

ABRAMOV, S.K.--- (continued) Card 2.

ZDANOVICH, V.G., prof., doktor tekhn.nauk, red.; IVANOV, G.A., doktor
geol.-min.nauk, red.; KAPAVAYEV, N.M., red.; KOROTKOV, G.V., kand.geol.-
min.nauk, red.; KOROTKOV, M.V., kand.tekhn.nauk, red.; MAKKAVEYEV, A.A.,
doktor geol.-min.nauk, red.; OMEL'CHENKO, A.N., kand.tekhn.nauk, red.;
SEDERZON, E.M., kand.geol.-min.nauk, red.; USHAKOV, I.N., dots., kand.
tekhn.nauk, red.; YABLOKOV, V.S., kand.geol.-min.nauk, red.; KOROLEVA,
T.I., red.izd-va; KASHALIKINA, Z.I., red.izd-va; PROZOROVSKAYA, F.L.,
tekhn.red.; NADRINSKAYA, A.A., tekhn.red.

[Mining; an encyclopedia handbook] Gornoe delo; entsiklopedicheski
spravochnik. Glav. red. A.M.Terpigorev. Moskva, Gos.nauchro-tekhn.
izd-vo lit-ry po ugol'noy promyshl. Vol.2. [Geology of coal deposits
and surveying] Geologiya ugol'nykh mestorozhdenii i marksheiderskoe
delo. Redkolegiya tova S.V.Troianskiy. 1957. 646 p. (MIRA 11:5)

1. Chlen-korrespondent AN SSSR (for Kapavayev)
(Coal geology--Dictionaries)

МАТВЕЕВ, А.К.
MATVEEV, A.K.

Interrelation between the tectonic types of coal basins and their richness.
Vest. Mosk. un. Ser. biol., pochv., geol., geog. 12 no.3:73-76 '57.

(MIRA 10:12)

1. Kafedra goryuchikh iskopayemykh Moskovskogo gosudarstvennogo universiteta.
(Coal--Geology)

MATVYEV, A.A.

Stratigraphic systems of the Karaganda Basin. Vest. AN Kazakh. SSR
13 no.4:73-79 Ap '57. (MLRA 10:6)
(Karaganda Basin--Geology, Stratigraphic)

~~MATVEYEV, A. K.~~ kandidat geologo-mineralogicheskikh nauk.

A fossil triton in the permafrost zone. Priroda 46 no.7:103-105
Jl '57. (ILRA 10:8)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Nagadan Province--Mowts, Fossil)

MATVEYEV, A. K. and MARTYNOV, Ye. G.

"Propagation of Ultrasound in Coals."

report presented at the 6th Sci. Conference on the Application of Ultrasound
in the investigation of Matter, 3-7 Feb 1958, organized by Min. of Education
RSFSR and Moscow Oblast Pedagogic Inst. im N. K. Krupskaya.

M A T V E Y E V, A. K.

28(1) **FRASE I BOOK EXPLOITATION** SOV/3150
Vsesoyuznyaya konferentsiya professorov i spetsialistov pedagogicheskikh institutov
Primeneniye ultrazvukov i isledovaniya veshchestva; trudy nauchnoy konferentsii, 7 (Application of Ultrasonics for Analysis of Substances), Publications of the All-Russian Conference of Pedagogical Teachers of Pedagogical Institutes, Nr 7) Moscow, Izd. MSP, 1958, 383 p., 1,500 copies printed.

Teach. Eds.: S. P. Zaitov; Eds.: V. P. Nosov, Professor, and R. B. Zhuravtsov.

PURPOSE: This book is intended for physicists, technicians, mechanical engineers and other persons concerned with ultrasonics.

COVERAGE: The book contains twenty eight articles which treat ultrasonic phenomena in several categories: 1) historical data on the development of ultrasonics in the Soviet Union over the past ten years; 2) the speed of sound in suspensions of varying particle size and number and type of components and the relationship between sound velocity and the compressibility of electrolytes; 3) ultrasonic investigations of physical and chemical properties of metals and the determination of physical and chemical constants, e. g. density of aqueous solutions, adiabatic compressibility, molarity of solutions (with given temperature), viscosity, surface tension, saturation pressure and also ultrasonic investigation of the carbon content and petrographic state of coal; 4) industrial applications of ultrasonics, e. g. sensitization of reagents, cleaning of textile fibers and enhancing the susceptibility of some synthetic fibers to dyeing, etc.; and 5) apparatus which produce ultrasonic waves. No personalities are mentioned.

References accompany each article. The Problem of the Compressibility of Solutions of Electrolytes 65

Antonov, M. I., E. A. Datsiyeva, and O. V. Goryachko. Investigation of the Physical and Chemical Properties of Aqueous Solutions of Glyceryl Formate in the Temperature Interval from 20 to 50°C With the Ultrasonic and Other Methods 75

Goryachko, O. V., M. E. Investigation of the Speed of Ultrasonic Sound in Methylalene and Hyposulfite in the Range of Phase Reversals of the First Order 91

Matveev, A. K. The Dependency of the Absorption of Ultrasonic Sound Upon Its Intensity 101

Orshanson, Ye. M. The Use of Ultrasonic to Create Periodic Structures 105

Prizhvalov, N. L., and G. F. Rybakov. Some New Magnetostrictive Materials 111

Savinichina, A. V. Ultrasonic Method of Determining the Saturation Pressure of Plastic Liquids 121

Gelshin, A. E. Ultrasonic Method of Investigating the Crystallization Process of Anhydric Polyvinyl Products 127

Matveev, A. K., and Ye. O. Nosov. Speed of Propagation of Transverse Ultrasonic Waves in Crystals 135

Matveev, O. E. Emulsification of Plotation Reagents by Ultrasonic Waves 143

Matveev, A. K. Investigation of the Effect of Sound and Ultrasonics in the Physical and Kinetic Properties of Fibers During Oxidation Process 149

Goryachko, O. V., M. A. Datsiyeva, and M. I. Antonov. Application of Ultrasonic Dyeing of Polystyrolonitrile Fiber of the "Nitron" Type 161

MATVEYEV, A.K.

Coal resources in the U.S.S.R., their development during the
40 years of the Soviet regime, and the distribution of proved
reserves. *Izv. vys. ucheb. zav.:* geol. i razv. 1 no.4:3-12 Ap '58.
(MIRA 11:12)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova,
Kafedra geologii i geokhimii goryuchikh iskopayemykh.
(Coal geology)

AUTHORS: Matveyev, A. K., Martynov, Yr. G. SOV/20-122-3-38, '57

TITLE: The Dependence of Ultrasonic Velocities in Coal on the Metamorphic Grade (Zavisimost' skorosti ul'trazvuka v iskopayemykh uglyakh ot stepeni ikh metamorfizma)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 3, pp 459-461 (USSR)

ABSTRACT: The methods of bordering sciences are being applied more and more in the study of the physical and mechanical properties of fossil coals. Through such methods questions pertaining to the changes in physical properties of coal in the lignite, bituminous coal and anthracite series can be answered. The authors have studied bituminous and anthracitic coals by means of ultrasonics (Ref 1). The purpose of this study was to determine the variation of ultrasonic velocities in coals of different composition as a reflection of their metamorphic grade. For this coals from the Donetskiy basseyn (Donets Basin) were used. They were selected from beds with differing degrees of deformation from a depth of 300 to 500 m. Before the grade-velocity relationship could be determined, the influence on velocities of petrographically determined

Card 1/3

SOV/20-122-3-38/57

The Dependence of Ultrasonic Velocities in Coal on the Metamorphic Grade

components, of the intensity of deformation, and of other factors had to be studied.

