A. Sokolova).
(ASTHMA in inf. & child)

GUZHIENKO, G.N.

Three cases of successful hemorrhage arrest in hemophilia by using hemophobin. Pediatriia 38 no.2:77-80 F '60. (MIRA 13:12)
(HEMORRHAGE) (HEMOSTATICS)
(PECTIN—THERAPEUTIC USE)

BUCHIN, A.N.; GUZHNOVSKIY, L.P.; GOLUBEVA, T.S.; KAZAKOVA, V. Ye.; KARGANOV, V.S.; LUZINA, N.I.

Programming the development of oil fields in southern regions; economic analysis. Trudy VNII no.39:34-43 '63. (MIRA 17:10)

[illegible], G.V.; SMIRNOVA, A.A.; [illegible], L.P.

Economically efficient stimulation of oil wells in a circular section of the Minibayevo region of the [illegible] field. (MIRA 17:10)
Trudy VNII no.39:76-94 '63.

GUZHNOVSKIY, L.P.; LUZINA, N.I.; SOLOV'YEV, L.D.

Economic efficiency in the automatic control of the injection of water into a layer. Trudy VNII no.39:108-113 '63. (MIRA 17:10)

GUZHNOVSKIY, L.P.; BUCHEVA, V.N.

Determining the economic efficiency of hydraulic fracturing.
Trudy VNII no.39:114-123 '63. (MIRA 17:10)

KUZNETSOVSKIY, I.P.; KONOVALOV, V.N.; [illegible]

Economic effectiveness of scientific investigations of petroleum production equipment; based on studies of the All-Union Instrument Scientific Research Institute. Trudy VNII no.39: [illegible]-186 '63. (MIRA 17:10)

GIMATUDINOV, Shamil' Kashafovich, dots.; KUSAKOV, M.M., prof., retsenzent; Prinimali uchastiye: GUZHOV, A., dots., retsenzent; POLYAKOV, G., kand. tekhn. nauk, retsenzent; MURAV'YEV, I.M., red.; SAVINA, Z.A., ved. red.; VORONOVA, V.V., tekhn. red.

[Physics of oil-bearing beds] Fizika neftianogo plasta. Pod red. I.M.Murav'eva. Moskva, Gostoptekhizdat, 1963. 274 p. (MIRA 16:12)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti im. akad. Gubkina (for Gimatudinov).
(Petroleum geology)

GUZHOV, A.A.; SHABAKOV, N.P.; BATRAKOV, R.I.

Use of a sliding spark in the vacuum ultraviolet region of the spectrum. Zhur. prikl. spekt. 3 no. 6:494-497 D '65 (MIRA 19:1)

1. Submitted November 18, 1064.

GUZHKOV, I.

Improve the planning of working capital. Fin. SSSR 23 no.4: 17-23 Ap '62. (MIRA 15:4)

1. Nachal'nik Upravleniya finansirovaniya promyshlennosti Ministerstva finansov SSSR.

(Capital)

GUZHKOV, I.

Important changes in the planning of production costs. Fin. SSSR 23 no.10:29-33 O '62. (MIRA 15:10)
(Costs, Industrial)

GUZHKOV, I.; MASAL'SKAYA, N.; RYUMIN, S.

Financial planning in the industry of the members of the Mutual Economic Assistance Council. Fin. SSSR 37 no.8:30-37 Ag '63. (MIRA 16:9)

(Mutual economic assistance council)
(Europe, Eastern--Finance)

GUZHNOVSKIY, L.P.

Some economic problems relative to the production program for oil fields involving intra-boundary flooding. Trudy VNII no.26:75-95 '60. (MIRA 13:9)
(Oil fields--Production methods)

BUCHIN, A.N.; GUZHNOVSKIY, L.P.

Economic advantages in the use of the intraboundary flood system in the Romashkino field. Neft.khoz. 38 no.5:6-11 My '60. (MIRA 13:8)

(Romashkino region--Oil field flooding)

BAYKOV, N.M.; BUCHIN, A.N.; GUZHNOVSKIY, L.P.; DERGUNOV, P.V.

Economic effectiveness of the industrial experiment carried out in the Bavly field. Neft. khoz. 40 no.6:6-10 Je '62. (MIRA 15:6)

(Bavly region--Oil fields--Production methods)

GUZHNOVSKIY, L.P.

Economic evaluation of change in petroleum recovery as a function of well-network density. Nefteprom. delo no.5: 24-27 '63. (MIRA 17:6)

1. Komitet toplivnoy promyshlennosti pri Gosplane SSSR.

GUZHNOVSKIY, L.P.

Yearly reproduction of producible reserves. Nauch.-tekh. sbor. po dob. nefti no.17:83-87 '62. (MIRA 17:8)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut.

L 15253-66 EWT(1)/EWT(m)/ETC(f)/EWG(m)/T DS
ACC NR: AP6001480 SOURCE CODE: UR/0368/65/003/006/0494/0497

AUTHOR: Guzhov, A.A.; Shabakov, N.P.; Batrakov, R.I.

ORG: none

TITLE: Use of creeping sparks in the vacuum ultraviolet spectral region

SOURCE: Zhurnal prikladnoy spektroskopii, v. 3, no. 6, 1965, 494-497

TOPIC TAGS: UV spectroscopy, UV light source, spark chamber, electrode

ABSTRACT: All newly proposed light sources for the UV spectral region are based on some kind of electrical discharge. The authors noted the proposal by B. Vodar and N. Astoin (Nature, 166, 1029, 1950) concerning the possible use of vacuum creeping spark and constructed a source using such a spark which emits a very broad spectrum extending all the way into the region of overlap with X-rays below 200 A. Extensive tests covering Al, Fe, Cu, and Be spectra described showed that it is possible to carry out reproducible photographic and photoelectric registration of spectra originating from various electrodes. The electrode material sputtered onto the electrode material carriers substantially affect the operation of the source; the spark begins to creep along the surface of the dielectric (or semiconductor), and its lines are added to the spectrum of the electrode material. The

Card 1/2 UDC: 537.53

L 15253-66
ACC NR: AP6001480

source is quite simple in design and can operate for several hours without electrodes replacements. It can be used for numerous spectroscopic investigations. Orig. art. has: 4 figures.

SUB CODE: 20 / SUBM DATE: 18Nov64 / ORIG REF: 004 / OTH REF: 003

Card 2/2

GUZHOV, A.I.; TITOV, V.G.; POLYAKOV, G.G.