Figure 1 shows the dependence of velocity on volatile constituents in bituminous coal. An arithmetical average of velocities ($C_{||}$ and C_{\perp}) and the coefficient of anisotropy of different coals is shown in table 1. On the basis of the foregoing study the authors offer the following conclusions: 1) The sonic velocity in bituminous coals is primarily dependent on the metamorphic grade. The variation of velocity parallel to bedding is defined by an asymmetrical parabola. Minimum velocities as shown by the curve occur in fat coals. The relation is similar to that determined by van Kravellen (Ref 4) for vitrinite. 2) The coal is acoustically anisotropic; the propagation of elastic waves is faster parallel to bedding than perpendicular to it. The lowest measure of anisotropy is found in coals in the middle part of the lignite-anthracite series. 3) The velocity curve which actually represents elastic properties of the coals confirms to some extent the suggestions of earlier authors (Refs 2, 3) that in the process of metamorphism a fundamental structural rearrangement takes place in the medium-grade coals. There

Card 2/3

SOV/20-122-3-38/5"

The Dependence of Ultrasonic Velocities in Coal on the Metamorphic Grade

are 1 figure, 1 table, and 4 references, 3 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

PRESENTED: May 12, 1958, by A. G. Betekhtin, Member, Academy of Sciences,
USSR

SUBMITTED: February 23, 1957

Card 3/3

MATVEYEV, A.K.

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PHASE I BOOK EXPLOITATION SOV/5041

Vserossiyskaya konferentsiya professorov i prepodavatelev pedagogicheskikh institutov

Primeneniye ul'trazvukov k issledovaniyu veshchestva. vyp. 10. (Utilization of Ultrasonics for the Investigation of Materials. no. 10) Moscow, Izo-vo MOPI, 1960. 321 p. 1000 copies printed.

Eds.: V. F. Nozdrev, Professor, and E. B. Kudryavtsev, Professor.

PURPOSE: This book is intended for physicists and engineers interested in ultrasonic techniques.

COVERAGE: The book covers the theory and application of ultrasonics in materials, particularly in the areas of non-destructive testing, defect detection, and material characterization. No personalities are mentioned. References accompany individual articles.

Card 110

Utilization of Ultrasonics (Cont.)

SOV/5644

- Martynov, Ye. G. , and A. K. Matveyev [Geologich. fak-t MGU -
Geology Department of Moscow State University]. The Acoustic
Anisotropy of Mineral Coals in Different Stages of Metamorphism 147
- Cherchenko, G. V. , V. M. Nikolayev, Ye. T. Bezrukov, and
V. I. Belousov [Giprovostok neft' - State Institute for the Design
and Planning of Petroleum Industry Establishments in the Eastern
Regions]. First Results of the Use of the Ultrasonic Method in
Determining the Saturation Pressure of Stratified Petroleum in
Sredneye Povolzh' ye 157
- Savinikhina, A. V. [Neftega-zobyy n. -i. in-t. - Petroleum Gas
Scientific Research Institute]. Ultrasonic Method of Determining
the Temperature of the Onset of Crystallization of Paraffin 163
- Mednikov, Ye. P. [ITI AN SSSR]. On the Theory of the Acoustical

Card 6/10

MATVEYEV, Aleksandr Kirillovich; VASIL'YEV, P.V., doktor geol.-mineral.
nauk, retsenzent; KRAVTSOV, A.I., doktor geol.-mineral.nauk,
retsenzent; IVANOV, G.A., doktor geol.-mineral.nauk, retsenzent;
MIRONOV, K.V., nauchnyy red.; KOROLEVA, T.I., red.isd-va;
KONDRAT'YEVA, M.A., tekhn.red.

[Geology of coal basins and deposits in the U.S.S.R.] Geologia
ugel'nykh basseinov i mestorozhdenii SSSR. Moskva, Gos.nauchno-
tekhn.isd-vo lit-ry po gornomu delu, 1960. 495 p.

(Coal geology)

(MIRA 13:11)

MARTYNOV, I.S.G.; MATVEYEV, A.K.

Relationship between the degree of metamorphism and the modulus
of elasticity in coal. Dokl. AN SSSR 135 no.2:427-429 N '60.

(MIRA 13:11)

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

(Coal--Testing) (Elasticity) (Metamorphism (Geology))

MATVEYEV, A. K.

Doc Geol-Min Sci - (diss) "Basic principles of distribution of coal content in the USSR and changes in coal properties." Moscow, 1961. 19 pp; 3 pp of maps; (Moscow State Univ imeni M. V. Lomonosov, Geology Faculty); 200 copies; price not given; list of author's works at end of text (14 entries); (KL, 10-61 sup, 208)

MARTYNOV, Ye.G.; MATVEYEV, A.K.

Using the ultrasonic method for studying the properties and
structure of coals. Mat. Tem. kom. no.1:93-102 '61.
(MIRA 17:2)

1. Moskovskiy gosudarstvennyy universitet.

MARTYNOV, Ye.G.; MATVEYEV, A.K.

Ultrasound propagation in coal and sedimentary rocks. Prim. ultraa-
kust. k issl. veshch. no.14:11-19 '61. (MIRA 14:12)
(Ultrasonic waves--Speed) (Coal geology)

MATVEYEV, A.K.; MARTYNOV, Ye.G.; MAZOR, Yu.R.

Zonality of contact metamorphism in coal. Dokl.AN SSSR 137 no.6:
1434-1436 Ap '61. (MIRA 14:4)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
Predstavleno akademikom N.M.Strakhovym.
(Coal geology) (Metamorphism (Geology))

SATPAYEV, K.I., glav. red.; KUSHEV, G.L., zam. glav. red.; MATVEYEV,
A.K., red.; CHARYGIN, M.M., red.; NESTEROVA, I.I., red.;
ALFEROVA, P.F., tekhn. red.

[Coal geology; a collection dedicated to the memory of the
Aleksandr Aleksandrovich Gapeev]Voprosy geologii uгля; sbor-
nik, posviashchennyi pamiati geologa Aleksandra Aleksandrovi-
cha Gapeeva. Alma-Ata, Izd-vo Akad. nauk Kazakhskoi SSR,
1962. 173 p. (MIRA 15:10)

1. Akademiya nauk Kazakhskoy SSR, Alma-Ata. Institut geologi-
cheskikh nauk.

(Coal geology)

ANTIPIN, V.I.; BUDANOV, N.D.; KOTLUKOV, V.A.; LEYBOSHITS, A.M.;
PROKHOROV, S.P., kand.geol.-miner.nauk; SIRMAN, A.P.;
FALOVSKIY, A.A.; SHTEYN, M.A.; BASKOV, Ye.A.; BOGATKOV,
Ye.A.; GANEYEVA, M.M.; ZARUBINSKIY, Ya.I.; IL'INA, Ye.V.;
KATSIYAYEV, S.K.; KOMPANIYETS, N.G.; NELYUBOV, L.P.;
PONOMAREV, A.I.; REZNICHENKO, V.T.; RULEV, N.A.; TSELIGOROVA,
A.I.; ALSTER, R.K.; SHVETSOV, P.F.; VYKHODTSEV, A.P.; KOTOVA,
A.I.; KASHKOVSKIY, G.N.; LOSEV, F.I.; ROMANOVSKAYA, L.I.;
PROKHOROV, S.P.; MATVEYEV, A.K., dots., retsenzent; CHEL'TSCV,
M.I., inzh., retsenzent; KUDASHOV, A.I., otv. red.; PETRYAKOVA,
Ye.P., red. izd-va; IL'INSKAYA, G.M., tekhn. red.

[State of flooding and conditions for the exploitation of coal-bearing areas in the U.S.S.R.] Obvodnenost' i uslovia ekspluatatsii mestorozhdenii ugol'nykh raionov. Pod nauchn. red. S.P.Prokhorova. Moskva, Gosgortekhzdat, 1962. 243 p.
(MIRA 15:7)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrogeologii i inzhenernoy geologii. 2. Kafedra geologii i geokhimii goryuchikh iskopayemykh Moskovskogo Gosudarstvennogo universiteta (for Matveyev).
(Coal geology) (Mine water)

MATVEYEV, A.K.; SHURYGIN, A.M.

Introduction of mathematical methods in the Geological Department of
the Moscow State University. Vest.Mosk.un.Ser.4: Geol. 19 no.5:97-100
S-U '64. (MIRA 17:12)

1. Kafedra geologii i geokhimii goryuchikh iskopayemykh Moskovskogo
universiteta.

MATVEYEV, A.K.; MARTYNOV, Ye.G.

Study of coal by an ultrasonic method. Lit. i pol. iskop. no.2:159-
165 Mr-Ap '64. (MIRA 17:6)

1. Moskovskiy gosudarstvennyy universitet.

MATVEYEV, A.K.

The toponymic elements "yavr," "yagr," "yakhr" (lake) in the
North of Russia. Izv. AN SSSR. Ser. geog. no. 5:17-22
M-D '65. (MIRA 18:11)

1. Ural'skiy gosudarstvennyy universitet.

MATVEYEV, A.M.

Calculation of precipitation on the territory of the Karelian
A.S.S.R. Trudy GGO no.175:182-187 '65.

(MIRA 18:8)

1. Medvezhegorskaya gidrologicheskaya stantsiya.

MATVEYEV, A.M.

Mechanizing the repairing of anvils. Mashinostroitel' no.1:
14-16 Ja '62. (MIRA 15:1)
(Forging machinery—Maintenance and repair)

MATVEYEV, A.M., insh.

For a successful carrying out of the peat winning campaign
in 1962. Torf.prom. 39 no.4:1-4 '62. (MIRA 15:7)

1. Glavnoye upravleniye torfyanoy promyshlennosti Vserossiyskogo
soveta narodnogo khozyaystva.
(Peat industry)

MATVYEV, A.M., inzh.

Let's mark the 46th anniversary of the Great Socialist October
Revolution with labor achievements. Torf. prom. 40 no.7:1-3 '83.
(MIRA 17:1)

1. Glavnoye upravleniye torfyancy promyshlennosti Soveta
narodnogo khozyaystva RSFSR.

ABKHAZI, V.I.; ANTONOV, V.Ya.; BLYUMENBERG, V.V.; VARENSOV, V.S.;
VELLER, M.A.; ZYUZIN, V.A.; IVANOV, V.N.; KUZHMENKO, I.;
LUKIN, A.V.; MATVEYEV, A.M.; OZEROV, B.M.; PAL'TSEV, A.G.;
PEROV, N.P.; PROKHOROV, N.I.; RAKOVSKIY, V.Ye.; SEMENSKIY, Ye.P.;
SOLOPOV, S.G.; TYUREMNOV, S.N.; TSUPROV, S.A.; CHULYUKOV, M.A.

Viktor Georgievich Goriachkin; obituary. Torf.prom. 39 no.4:40
'62. (MIRA 15:7)

(Goriachkin, Viktor Georgievich, 1893-1962)

MATVEYEV, A.M., insh.

Brief summary of the 1962 season and tasks for 1963. Torf.
prom. 40 no.2:1-7 '63, (MIRA 16:4)

1. Glavnoye upravleniye torfyancy promyshlennosti Vserossiyskogo
soveta narodnogo khozyaystva.
(Peat industry)

МАТЛЕЯВ

МАТЛЕЯВ, А.Н.

Important potentiality for the increase of meat production. Veteri-
naria 34 no.10:31-32 0 '57. (MLRA 10:11)

1. Glavnyy veterinarnyy vrach Starozhilovskogo rayona Ryazanskoy
oblasti.

(Tissue extracts) (Starozhilovo District--Swine)

GUSEV, N.; MATVEYEV, A.N.

Reliable methods in caring for young animals and in increasing the
production of meat. Veterinariia 36 no.12:10-11 D '59.
(MIRA 13:3)

1. Direktor sovkhosa "Golovkovo," Narofominskogo rayona, Moskovskoy obla-
sti (for Gusev). 2. Glavnyy veterinarnyy vrach sovkhosa "Golovkovo,"
Narofominskogo rayona, Moskovskoy oblasti (for Matveyev).
(Naro-Fominsk District--Veterinary hygiene)
(Stock and stockbreeding)

GUSHCHIN, V.N., veterinarnyy vrach; MATVEYEV, A.N., veterinarnyy vrach;
KOSTYUCHENKO, S.P., veterinarnyy vrach

Effective method of treating mastitis in cows. Veterinariya 41 no. 372
Mr '64. (MIRA 1871)

1. Podobnoye khozyaystvo "Kraskovo", Moskovskoy oblasti.

МАТВЕЕВ, А.Н.

MATVEYEV, A.N., inzh.

Development of defectoscopy on Soviet railroads. Vest. TSNII MPS
16 no.8:7-10 D '57. (MIRA 11:1)
(Railroads--Rails--Testing)

MATVEYEV, A.N., inzh.