Study of the problem of joint oil and gas pipeline transportation. Izv. vys. ucheb. zav.; neft' i gaz 3 no.5:113-120 '60. (MIRA 15:6)

1. Groznenskiy neftyanoy institut.
(Pipelines)

GUSHOV, A.I.

Movement of oil-gas mixtures in pipelines. Izv.vys.ucheb. zav.;neft' i gaz 7 no. 1:109-111 '64. (MIRA 17:7)

1. Groznenskiy neftyanoy institut.

USSR/Electronics - Television Jan 52
Long-Distance Reception

"Moscow Television Transmissions Are Seen in Yaroslavl'," N. Guzhov, Yaroslavl'

"Radio" No 1, pp 37-38

Yaroslavl' radio club amateurs made a series of tests on the road from Moscow to Yaroslavl' with a superregenerative receiver. A "Moskvich" TV receiver was purchased and an antenna was installed atop the two-story building of the radio club in Yaroslavl'. With an rf amplifier added to the "Moskvich," good picture reception was obtained from 2200 to 2300 hours each night.

239T54

KRUTOV, D.N.; TERGER, V.Yu.; DOSHCHATOV, V.V.; KUZNETSOV, L.N.; GUZHOV, N.N.; CHERNYAVSKIY, V.V.

Electronic contactless system for primary accounting. Kauch. i rez. 23 no.9:34-37 S '64. (MIRA 17:11)

1. Yaroslavskiy proyektno-tekhnologicheskiy i nauchno-issledovatel'skiy institut i Yaroslavskiy shinnyy zavod.

GUZHOV, S.S.

Geology and prospects for finding gas and oil in Gabon.
Neftegaz. geol. i geofiz. no. 5:63-69 '63. (MIRA 17:5)

1. Vsesoyuznyy institut nauchnoy i tekhnicheskoy informatsii Gosudarstvennogo komiteta Soveta Ministrov SSSR po koordinatsii nauchno-issledovatel'skikh rabot i Akademii nauk SSSR.

MITEL'MAN, L.V.[translator]; GUZHOV, V.A.[translator]; PRESS, F.P. [translator]; IGLITSYN, M.I., kand. fiz.-mat. nauk, red.; BURAKOVA, O.N., red.; GARNUKHINA, L.A., tekhn. red.

[Methods for measuring the parameters of transistor devices] Metody izmereniia parametrov poluprovodnikovykh priborov. Pod red. M.I.Iglitsyna. Moskva, Oborongiz, 1961. 262 p. Translated from "Transistor technology." (MIRA 16:1)

1. Bell Telephone Laboratories, Inc.
(Transistors)

GUZHOV, Sergey Sergeyevich; GEYMAN, M.A., red.; KAYESHKOVA, S.M., ved. red.

[Offshore oil well drilling abroad] Morskoe burenie za rubezhom. Moskva, Nedra, 1965. 117 p. (MIRA 18:3)

GUZHOV, V.I., fel'dsher (g. Shuya Ivanovskoy oblasti)

Aerosol method for fly control. Fel'd. i akush. 25 no.6:44-45 Je '60. (MIRA 13:9)

(SHUYA (IVANOVO PROVINCE)—FLIES—EXTERMINATION)

GU2/70

109-9-4/15

AUTHORS: Senatorov, K. Ya. and Guzhov, V.P.

TITLE: Investigation of the Operation of a Transistor Blocking Oscillator. (K Issledovaniyu protsessov v bloking-generatore na poluprovodnikovom triode)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol.II, Nr 9, pp. 1119 - 1126 (USSR)

ABSTRACT: The oscillator considered (see Fig.1) consists of a p-n-i-p high frequency transistor, a crystal diode and employs the usual transformer plus a condenser and a resistance. The operation of the oscillator is split into two stages: (1) a low frequency process (the charge on the capacitor changes comparatively slowly) and (2) the generation of the pulse front (fast transient). For the slow process which determines the period of oscillation of the system, it is possible to represent the equivalent circuit of the oscillator as shown in Fig.2, in which r_∂ is the reverse resistance of the diode (this is assumed to be much larger than the resistance of the emitter junction). It is assumed that the characteristic of the diode can be expressed by Eq.(1). For this case the period of the oscillator is approximately

Card 1/3

Investigation of the Operation of a Transistor Blocking Oscillator.

given by:

$$T_0 = RC \ln\left(1 + \frac{U_{c0} + E_э}{R_{i_0}}\right) \quad , \qquad (2)$$

where U_{c0} is the initial voltage at the condenser C. It is found experimentally that Eq.(2) gives values which are accurate to within several per cent. During the generation of the front edge of the pulse the equivalent circuit of the oscillator is that shown in Fig.8, where α as a function of the emitter current is given graphically in Fig.7. The system is now described by the differential equation given on p.1124, in which L_{pac} is the stray inductance of the transformer, $r_{вх}$ is the input resistance and r_K is the collector resistance. It was found that the solution of the above equation (plotted in Fig.9) gives rise times shorter than the experimental values. This is primarily due to the fact that the equation does not consider the reactances of the transistor. These can be taken into account by employ-

Investigation of the Operation of a Transistor Blocking Oscillator.

ing the equivalent circuit shown in Fig.12. It was found that in this case the theory is in good agreement with the measured results.
There are 11 figures, 3 of which are oscillograms, and 5 references, 2 of which are Slavic.

ASSOCIATION: Physics Faculty of the Moscow State University im. M.V. Lomonosov (Fizicheskiy Fakul'tet Moskovskogo Gosudarstvennogo Universiteta im. M.V.Lomonosova).

SUBMITTED: February 20, 1957.

AVAILABLE: Library of Congress.

Card 3/3

ACCESSION NR: AP4033631 S/0188/64/000/002/0025/0031

AUTHOR: Guzhov, V. P.