~~Growth~~ of the use of rail detectors. Put' i put. khoz. no. 2:24-26
P '58. (MIRA 11:3)

(Railroads--Rails--Testing)

KOZIOV, Viktor Borisovich; LYSENKO, Il'ya Mitrofanovich; MATVEYEV,
Aleksandr Nikolayevich; FRAKHTENBERG, Moisey Vladimirovich;
USPENSKIY, Yevgeniy Ivanovich; GOLOVANOV, A.L., red.;
KHITROV, P.A., tekhn.red.

[Detection of defects in rails] Rai'sovaya defektoskopia.
Moskva, Gos.transp.zhel-dor.isd-vo, 1959. 230 p. (MIRA 12:6)
(Railroads--Rails)

LEVYKIN, Fedor Vasil'yevich, kand. tekhn. nauk; MATVEYEV, Aleksandr Nikolayevich, inzh.; SHTRUMER, Yuriy Nikolayevich, inzh.; GUREVICH, A.F., inzh., retsenzent; ZURLEVSKIY, S.M., inzh., red.; USKOKO, L.A., tekhn. red.

[Flaw detection in locomotive parts] Defektoskopiia detalei lokomotivov. Moskva, Vses. izdatel'sko-poligr. ob'edinenie M-va putei soobshchenia, 1962. 127 p. (MIRA 15:5)
(Locomotives—Inspection) (Magnetic testing)
(Ultrasonic waves—Industrial applications)

MATVEYEV, A.M., insh.

Ferrobe spotters of the rail flaw detector and their sensibility to the field of scatter of transverse fatigue cracks. Trudy TSNII NPS no.243:5-16 '62. (MIRA 16:6)

(Railroads—Rails—Testing)
(Magnetic testing)

KOZLOV, V.B.; LYSENKO, I.M.; MATVEYEV, A.N.; TRAKHTENBERG, M.V.;
USPENSKIY, Ye.I.; GURVICH, A.K.; BESPALOV, B.N., inzh.,
retsenzent; SPASSKIY, D.S., inzh., red.; MEDVEDEVA, M.A.,
tekhn. red.

[Flaw detection in rails] Rel'sovaya defektorskopiya. [By]
V.B.Kozlov i dr. Izd.2., perer. i dop. Moskva, Transzhel-
dorizdat, 1963.. 286 p. (MIRA 16:8)

(Railroads--rails--Defects)
(Nondestructive testing)

*J. A.
Section A*

538145

5384. On the theory of the harmonical electron.
A. M. Matveev, *Lectures in Zh. Eksp. Teor. Fiz.*, 21,
1975-9 (No. 9, 1977) in Russian.

After quoting from other sources an expression for the electromagnetic field of radiation, caused in spherical co-ordinates and developed in Fourier series with spherical harmonics expressed in the form of Bessel functions of the first kind J_n , and their derivatives J'_n of the argument proportional to the size of the helix, the author derives the expansion for the summation of this series; and then the latter is evaluated the order number of the highest harmonics in the series and the duration of the harmonization.

M. S. JAPOLSKY

MATVEYEV, A. N.

Math/Physics - Quantum Theory

Oct 53

The Operational Method in the Quantum Theory of the Field, U.A.N. Matveyev, Chair of Theor Phys

Vest Mos Univ, Ser Fizikomst i Yest Nauk, No 7, pp 99-104

Notes that operational calculus itself can be included in the spectral theory of max operators (A.I. Plesner, DAN SSSR, 26, 10, 1940). States that the main advantage of operational calculus is its great heuristic effectiveness. A method close to the operational method was systematically employed by A.A. Sokolov and D. Ivanenko

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in their work on the quantum theory of the field (Avantovaya Teoriya Polya, GITTL, 1951). Here employs mainly the s-matrix and utilizes the well studied properties of the resolvents of Hermitian operators. Acknowledges helpful comments of Prof. A.A. Sokolov.

MATVEYEV, A. N.

"On the Question of the Radiation of Elementary Particles Moving with
Relative Velocities." Cand Phys-Math Sci, Moscow Order of Lenin State U imeni M.
V. Lomonosov, 29 Dec 54. (VM, 20 Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher
Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

USSR/Physics - Undulator coherence

FD-2364

Card 1/1 Pub. 146 - 29/34

Author : Matveyev, A. N.

Title : Optimum length of the undulator [ondulyator]

Periodical : Zhur. eksp. i teor. fiz. 28, 760, Jun 1955

Abstract : V. L. Ginzburg pointed out (Izv. AN SSSR, 11, 165, 1947) that only the use of the factor of coherence of radiation in the undulator (H. Motz, J. Appl. Phys. 22, 527, 1951; H. Motz, W. Thon and R. Whitehurst, J. Appl. Phys. 24, 826, 1953) gives the possibility of obtaining significant power of radiation, while at the same time the undulator's radiation power is directly proportional to its length (H. Motz. loc. cit.); therefore it is convenient to increase the length: however, these factors governing the increase of the undulator's radiation power are in opposition to each other (e.g. as the electrons traverse the undulator, the conditions for coherence of radiation deteriorate in view of the spreading of the "bunch". The author considers the resolution of this contradiction, and obtains optimum length. 3 references.

Institution : Moscow State University

Submitted : January 24, 1955

MATVEYEV, A. N.

USSR/Nuclear Physics - Radiating Electron

MATVEYEV, H 11

FD-3349

Card 1/1 Pub. 146-21/28

Author : Matveyev A. N.

Title : Role of spin in the emission of the radiating electron. (Letter to the editor)

Periodical : Zhur. Exp. i Teor. Fiz., 29, No 5, 700-701, 1955

Abstract : Criticism is expressed of results published by N. F. Nelipa (ZhETF, 27, 427, 1954) who found the ratio of the total radiation of an electron to the total radiation of a spinless particle to be $1 + (mc^2/g^2)^2$. Computations carried out by the author in his dissertation (Moscow, 1954) differed from these by Nelipa and approached those by J. Schwinger (Phys. Rev., 75, 1912, 1948). Eight references, including two US.

Institution : Moscow State University

Submitted : January 24, 1955

SECRET

UDSSR Academy of Sciences

1975

Department of Physics, Leningrad State University, Leningrad, U.S.S.R.

Quantum electrodynamics of a relativistic electron in the theory of a glowing electron

1975, No. 1, pp. 1-10, 11-12, 13-14, 15-16, 17-18, 19-20, 21-22, 23-24, 25-26, 27-28, 29-30, 31-32, 33-34, 35-36, 37-38, 39-40, 41-42, 43-44, 45-46, 47-48, 49-50, 51-52, 53-54, 55-56, 57-58, 59-60, 61-62, 63-64, 65-66, 67-68, 69-70, 71-72, 73-74, 75-76, 77-78, 79-80, 81-82, 83-84, 85-86, 87-88, 89-90, 91-92, 93-94, 95-96, 97-98, 99-100, 101-102, 103-104, 105-106, 107-108, 109-110, 111-112, 113-114, 115-116, 117-118, 119-120, 121-122, 123-124, 125-126, 127-128, 129-130, 131-132, 133-134, 135-136, 137-138, 139-140, 141-142, 143-144, 145-146, 147-148, 149-150, 151-152, 153-154, 155-156, 157-158, 159-160, 161-162, 163-164, 165-166, 167-168, 169-170, 171-172, 173-174, 175-176, 177-178, 179-180, 181-182, 183-184, 185-186, 187-188, 189-190, 191-192, 193-194, 195-196, 197-198, 199-200, 201-202, 203-204, 205-206, 207-208, 209-210, 211-212, 213-214, 215-216, 217-218, 219-220, 221-222, 223-224, 225-226, 227-228, 229-230, 231-232, 233-234, 235-236, 237-238, 239-240, 241-242, 243-244, 245-246, 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2383-2384, 2385-2386, 2387-2388, 2389-2390, 239

MATVEYEV, A. N.

Category : USSR/Nuclear Physics - Instruments and Installations. Method C-2
of Measurement and Investigation.

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 5756

Author : ~~Matveyev, A. N.~~

Title : Stochastic Theory of Electron Vibration Induced in a Synchrotron
by Radiation.

Orig Pub : Tr. 3-go Vses. matem. s'ezda, 2, M., AN SSSR. 1956, 164

Abstract : No abstract

Card : 1/1

MATVEYEV, A.N.

Category : USSR/Nuclear Physics - Instruments and Installations. C-2
Methods of Measurement and Investigation.

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 5757

Author : ~~Matveyev, A.N.~~

Title : Radiation Resonance in Synchrotrons.

Orig Pub : Zh. eksperim. i teor. fiziki, 1956, 30, No 4, 804.

Abstract : The author states that even in the classical examination of the problem, radiation losses are capable of producing resonant phenomena (disturbance to the stability of motion). The parameter E is introduced to determine the radiation displacement of the frequency of the betatron oscillations. The connection between this parameter and the intensity of radiation or with the energy of the accelerated particles is, however, not made clear in this work.

Card : 1/1

MATVEYEV, A.N.

SUBJECT USSR / PHYSICS
AUTHOR MATVEEV, A.N. CARD 1 / 2 PA - 1652
TITLE On the Part Played by Spin in the Radiation of the Radiation
Electron.
PERIODICAL Zhurn. eksp. i teor. fis, 31, fasc. 3, 479-489 (1956)
Issued: 12 / 1956

The radiation electron is assumed to move within a constant magnetic field. Damping is disregarded.

The quantum-mechanical formulae for the intensity of radiation with and without consideration of spin are best computed not according to the HAMILTONIAN scheme but according to that of LORENTZ forces. First, expressions for the averaged modification of the fourdimensional energy impulse vector are determined. There then follows averaging with respect to the photon vacuum. The radiation W is equal to the fourth component of this change of momentum multiplied by c/i . Current operators are given for DIRAC'S equation and for the scalar equation. The wave functions of the electron in a constant magnetic field for the DIRAC equation and for the scalar equation are explicitly written down. The expression for W is explicitly written down and transformed several times. The "part played by spin" is characterized by a definite term.

For the determination of the differential spectrum it is necessary to integrate over the angle ϑ in the expression for W . The thus obtained formulae for the differential spectrum are transformed several times. Also a formula which

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characterizes the radiation of a spinless particle is given. At ultrarelativistic energies asymptotic formulae are obtained which are suited for the study of the entire spectrum. The sole exception is the domain near the high-frequency end. The formulae obtained (for electrons and spinless particles) make it possible to study the differential spectrum at any energies. At any energies and along the entire length of the spectrum, the spectrum of the radiation of a boson is lower than that of the electron. If energy increases the maximum of the radiation density of the electron shifts towards the far end of the spectrum. The density maximum of boson radiation in this case does not shift towards the end of the spectrum but to a point of the spectrum which is located approximately in the first third (reckoned from where it begins). This difference is shown by a diagram and is very considerable in the extremely ultrarelativistic case.

In conclusion the expressions for the total energy of the electron and of the spinless particle are determined and also the corresponding asymptotic formulae for the case of low energies as also for the extremely relativistic case are given. In the extremely relativistic case the radiation of the spinless particle is $\sim 16/9$ times weaker than that of an electron.

Institution: Moscow State University

MATVEYEV, A.N.

USSR/Nuclear Physics

C-2

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 10982

Author : Matuyev, A.N.

Inet : Moscow State University

Title : Influence of Radiation on Betatron Oscillations of
Electrons in Synchrotrons With Hard Focusing.

Orig Pub : Dokl. AN SSSR, 1956, 107, No 5, 671-674

Abstract : Discussion of results of an approximate analysis of the problem of the influence of radiation on the radial betatron oscillations of electrons in synchrotrons with hard focusing. The amplitude of the forced oscillations was obtained with allowance for the adiabatic damping, but without accounting for the radiation friction, which the author assumes to be small. It is shown that under these assumptions, for accelerators with hard and soft focusing

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Abs Jour : Referat Zhur - Fizika, No 5, 1957, 10982

of comparable parameters, the use of hard focusing is more suitable, particularly at large energies. In either case, the amplitude of the oscillations increases with energy.

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MATVEYEV, A.N.

SUBJECT USSR / PHYSICS
 AUTHOR MATVEEV, A.N. CARD 1 / 2 PA - 1397
 TITLE On the Influence Exercised by Radiation on the Synchrotron
 Oscillations of Electrons in the Case of Hard Focussing.
 PERIODICAL Dokl. Akad. Nauk, 108, fasc.3, 432-435 (1956)
 Issued: 8 / 1956 reviewed: 10 / 1956

Hard focussing reduces the amplitude of betatron oscillations considerably, and therefore transition to hard focussing is probably unavoidable from the point of view of betatron oscillations at energies of several BeV. For the exact solution of this problem it is necessary to take also synchrotron oscillations into account. For information concerning synchrotron oscillations induced in the case of soft focussing by radiation see M.SANDS, Phys.Rev. 97, 470 (1955). Here the domain of high energies is investigated. On these conditions the effects connected with modifications of velocity (accompanied by only slight modifications of the energy of particles) can be neglected and the equation $d(E-E_s)/d\mu = eV_0(\cos\varphi - \cos\varphi_s) - (I-I_s)$ may be used. Here E denotes the energy of the particle, φ - the phase of the passage through the high frequent field, I - the energy radiated per revolution, μ - the number of passages through the accelerated interval, eV_0 - the amplitude of the accelerating field. The quantities denoted by the index s refer to the state of equilibrium. One finds:

$$\delta I = I - I_s = (I_s/2\pi R_s) \left\{ 4\pi R_s (\delta E/E_s) + \int_0^{2\pi} [1 - 2n(\varphi)] \delta R(\varphi) d\varphi \right\}$$

and herefrom a further expression for δI which is explicitly given. Next, the modification δS

Dokl. Akad. Nauk, 108, fasc. 3, 432-435 (1956) CARD 2 / 2

PA - 1387

of the orbit in the case of a modification of energy by the amount $\delta E = E - E_s$ is computed. If acceleration occurs on the k -th harmonic of the high frequency field, there results: $\dot{\psi} = k\omega(a/\lambda)(\delta E/E)$, $\lambda = 1 + (L/2\pi R_s)$, and herefrom further the required equation of motion $\ddot{\psi} + \gamma \dot{\psi} + \Omega^2 \psi = 0$. Here L denotes the length of all rectilinear stretches on the synchrotron, $\psi = \varphi - \varphi_s$ is the deviation from the phase of equilibrium.