TITLE: The question of the excitation of oscillations in systems having delayed feedback

SOURCE: Moscow. Universitet. Vestnik. Seriya III. Fizika, astronomiya, no. 2, 1964, 25-31

TOPIC TAGS: oscillation, autooscillating system, feedback, delayed feedback, artificial delay, delay circuit, impedence

ABSTRACT: The process of the excitation of oscillations in an auto-oscillating system with delayed feedback is considered. As a feedback circuit an artificial line is employed, loaded with an active impedance equal to the characteristic impedance. The results obtained are compared with known data for a case of ideal matching of the line with a load. The auto-oscillating system with an n-element artificial delay line used in this work is shown in Figure 1 of the Enclosure. Losses in the line were not considered. The behavior of an auto-oscillating system in the oscillation excitation mode is described by the following system of linear differential equations:

$$\begin{aligned} 2\ddot{u}_1 &= u_2 - u_1 - 2\dot{u}_1 - 2\sqrt{\frac{L}{C}}S\dot{u}_{n+1}, \\ 4\ddot{u}_2 &= u_1 - 2u_2 + u_3, \end{aligned} \qquad (1)$$

Card 1/8

ACCESSION NR: AP4033631

$$\cdots\cdots\cdots\cdots\cdots\cdots$$

$$4\ddot{u}_k = u_{k+1} - 2u_k + u_{k-1}, \qquad (1)$$

$$\cdots\cdots\cdots\cdots$$

$$4\ddot{u}_n = u_{n+1} - 2u_n + u_{n-1},$$

$$2\ddot{u}_{n+1} = u_n - \dot{u}_{n+1} - 2\dot{u}_{n+1} + 2\dot{u}_{ex},$$

where u_1, $u_2 \ldots u_{n+1}$ are the voltages at the nodal points of the line, and S is the transconductance characteristic of the tube in the linear region. Differentiation is made for dimensionless time $t = \frac{2t_1}{\sqrt{LC}}$.

By assignment of the external influences in the form of pulses of definite shape and duration, definite ratios between the amplitudes of the different oscillatory components can be provided for a certain moment of time. It is assumed that by this moment of time these external influences have already ceased. The further development of the pulse build-up processes is determined by the properties of the auto-oscillating system itself. In this connection, the solution of equation (1) for oscillation excitation is sought in the form:

Card 2/8

ACCESSION NR: AP4033631

$$u_k(t) = \sum_{m=1}^{N} A_{k,m}(t) \sin(\eta_m t - \vartheta_{k,m}), \qquad (2)$$

where $N = \frac{n}{2}$ for even n and $N = \frac{n+1}{2}$ for odd n; m is the number of the oscillatory component; k is the number of the link in the delay line. The values of the increment exponents of the amplitudes and frequency of the excited oscillatory components are found to be related to the amplitude ratios and phase differences in the line as follows:

$$\eta_m^2 - \alpha_m^2 = \frac{1}{4}\left[2 - \frac{A_{k-1,m}}{A_{k,m}}\cos(\vartheta_{k,m} - \vartheta_{k-1,m}) - \right.$$
$$\left. - \frac{A_{k+1,m}}{A_{k,m}}\cos(\vartheta_{k+1,m} - \vartheta_{k,m})\right], \qquad (3)$$

$$\eta_m \alpha_m = \frac{1}{8}\left[\frac{A_{k-1,m}}{A_{k,m}}\sin(\vartheta_{k,m} - \vartheta_{k-1,m}) - \right.$$
$$\left. - \frac{A_{k+1,m}}{A_{k,m}}\sin(\vartheta_{k+1,m} - \vartheta_{k,m})\right].$$

Card 3/8

ACCESSION NR: AP4033631

With the delay line ideally matched with the load, the following conditions are fulfilled:

$$\frac{A_{k+1,m}}{A_{k,m}} = \frac{A_{k,m}}{A_{k-1,m}}, \quad (\vartheta_{k+1,m} - \vartheta_{k,m}) = (\vartheta_{k,m} - \vartheta_{k-1,m}). \tag{4}$$

For an amplifier gain factor close to unity ($K = 1 + \varepsilon, \varepsilon \ll 1$) and ideal matching, expressions (3) are reduced to the following formulas for the growth indices of the amplitudes and frequencies of the rising oscillatory components:

$$\alpha_m = \frac{1}{2}\left(\xi - \frac{1}{\xi}\right)\cos\frac{\pi}{2n}(2m-1), \tag{5}$$

$$\eta_m = \frac{1}{2}\left(\xi + \frac{1}{\xi}\right)\sin\frac{\pi}{2n}(2m-1), \tag{6}$$

Finally, this yields:

$$\alpha_m = \left(\xi - \frac{1}{\xi}\right)\frac{n}{\tau_m}, \quad \tau_m = \left.\frac{d\varphi(\eta)}{d\eta}\right|_{\eta=\eta_m}, \tag{7}$$

from which it follows that the exponent of increment of the amplitude of the m-th oscillatory component in an auto-oscillatory system with an n-link artificial delay line depends on the gain factor K, the amplifier and the value of the group delay in one link of the line at the

Card 4/8

ACCESSION NR: AP4033631

frequency of the corresponding oscillatory component. Entering into the expression for α_m is the group and not the phase delay, by virtue of the fact that for each oscillatory component the process under consideration is quasiperiodic. Since $\tau(n)$ increases rapidly, tending toward infinity as n approaches the critical frequency of the artificial line, the magnitude of the increment exponent of the oscillatory component amplitude falls rapidly as the number m increases. When using as a line load an active resistance $R = \sqrt{\frac{L}{C}}$, the amplitude and phase distribution is not determined by expressions (4). The amplitude changes along the line in this case for different oscillatory components are illustrated in the form of symmetrical waves. The phase characteristic of an artificial line terminating in an active resistance equal to the characteristic impedance acquires an oscillating character, with the possible deviations from the phase characteristic of an ideally matched line increasing as the frequency approaches the critical (see Figure 2 in the Enclosure). Excitation modes in sample test systems were then calculated using an electronic computer. Frequencies and amplitude-increase indices for excited oscillatory components were obtained. A comparison of the values of the amplitude-increase indices of different oscillatory components for an ideally matched line and for a line terminated in an active resistance equal to the characteristic impedance (α_{m0} and α_m) is shown for n = 10. It appears that

Card 5/8

ACCESSION NR: AP4033631

the value of α_m (m =5) for an ideally matched line is approximately three times as great as the increment exponent of the amplitude of the fifth oscillatory component in the system with the active load; for the fourth oscillatory component the differences in the values of α_m is considerably smaller (about 1.3 times), while for oscillatory components of smaller numbers the values of the amplitude increment exponents practically coincide. It therefore appears that for an auto-oscillating system with an artificial delay line terminating in an active resistance equal to the characteristic impedance, the frequencies of the excited oscillatory components do not substantially differ, at low gain factors, from the frequencies of the oscillatory components of a system having an ideally matched artificial line. For the oscillatory components of large numbers the amplitude increment exponents are considerably smaller than in the case of ideal matching. "The author thanks Prof. V. V. Migulin and Mr. Yu. M. Az'yan (Cand. Phys.-Math. Sci.) for their help." Orig. art. has: 5 figures and 8 formulas.