The last-named equation was derived while the quantum-like character of radiation was neglected. The quantum-like character can be taken into account either by the addition of a term to the equation of motion or by direct deliberation. Both ways furnish the same expression for the average quadratic deviation.

After some transformations there results herefrom further the expression:

$$\overline{\psi^2} = (55\sqrt{3}/64)(ka/\lambda\sigma) \text{ctg}\varphi_s (hc/e^2)(mc^2/E_s) \text{ which is suitable for application.}$$

Next, an expression for the average deviation for the synchrotron oscillations of the average radius, which is in connection with these phase oscillations, is given.

From the point of view of synchrotron oscillations, hard focussing is, in any case, not disadvantageous if compared with soft focussing, and in some respects it even offers advantages.

INSTITUTION: Moscow State University "M.V. LOMONOSOV"

MATVEYEV, A.N.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1430
AUTHOR MATVEEV, A.N.
TITLE The Motion of Electrons in Cyclic Accelerators as a Stochastic Process.
PERIODICAL Dokl. Akad. Nauk, 109, fasc. 3, 495-498 (1956)
Issued: 9 / 1956 reviewed: 10 / 1956

Because of the theoretical and practical importance of the case with an arbitrary field, a general investigation of this phenomenon is necessary. The corresponding mathematical apparatus is dictated by the physical nature of the phenomenon, i.e. by the fact that the major part of radiation is not produced by betatron- or synchrotron oscillations but by the cyclic motion of the electron. Consequently, the emission of radiation is independent of the phase of these oscillations, and therefore the cyclic motion of the electron together with its betatron- and synchrotron oscillations must be considered to be a stochastic process.

At first the stochastic equations for the betatron- and synchrotron oscillations induced by radiation are given and discussed. Radiation damping may be neglected.

The distribution function found in consideration of the absorption of the electrons on the walls is explicitly given. In the case of an infinitely great distance of the synchrotron walls, i.e. if absorption is lacking, GAUSS' distribution is obtained herefrom. From the general formula it is possible to determine the probability density for electron losses in the interval $(t, t+dT)$ caused by collisions with the wall. Herefrom there further follows a law for the intensity

Dokl.Akad.Nauk, 109, fasc.3, 495-498 (1956) CARD 2 / 2

PA - 1430

loss of the bundle as a result of electron losses on the walls. The formulae obtained are very well suited for computation because of the very fast convergences of the series contained therein. In the case of more or less strong absorption the first term alone will suffice.

Similar formulae are applicable also to oscillations of the phase. In view of the fact that during the acceleration process the phase corresponding to the equilibrium is somewhat shifted, and because therefore also the permitted deviations are shifted a little, somewhat more complicated formulae are obtained, which are, however, not given here. The formulae obtained may be applied to any synchrotrons, and it is possible to develop the theory in a more precise manner in consideration of the nonlinearities of radial- and phase oscillations.

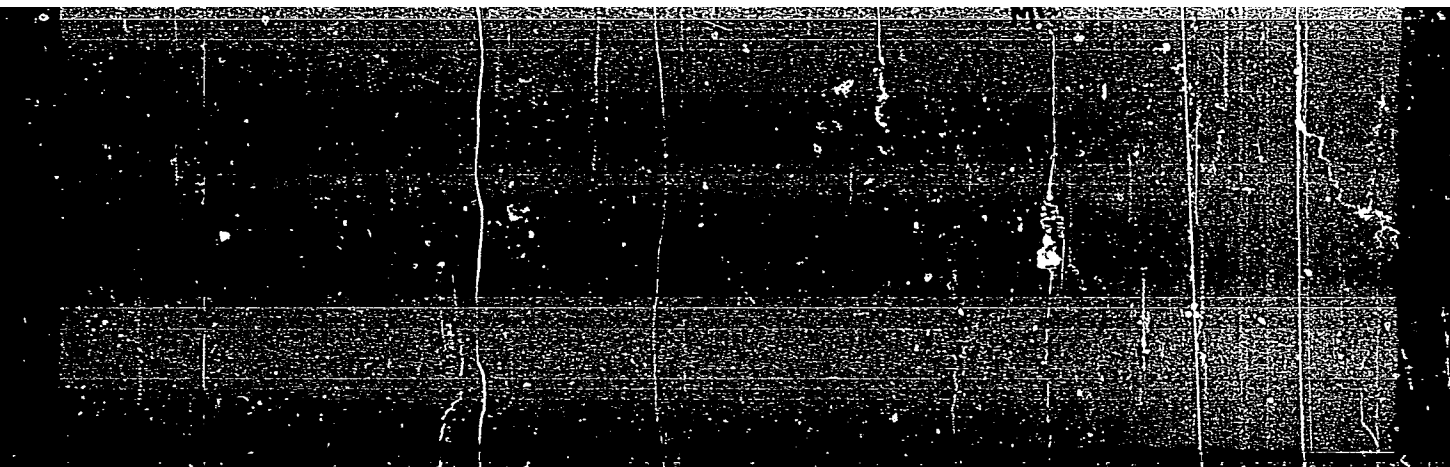
In the same manner it is possible to determine the axial oscillations of electrons induced by radiation, but their amplitude is much smaller than in the case of radial oscillations.

The here developed stochastic theory of electron oscillations in synchrotrons makes it possible to solve the problems arising in connection with these oscillations. The generalization of this theory to other types of cyclic accelerators is obvious.

INSTITUTION: Moscow State University "M.V.LOMONOSOV".

"APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R032932920019-1



APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R032932920019-1"

MATVEYEV, A.N.

Equations for betatron vibrations taking into account radiation friction. Vest. Mosk. un. Ser. mat., mekh., astron., fiz. khim., 12 no.5:63-66 '57. (MIRA 11:9)

1. Kafedra statisticheskoy fiziki i mekhaniki Moskovskogo gosudarstvennogo universiteta.

(Particle accelerators)

MATVEYEV, A.N.

AUTHOR:

Matveyev, A.N.

56-4-13/54

TITLE:

A Non-Linear Theory of Phase Oscillations Induced by Quantum Radiation Fluctuations in Electron Synchrotrons (Nelineynaya teoriya fazovykh kolebaniy, induitsirovannykh kvantovymi fluktuatsiyami izlucheniya v elektronnykh sinkhrotronakh)

PERIODICAL:

Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 4, pp. 913 - 917 (USSR)

ABSTRACT:

It is shown that the linear theory of the phase oscillations for accelerating devices for energies in the BeV-range does not render well the working limit domain. When a non-linear theory of the phase oscillations is derived, however, better results are obtained. When a synchrotron is operated under certain, given conditions, it should stop working at a particle energy of 1,5 BeV, whereas according to the non-linear theory this should already be obtained at a particle energy of about 1 BeV. This conclusion also confirms the earlier drawn conclusions (Matveyev) that at electron energies of several BeV one must by all means pass over to fixed focusing. There are 6 Slavic references.