ASSOCIATION: Kafedra teorii kolebaniy Moskovskogo Universiteta (Department of Oscillation Theory, Moscow State University)

SUBMITTED: 06May63 DATE ACQ: 30Apr64 ENCL: 02

SUB CODE: EC NO REF SOV: 003 OTHER: 002

GUZHOV, V.F.

Stabilization of oscillations in a self-oscillating system with artificial delay line. Vest. Mosk. un. Ser. 3: Fiz., astron. 20 no.6:13-23 N-D '65. (MIRA 19:1)

1. Kafedra fiziki kolebaniy Moskovskogo universiteta. Submetted June 6, 1964.

GUZHOV, Yu.I.

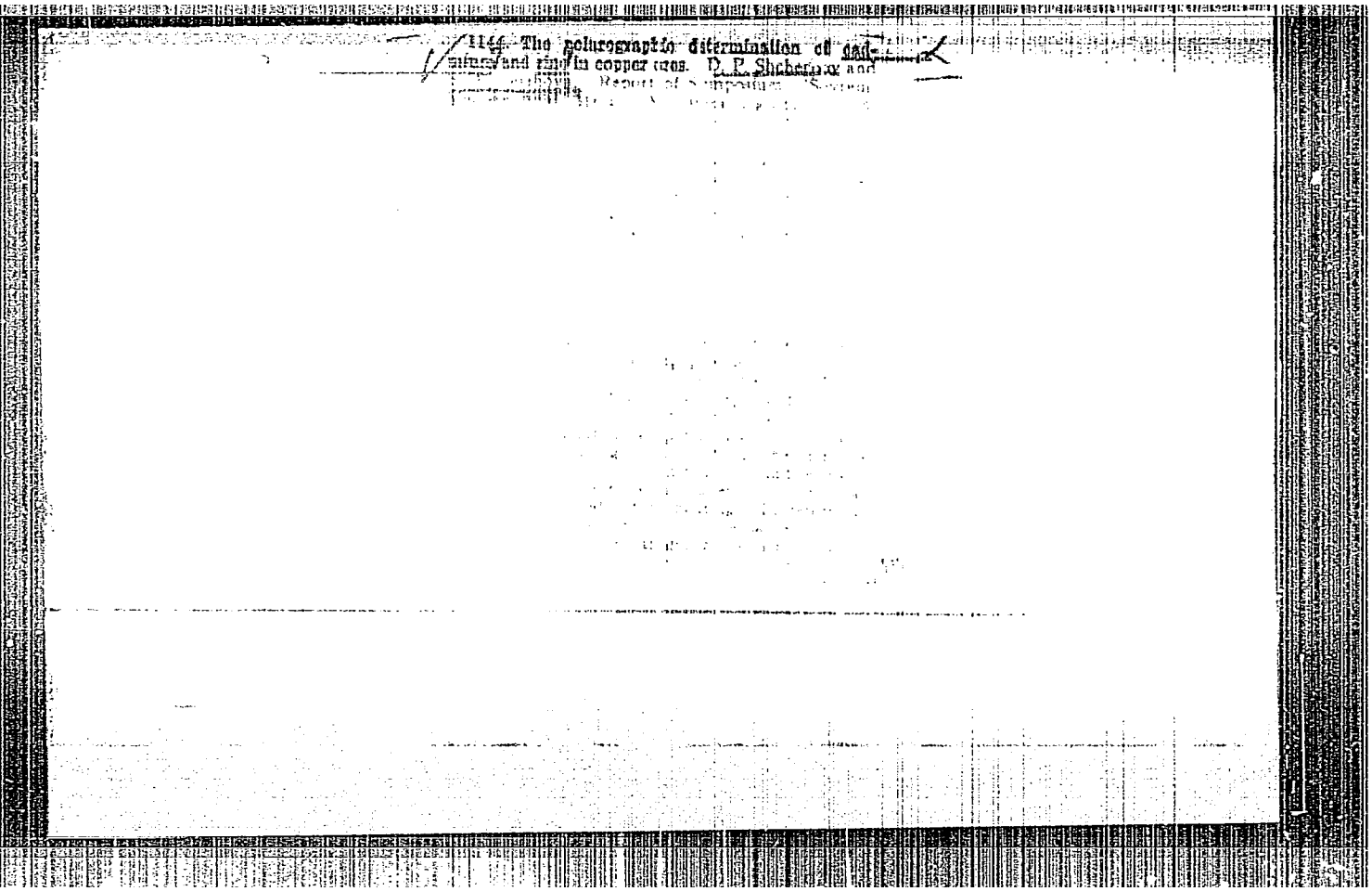
Effect of gibberellic acid on the form forming processes in field pea. Trudy Inst. gen. no.31:414-421 '64. (MIRA 17:9)

KOLTYSHEV, A.F., veter. vrach; GUZHOVA, A.S., veter. vrach

Diagnosis of Cytoleichus infestation in chickens. Veterinariia 39 no.10:53 O '62. (MIRA 16:6)

1. Kurganskaya oblastnaya veterinarno-bakteriologicheskaya laboratoriya.

(Parasites--Poultry) (Mites)



1144. The polarographic determination of gold, silver and zinc in copper ores. D. P. Shcherbov and [illegible]. Report of [illegible] Soviet

GUZHOVA, E.P.; LOGINOVA, L.G.

Dehydrase activity of the thermotolerant yeast Saccharomyces cerevisiae at different pH of the medium. Mikrobiologiia 32 no.5:783-784 S-O'63 (MIRA 17:2)

1. Institut mikrobiologii AN SSSR.

RUBIN, B.A.; GAVRILENKO, V.F.; GUZHOVA, N.V.

Studying the synthesis of Mg-porphyrins and Fe-porphyrins in isolated roots. Dokl. AN SSSR 140 no.5:1201-1204 O '61.
(MIRA 15:2)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova. Predstavleno akademikom A.I.Oparinym.

(Porphyrin and porphyrin compounds)
(Roots(Botany))

[illegible], L.A.; [illegible], V.F.; [illegible], M.V.

Biosynthesis of ferroporphyrins in roots as related to the metabolism of plants. Dokl. AN SSSR 156 no. 4:961-963 Je '64. (MIRA 17:6)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova. Predstavleno akademikom A.N.Belozerskim.

SAVCHENKO, V.P.; GUZHOVA, [illegible]

Some characteristics of the exchange of ferroporphyrin compounds in the roots and aerial organs of plants. Dokl. AN SSSR 164 no.6:1428-1431 O '65. (MIRA 18:10)

1. Moskovskiy gosudarstvennyy universitet. Submitted November 25, 1964.

83272
S/109/60/005/009/019/026
E140/E455

26.1410

AUTHORS: Guzhova, S.K. and Syrgiy, A.S.

TITLE: Microwave Investigations of Deionization of a Rarefied Gas in Magnetic Field

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol.5, No.9, pp.1516-1521

TEXT: Experimental data on the rate of deionization in magnetic field indicate an appreciably smaller influence of the magnetic field on the deionization time-constant than is predicted by the ambipolar diffusion coefficient. The present work attempts to find the influence of volume recombination in compensating the effects of magnetic field. A resonator method was used to find the deionization time-constant, and from this the ambipolar diffusion coefficient. To avoid complication due to the tensor nature of ε in the presence of plasma, fields of the type TM_{0m0}, TM_{110} were used. The experimental results obtained are in satisfactory agreement with the theory of diffusion in the presence of paired collisions. It was found that the effect of the magnetic field on the rate of deionization increases with decrease of pressure. A change in sign of $\partial\nu/\partial p$ at magnetic

Card 1/2

Country : USSR
Category : Farm Animals. Q
Cattle.
Abs. Jour : Ref Zhur-Biol., No 21, 1958, 96866

Author : Guzhova, T. P.; Zakharova, T. P.; Kolpakova,*
Institut. : Moscow Technological Institute of Meat and**
Title : The Feeding of Calves with the View of Their Future Economic Utilization.

Orig Pub. : Sb. stud. rabot. Mosk. tekhnol. in-t myasn. i molochn. prom-sti, 1958, vyp. 5, 112-114

Abstract : As young stock, 18-24 months old, was kept basically on coarse fodder and silage during the stall period and subsequently fattened on pasture without additional feeding with concentrates, it reached a live weight of 520-530 kg. The carcass yield of young stock, 28 months old, amounted to 52 percent.

Card: 1/1

*T. P.; Molchanova, T. K.
**[illegible]

27525
S/089/61/011/004/007/008
B102/B138

24.6600

AUTHOR: Guzhovskiy, B. Ya.

TITLE: Elastic scattering of 15-Mev neutrons from copper, lead, and U^{238} nuclei

PERIODICAL: Atomnaya energiya, v. 11, no. 4, 1961, 395 - 396

TEXT: The author determined the differential cross sections of elastically scattered neutrons for the spherical nuclei of Cu and Pb, and for the highly deformed U^{238} nucleus. The aim of these studies was to find the cause of the deviation of the experimental cross section values from the theoretical ones, using the optical model of spherical nuclei. The (15 ± 0.4) Mev neutrons used in the scattering experiments were produced by bombarding a thick zirconium-tritium target with 290-kev deuterons. Thin-walled cylinders of lead or copper served as scatterers; the U^{235} scatterers were rings of rectangular cross section. The neutrons were detected by small plastic and stilbene scintillators. The spectrum of the pulses from the scintillator were recorded by a 50-channel pulse-height analyzer. The energy resolution was about 500 kev which enabled

Card 1/3

Elastic scattering of...

the author to eliminate inelastically scattered neutrons and gamma rays. Angular distribution was measured between 16 and 80° (Cu), 10 and 122° (Pb), and 10 and 155° (U^{238}). The results are shown in Fig. 2. The $\sigma(\theta)$ were calculated in first approximation by a formula from Ref. 1 (see below). Corrections for damping and multiple scattering were also made in first approximation only. The agreement between experimental data and optical theory (Ref. 1, solid lines) is satisfactory. Only in the region of the first minimum is a considerable deviation to be found. There are 2 figures and 4 non-Soviet references. They read as follows: Ref. 1: F. Bjorklu d, S. Fernbach. Phys. Rev., 109, 1295 (1958); Ref. 2: H. Schey. Phys. Rev., 113, 900 (1959); Ref. 3: J. Coon et al. Phys. Rev., 111, 250 (1958); Ref. 4: H. Nauta. Nucl. Phys., 2, 124 (1956); S. Berko, W. Whitehead, B. Groseclose. Nucl. Phys., 6, 210 (1958); G. Anderson et al. Phys. Rev., 110, 160 (1958); K. Yuasa. J. Phys. Soc. Japan, 13, 1248 (1958); L. Rayburn. Phys. Rev., 116, 1571 (1959).

SUBMITTED: May 8, 1961

Card 2/3

31998
S/089/62/012/001/001/019
B102/B138

24.6600

AUTHORS: Serov, V. I., Guzhovskiy, B. Ya.

TITLE: Investigation of the reactions $Li^6(t,n)$, $Li^7(t,n)$, $Li^7(He^3,n)$, $Be^9(t,n)B^{11}$, $Be^9(He^3,n)C^{11}$

PERIODICAL: Atomnaya energiya, v. 12, no. 1, 1962, 5 - 11

TEXT: Thin targets containing Li^6, Li^7 and Be^9 were bombarded by He^3 ions and tritons electrostatically accelerated to 140 - 1400 kev. The yield, and the spectra of the neutrons arising in these reactions were determined. The targets were produced by vacuum sputtering LiF and Be on to Mo backings. Target thickness varied between 40 and 70 $\mu g/cm^2$ for 600 - 800 kev and 100 and 150 $\mu g/cm$ for higher energies. Bombardment was carried out with He beams containing 2 - 8% tritium, and with about 30% of He^3. "Long counters" were used for neutron detection. Background was 10% due to scattered neutrons and 4 - 20% (depending on t-energy) due to spurious events, e. g. $F^{19}(t,n)Ne^{21}$. The necessary corrections were ma[illegible]

Card 1/4

Investigation of the...