Card 1/2

A Non-Linear Theory of Phase Oscillations Induced by Quantum Radiation Fluctuations in Electron Synchrotrons 56-4-13/54

ASSOCIATION: Moscow State University
(Moskovskiy gosudarstvennyy universitet)

SUBMITTED: March 2, 1957 (initially), and May 8, 1957 (after revision)

AVAILABLE: Library of Congress

Card 2/2

MATVEYEV, A.N.

AUTHOR: Matveyev, A.N.

56-5-28/46

TITLE: On Electron Losses Due to Phase Oscillations Induced by Radiation Fluctuations in Synchrotrons (O poteryakh elektronov pri fazovykh kolebaniyakh, indutsirovannykh fluktuatsiyami islucheniya v sinkhrotronakh)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 5, pp.1254-1260 (USSR)

ABSTRACT: An effective method of computation is given for deriving and setting up of formulae which are necessary for the determination of electron losses caused by phase oscillations in the synchrotron with a previously given accuracy. Furthermore, the accuracy of computation can be estimated from the formulae. Proceeding from the results obtained in the works by Matveyev (ref.7) it is shown in what way the boundary conditions have to be formulated in order that the influence exercised by the nonlinearity effect may be taken into account. There are 7 references, 6 of which are Slavic.

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvennyy universitet)

SUBMITTED: May 17, 1957

AVAILABLE: Library of Congress

Card 1/1

MATVEYEV, A. N.: Doc Phys-Math Sci (diss) -- "Investigation of the theory of electronic synchrotrons and betatrons". Moscow, 1958. 24 pp (Moscow Order of Lenin and Order of Labor Red Banner State U in M. V. Lomonosov, Physics Faculty), 150 copies (KL, No 6, 1959, 123)

SOV/57-58-8-33/37

AUTHOR: Matveyev, A. N.

TITLE: On the Magnitude of Particle Losses in Synchrotrons Caused by Scattering on Residual Gas (O velichine poter' chastits iz-za rasseyaniya na ostatochnom gaze v sinkhrotronakh)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Nr 8, pp 1829 - 1836 (USSR)

ABSTRACT: This is a theoretical approach to problems which are of concern in the dynamics of accelerated particles, taking into account the scattering at residual gas atoms. The computation method presented permits to calculate to any desired degree of accuracy the attenuation of betatron oscillations in a rectangular cross-section vacuum chamber and to estimate the occurring error. Besides, the influence of the shape of the vacuum chamber upon the particle loss due to scattering is examined. The considerations here presented tend to show that in spite of different radial and axial dimensions of the vacuum chamber both the radial and the axial betatron oscillations show an equal effect upon the loss of particles. Hence the problem is not solved in a two-dimensional phase plane but in a four-dimensional phase space. The differential equation (7) for the distribution function is deduced, its simultaneous

Card 1/2

On the Magnitude of Particle Losses in Synchrotrons
Caused by Scattering on Residual Gas

SOV/57-58-8-33/37

solution with the boundary conditions (10), however, proves to be very difficult. The solution is obtained covering the case of an attenuation in a rectangular cross-section vacuum chamber to any previously given degree of accuracy. If the losses of particles are small, this solution for a rectangular vacuum chamber also permits to estimate the losses of particles in a vacuum chamber of an arbitrary shape with a definite accuracy. There are 9 references, 0 of which is Soviet.

ASSOCIATION: Fizicheskiy fakul'tet MGU (Faculty of Physics, Moscow State University)

SUBMITTED: July 8, 1957

Card 2/2

AUTHOR: Matveyev, A. N. SOV/56-34-5-46/61

TITLE: Electron Capture in a Betatron (O zakhvate elektronov v betatrone)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958,
Vol. 34, Nr 5, pp. 1331 - 1333 (USSR)

ABSTRACT: V.I. Logunov and S.S. Semenov (Ref 1) reported on a statistical capture mechanism in a betatron. They estimated its efficiency. In connection with this two important remarks must be made:
1) This mechanism can work only in the case of very high densities of the injected electrons. This mechanism, according to the opinion of the author, will in particular not work under the conditions which in the above mentioned paper are regarded as an example. This author substantiates his assertion by a numerical estimation. According to the opinion of the author the beam will widen right after the injection. Hence, the dynamics of the electrons will differ considerably from the dynamics assumed in the previous work which is mentioned above. 2) The capture mechanism decisive in this case is determined by the Coulomb interaction and, with regard to the example to be investigated, is based upon

Card 1/3

Electron Capture in a Betatron

SOV/56-34-5-46/61

the following facts: Immediately after the injection an intensive loss of electrons begins at the walls of the vacuum chamber on the side of the injector. In that domain where the surface of the beam is in contact with the wall of the vacuum chamber a rapid widening is initiated. Already after a short time a strong loss of electrons takes place on all walls of the chamber. The vacuum chamber then appears to be filled by an electron cloud of increasing density. The annihilation of a certain number of electrons on the walls leads to the "survival" of other electrons. The mean number of revolutions of the electrons after injection is about equal to 2 or even less. A corresponding mathematical formulation can be assigned to the physical conception of the capture. It leads to a theory which qualitatively and quantitatively agrees with the experiment. There is 1 reference which is Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: January 20, 1956

Card 2/3

Electron Capture in a Betatron

SOV/56-34-5-46/61

1. Electron capture 2. Betatrons--Applications 3. Betatrons
--Performance

Card 3/3

21 (9)

AUTHOR:

Matveyev, A. N.

SOV/56-35-2-10/60

TITLE:

On the Capture Mechanism and the Limiting
Current in Betatrons (O mekhanizme zakhvata i
predel'nom toke v betatronakh)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958,
Vol 35, Nr 2, pp 372-380 (USSR)

ABSTRACT:

In continuation of a number of experimental (Refs 1 - 6)
and theoretical works (Refs 7 - 15) the author of the
present paper investigates the electron capture in a
betatron in consideration of the Coulomb-(Kulon) interaction
of the electrons in the beam and the electron losses on
the walls of the vacuum chamber. The capture-mechanism, as
a consequence of an interaction, can be divided into three
groups: into a mechanism connected with the self-induction
of the non-steady current in the chamber (Refs 9, 12), a
mechanism which is based on the interaction of electrons
with the Coulomb field of the spatial discharge (Refs 10,
11, 13, 14, 15) and a statistical mechanism (Ref 16).
Rodimov (Ref 15) investigated the capture-mechanism on the

Card 1/3

On the Capture Mechanism and the Limiting
Current in Betatrons

SOV/56-35-2-10/60

basis of the Coulomb interaction of the electron beams among one another. The author of the present paper obtains for the electron distribution in equilibrium:

$$\rho_e(R_0) = \frac{1}{4\pi} \frac{e\beta^2}{r_0 R_0^2} \left(\frac{r_0}{m_0 c^2} \right)^3 ; \quad \beta = \frac{v}{c}, \quad r = \frac{e^2}{m_0 c^2}$$

For the number of captured electrons the final formula

$$N_\gamma = N_c (\alpha - 1)^2 / (2\alpha - 1) \approx N_0 (\alpha - 1)^2 ; \quad \alpha \approx 1$$

is obtained. N_0 is the number of injected electrons. For the density of the electron beam it holds that

$$\rho = \rho_{e1}^\alpha / (2\alpha - 1) \approx \rho_{e1} / 2 \quad \alpha \gg 1 .$$

There are 3 figures and 17 references, 10 of which are Soviet.