The mean total error in cross-section determination was ± 10%. The neutron spectra were examined by means of 100-μ emulsion plates for stars with recoil protons at angles of 0- 15° to the neutron track. The error in energy measurement was ± 5%. In each case 2000 tracks were evaluated, and 1000 additional tracks for $E_n \geqslant 3$ Mev. Results: $Li^6(t,n)$. Neutron yield was measured at 0° and $140 \leqslant E_t \leqslant 1380$ kev. When Coulomb barrier effects are taken into account, $d\sigma/d\omega = f(E_t)$ forms almost a straight line, i. e. the neutron yield is proportional to the permeability of the Coulomb barrier. The thresholds for production of slow neutrons indicate that the final Be^8 nucleus is formed in the excited states 16.68, 16.66 and 16.9 Mev. The slow neutrons at E_t = 1116 kev are from $C^{12}(t,n)N^{14}$ reactions (N^{14} state: 4.9 Mev). The maximum at E_n = 12 Mev in the E_t = 1.1 Mev spectrum is due to a $F^{19}(t,n)Ne^{21}$ reaction. The broad maximum at E_n = [illegible] Mev is due to final state interactions of reaction products. $Li^7(t,n)$ [illegible] $Li^7(He^3,n)$; Investigations at 140 - 1380 and 410 - 1360 kev bombarding

Card 2/2

Investigation of the...

energies, respectively. Apart from Be^{10} and B^{10} excited states, a Be^{9} level with $\leqslant$10.5 Mev was discovered. From the spectra it was established that $Li^{7}(t,n)$ occurs chiefly by subsequent emission of two neutrons, $Li^{7}(He^{3},n)$ and $Li^{7}(He^{3},p)$ were of equal probability. Be^{10} and B^{10} were found to be weakly bound systems, as Li^{7*} + T and Li^{7*} + He^{3}. $Be^{9}(t,n)B^{11}$ and $Be^{9}(He^{3},n)C^{11}$: Bombardment energies were 230 - 1380 and 630 - 1340 kev, respectively. The yield of the first reaction was proportional to the permeability of the Coulomb barrier, the second one had a resonance which corresponded a C^{12} state of 26.8 Mev. The results are in agreement with Ref. 1. The authors thank A. I. Baz' and V. A. Zhmaylo for advice and discussion A. V. Almazov for supervision and L. A. Morkina, V. I. Zhurina, A. M. Ivanov, Ye. K. Gutnikova, L. S. Andreyeva and N. F. Nikolayeva for assistance. There are 8 figures, 1 table, and 9 references: 5 Soviet and 4 non-Soviet. The four references to English-language publications read as follows: Ref. 1: F. Ajzenberg-Selove, T. Lauritsen. Nucl. Phys. 11, 1, 1 (1959); T. Bonner, J. Butler. Phys. Rev. 83, 1091 (1951); J. Erskine, C. Browne. Bull. Amer. Phys. Soc. 5,

Card 3/4

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S/089/62/012/001/001/019
B102/B138

Investigation of the...

230 (1960); J. Marion, G. Weber. Phys. Rev. 103, 1408 (1956).

SUBMITTED: May 8, 1961

Card 4/4

ACC NR: AP6019618 (A,N) SOURCE CODE: UR/0048/66/030/002/0271/0277

AUTHOR: Borkin, I.M.; Guzhovskiy, B.Ya.; Rudnev, V.S.; Solodovnikov, A.P.; Trusillo, S.V.

ORG: none

TITLE: Excitation of isobaric analog states in Cu-59, Cu-61, Cu-62, Cu-63, and Cu-65 /Report, Fifteenth Annual Conference on Nuclear Spectroscopy and Nuclear Structure, held at Minsk, 25 January to 2 February 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 2, 1966, 271-277

TOPIC TAGS: nuclear reaction, inelastic scattering, proton reaction, proton scattering, nickel, copper, Coulomb interaction, ~~Coulomb energy~~

ABSTRACT: Excitation functions of the $Ni^A(p,n)Cu^A$ reactions for A = 60, 61, 62, and 64, and inelastic proton scattering cross sections of Ni^A for A = 58, 60, 62, and 64 were measured at incident proton energies up to 8 MeV in order to determine the Ni^A-Cu^A Coulomb energy differences. Targets of 0.2 mg/cm^2 of Ni on an Au substrate were employed for the (p,n) measurements for proton energies up to 6.2 MeV, and 2 mg/cm^2 Ni foils were used for the inelastic scattering measurements and for the (p,n) measurements at energies above 6.2 MeV. In the (p,n) measurements the neutron yield was determined at 0° and 90°, and the inelastic proton scattering cross sections were measured (in arbitrary units) at 90° and 160°. Resonances corresponding to

Card 1/2

ACC NR: AP6019618

excitation of analogous states were identified with the aid of the approximate value 9.45 MeV for the Ni-Cu Coulomb energy difference. For each mass number the Coulomb energy difference was determined from measurements of some ten resonances. The Ni^A-Cu^A Coulomb energy difference was found to be practically constant and equal to 9.226 MeV for A = 61, 63, and 65 and to be about 90 keV higher for A = 59 and 62. The 90 keV difference is much higher than the experimental errors, which are estimated at from 17 to 25 keV, and it is also higher than the 40 keV that the authors feel is the maximum that could be ascribed to shell effects. Orig. art. has: 1 formula, 8 figures, and 6 tables.

SUB CODE: 20 SUBM DATE: 00 ORIG. REF: 000 OTH REF: 008

Card 2/2 LC

S/194/62/000/001/045/066
D201/D305

AUTHORS: Fogel', Ya. M., Slabospitskiy, R. P. and Guzhovskiy, I. T.

TITLE: Formation of negative ions of helium, carbon, oxygen and chlorine in passing of positive ions through an ultrasonic stream of mercury vapor

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 1, 1962, 62, abstract 1Zh437 (V sb. Elektrostat. generatory, M., Atomizdat, 1959, 32-45)

TEXT: The transformation of positive He, C_2, O_2 and Cl ions into negative ions in their passing through a mercury vapor target is investigated and the possibility of obtaining a source of heavy negative ions for the charge-change generator is explained. An HF-source was used for obtaining a beam of positive ions. The sorting of ions according to their energy was achieved by means of the electric field of a plane condenser, placed in front of the input to a magnetic analyzer. The results of investigation into the de-

Card 1/2

pendence of the transformation coefficient on the energy of primary beam and the temperature of the heater determining the beam thickness are given. The current distribution and its cross-sectional density are given for a beam of negative ions, as obtained by means of a Faraday cylinder, with a variable diaphragm placed at the input of the magn. analyzer. [Abstracter's note: Complete translation.]

SINEL'NIKOV, K.D.; SAFRONOV, B.G.; GUZHOVSKIY, I.T.; YAREMENKO, Yu.G.

[Propagation of plasma clots in a space devoid of fields] Rasprostranenie plazmennykh sgustkov v svobodnom ot polei prostranstve. Khar'kov, Fiziko-tekhn. in-t AN USSR, 1960. 158-181 p. (MIRA 17:3)

S/781/62/000/000/021/036

AUTHORS: Sinel'nikov K. D., Safronov B. G., Guzhovskiy I.T., Yaremenko Yu.G.

TITLE: Propagation of plasmoids in a field-free space

PERIODICAL: Fizika plazmy i problemy upravlyayemogo termoyadernogo sinteza; doklady konferentsii po fizike plazmy i probleme upravlyayemykh termoyadernykh reaktsiy. Fiz.-tekhn. inst. AN Ukr.SSR. Kiev, Izd-vo AN Ukr. SSR, 1962, 102-107.

TEXT: The parameters of a plasmoid in a space free of electric or magnetic fields, namely the propagation velocity, density, temperature, and total number of particles was investigated by the electric-probe method. The nature of fast and slow plasmoids was also studied. The equipment employed was a modification of the apparatus used by Bostick (ref. 1: Phys. Rev. 104, 2, 292, 1956). The discharge current could reach 10^4 amperes and the discharge capacitor was 0.1 microfarad in most experiments. Two probes placed a fixed distance apart were situated along the plasmoid propagation path; passage of the plasmoid caused a sharp dip in the potential of the probe, which was measured and recorded by an oscilloscope. This made it possible to determine the plasmoid velocity.

Card 1/2

Propagation of plasmoids in a field free space S/781/62/000/000/021/036

The conditions under which this method gives correct results are discussed. It was found that the plasmoid velocity is independent of the material of the source housing and the material of the electrodes in the accuracy obtained (about 8%), but is strongly dependent on the geometrical dimensions of the nozzle. It was also found that a fast plasmoid consists of fully ionized gas and has a velocity of 100 km/sec, while a slow one is partly ionized and moves at 20 km/sec. The plasma propagating in the vacuum interacts with the residual gas. The plasmoid configuration is such that ions predominate in the centre and electrons on the periphery. There are nine figures. The only references are to work by the Bostick group.

Card 2/2

S/057/62/032/009/004/014
B125/B186

AUTHORS: Azovskiy, Yu. S., Guzhovskiy, I. T., Safronov, B. G., Churayev, V. A.

TITLE: Conical source of plasma clouds

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 9, 1962, 1050 - 1054

TEXT: Two conical plasma sources are studied comparatively in a glass-enclosed vacuum chamber. One of the sources was provided with a spiral (Fig. 1), the other was not. The plasma in the sources was produced by discharging a condenser bank, the breakdown was initiated by injecting the plasma from a "spark source". This design permits of using of the source within the vacuum system without an additional discharge exciter. The plasma consisted of decomposition products from the organic glass of which the tube was produced such as H, O, C ions. The parameters of the plasma bunches were measured with a magnetic probe and an ФЭУ-19М (FEU-19M) photomultiplier, and by using the microwave signal "cut-off" method (ZhETF, 36, 411, 1959). Fig.3 shows the typical time dependence l = f(t) for the plasma cloud position in the tube. The plasma clouds ejected by

Card 1/3

Conical source...

electromagnetic forces from a source with a spiral in the first and second half-cycles of the discharge are highly ionized. The density of the charged particles in the first cloud is $>10^{12}$ cm^{-3}, in the second one it is greater by one order of magnitude. In the third and subsequent half-cycles, the source with a spiral emits a weakly ionized ($>10^{12}$ cm^{-3}) gas jet. The magnetic flux of the induced current is proportional to the initial voltage of the condenser bank. The source without spiral emits a high-density cloud in the first half-cycle without induction of currents in the cloud. A weakly ionized gas jet is emitted in the second and subsequent half-cycles. Conclusion: The efficiency of a conical source is much increased by a spiral inverse current conductor. The pulsed input of gas to the source with spiral may permit the production of relatively dense and pure plasma clouds with velocities above $1 \cdot 10^7$ cm/sec. There are 5 figures and 1 table.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN USSR, Khar'kov (Physico-technical Institute AS UkrSSR, Khar'kov)

SUBMITTED: June 17, 1961 (initially)
February 6, 1962 (after revision)

Card 2/3

Fig.1. Conical source with spiral. Legend: (1) Discharge chamber; (2) cylindrical electrode; (3) [illegible] source; (4) annular electrode; (5) tube.

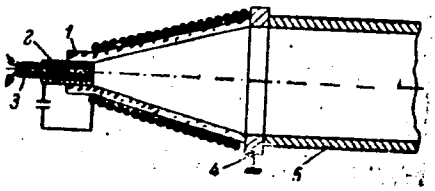
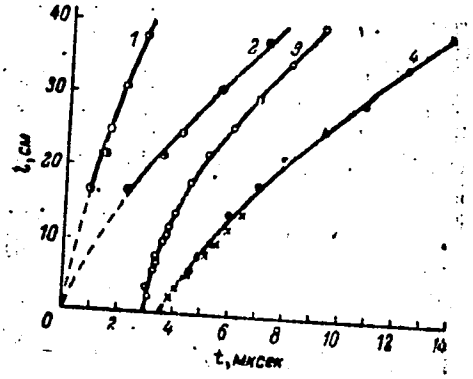


Fig. 3. Typical delay curves. Source with spiral, battery 1,3 - 20 kv, 2,4 - 0 - 5 kv.



Card 3/3

ACCESSION NR: AT4036066 S/2781/63/000/003/0237/0250

AUTHORS: Azovskiy, Yu. S.; Guzhovskiy, I. T.; Mazalov, Yu. P.; Mank, V. V.; Safronov, B. G.; Churayev, V. A.

TITLE: Inductive conical plasmoid source

SOURCE: Konferentsiya po fizike plazmy* i problemam upravlyayemogo termoyadernogo sinteza. 3d, Kharkov, 1962. Fizika plazmy* i problemy* upravlyayemogo termoyadernogo sinteza (Plasma physics and problems of controlled thermonuclear synthesis); doklady* konferentsii, no. 3. Kiev, Izd-vo AN UkrSSR, 1963, 237-250

TOPIC TAGS: plasmoid, plasma source, plasma radiation, plasma research, microwave plasma, charged particle concentration, plasma density, ionized plasma

ABSTRACT: An inductive plasmoid source with a conical single-turn coil was investigated, and the plasmoids produced by it were studied

Card 1/4

ACCESSION NR: AT4036066

by recording the visible radiation of the plasmoids with a photomultiplier and by recording the plasmoid currents with magnetic probes. The plasmoid velocity was determined from the Doppler effect produced when microwave radiation is reflected from the front of the plasmoid. The charged-particle density in the plasmoid was determined by the microwave-signal "cutoff" method (I. S. Shpigel', ZhETF, 36, 411, 1959), and the mass composition of the plasmoid was determined with a Thomson mass analyzer (parabola method). The conclusions drawn from the results are as follows: 1. The sources produce hydrogen plasmoids with density exceeding 2×10^{14} cm^{-3} at an average velocity 3×10^5 m/sec (450 eV) and a total number of particles 10^{19} (approximately 0.5 cm^3). The total plasmoid energy is of the order of 1,000 J (25% of the energy fed to the coil and 8% of the capacitor-bank energy). The currents circulating in the plasmoids are of the order of 10^4 A and attenuate far away from the source. The plasma impurities amount to about 10% (only 1% in the front part of the plasmoid) and the plasmoid length is relatively

Card 2/4

ACCESSION NR: AT4036066

large (6--8 meters). The source efficiency can be increased by preionization of the neutral gas. "The authors are grateful to Ye. F. Malayev for help in the erection of the apparatus, to I. Yu. Adamov, A. I. Skibenko, and V. I. Privezentsev for measuring the particle density, and to V. S. Voytsena for useful advice in the mass analysis of the plasmoids. Orig. art. has: 10 figures, 1 formula, and 2 tables.

ASSOCIATION: None

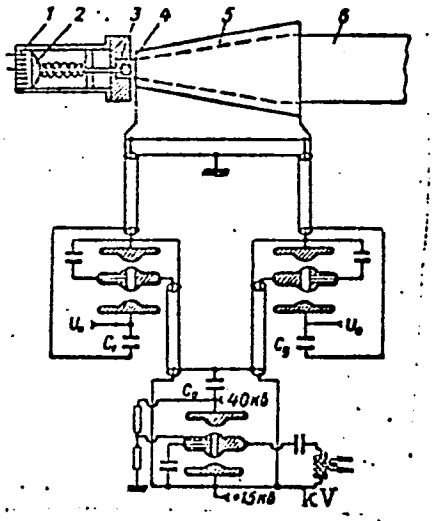
SUBMITTED: 00 DATE ACQ: 21May64 ENCL: 01

SUB CODE: ME NR REF SOV: 008 OTHER: 011

Card 3/4

ACCESSION NR: AT4036066

ENCLOSURE: 01



Schematic diagram of installation:

1 - valve coil, 2 - valve anvil,
3 - teflon gasket, 4 - valve cap,
5 - conical coil, 6 - glass tube

Card 4/4

GUZHOVSKIY, I. T.

ACCESSION NR: AT4036067 S/2781/63/000/003/0250/0255

AUTHORS: Azovskiy, Yu. S.; Guzhovskiy, I. T.; Safronov, B. G.; Churayev, V. A.

TITLE: Conical plasmoid source

SOURCE: Konferentsiya po fizike plazmy* i problemam upravlyayemogo termoyadernogo sinteza. 3d, Kharkov, 1962. Fizika plazmy* i problemy upravlyayemogo termoyadernogo sinteza (Plasma physics and problems of controlled thermonuclear synthesis); doklady* konferentsii, no. 3. Kiev, Izd-vo AN UkrSSR, 1963, 250-255

TOPIC TAGS: plasmoid, plasma source, plasma radiation, plasma research, microwave plasma, plasmoid acceleration, plasma density

ABSTRACT: Plasmoids produced by a conical source were investigated in an experimental setup consisting of a plasma source and a vacuum chamber. The conical plasma source was similar to that described

Card 1/5

ACCESSION NR: AT4036067

elsewhere (Fizika plazmy* i problemy* upravlyayemogo termoyadernogo sinteza, no. 2, Izd-vo AN UkrSSR, 1963) but had different dimensions. The vacuum chamber was a glass tube with inside diameter 60 mm. The initial pressure in the vacuum system did not exceed 2.7×10^{-3} n/m^2 (2×10^{-5} mm Hg). The plasmoid parameters were investigated with the following equipment: 1. Photomultiplier to register the glow of the ionized gas. 2. Magnetic probe to register the variation of the external magnetic field due to the plasmoid motion (or the magnetic field of the plasmoid currents in the absence of an external field). 3. The velocity of the plasmoid layer with density 1×10^{12} cm^{-3} was determined by the microwave signal "cutoff" method with a signal of frequency 9.5×10^{9} cps. Oscillograms of all these data were used to determine the delay curves, the dependence of the plasmoid velocity on the initial capacitor bank voltage, and the dependence of the plasmoid velocity on the energy fed to the plasma source. The investigation confirmed the previously obtained results. To ascertain the effect of different parameters of the discharge circuit on the source

Card 2/5

ACCESSION NR: AT4036067

operation, several capacitor banks were used with different ratios of the total circuit inductance to the source inductance. Orig. art. has: 5 figures.

ASSOCIATION: None

SUBMITTED: 00 DATE ACQ: 21May64 ENCL: 02

SUB CODE: ME NR REF SOV: 002 OTHER: 002

Card 3/5

ACCESSION NR: AT4036078 S/2781/63/000/003/0348/0353

AUTHORS: Azovskiy, Yu. S.; Guzhovskiy, I. T.; Dushin, L. A.; Privezentsev, V. I.; Churayev, V. A.

TITLE: Microwave methods of plasmoid diagnostics

SOURCE: Konferentsiya po fizike plazmy* i problemam upravlyayemogo termoyadernogo sinteza. 3d, Kharkov, 1962. Fizika plazmy* i problemy* upravlyayemogo termoyadernogo sinteza (Plasma physics and problems of controlled thermonuclear synthesis); doklady* konferentsii, no. 3. Kiev, Izd-vo AN UkrSSR, 1963, 348-353

TOPIC TAGS: plasmoid, plasmoid acceleration, plasma source, plasma density, plasma wave reflection, plasma wave absorption, Doppler effect

ABSTRACT: Several microwave methods used to determine the density and translational velocity of charged particles in a plasmoid. The

Card 1/5

ACCESSION NR: AT4036078

plasmoids were obtained with a conical source from a 6.1 μF capacitor bank. The plasmoid propagated in a glass tube 60 mm in diameter and 1.2 meters long. The pressure in the vacuum system did not exceed 2.7×10^{-3} n/m^2. The electron density was determined from the "cutoff" of the microwave signal, corresponding to the critical density for the given frequency. The plasmoid velocity was determined by the Doppler effect, except that the velocity of the layer with low electron density (10^{10}--10^{11} cm^{-3}) was determined by measuring the detuning of a cavity resonator. The tests have shown that different layers of the plasmoid move with different velocities and this causes the leading front of the plasmoid to become less steep as it moves. "The authors are grateful to B. G. Safronov for a discussion of the results and to O. G. Zagorodny*y for useful advice during the measurements with the cavity resonator." Orig. art. has: 7 figures and 2 formulas.

Card 2/5