Card 2/3

On the Capture Mechanism and the Limiting
Current in Betatrons

SOV/56-35-2-10/60

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State
University)

SUBMITTED: February 12, 1958

Card 3/3

MATVEYEV, A.N.

Amount of electron losses because of phase vacillations induced
by radiation fluctuations in synchrotrons. Vest.Mosk.un.Ser.
mat., mekh, astron, fiz, khim. 14 no.4:97-104 '59. (MIRA 13:8)

1. Kafedra statisticheskoy fiziki i mekhaniki Moskovskogo
universiteta.

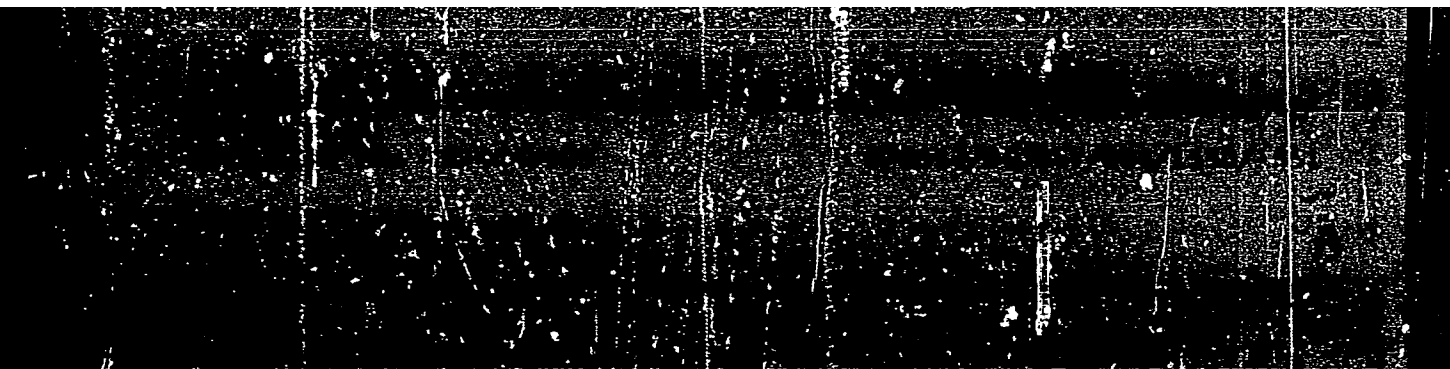
(Synchrotron)

MATVEYEV, Aleksey Nikolayevich; ALEKSEYEV, A.I., red.

[Electrodynamics and the theory of relativity] Elektrodinamika i teoriia otnositel'nosti. Moskva, "Vysshaya shkola," 1967. 424 p. (MIRA 17:5)

"APPROVED FOR RELEASE: 06/14/2000

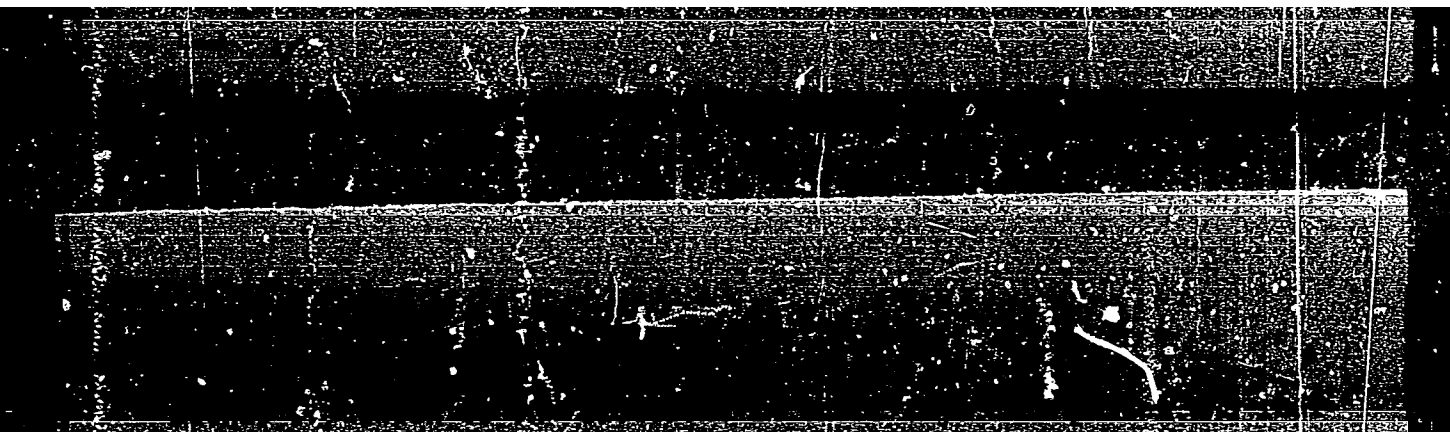
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L 7008 66 EWT(a)/EWT(m)/EWP(c)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EJP(z)/EWP(b)/
ACC NO. AP5026003 EWP(l)/ETC(m) JD/ SOURCE CODE: UR/0286/65/000/017/0084/0164
WW

INVENTOR: Matveyev, A. N.
14 53

60
30

TITLE: A magnetic probe. Class 42, No. 174416 [announced by All-Union Scientific
Research Institute of Railway Transportation (Vsesoyuznyy nauchno-issledovatel'skiy
Institut zheleznodorozhnogo transporta)] 14 5

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 17, 1965, 64

TOPIC TAGS: magnetic method, electronic measurement, magnetic field measurement, 14
constant magnetic field, flaw detection 14

ABSTRACT: This inventor's Certificate introduces a magnetic probe with circular ex-
citation for measuring magnetic fields, e.g. dispersion fields in magnetic flaw de-
tection. The instrument contains a magnetic core which is magnetized by the constant
magnetic field being measured and has d-c and measurement windings. The sensitivity
of the probe is increased by making the d-c winding in the form of a rectangular rod
or tube of nonmagnetic material with a surrounding core of helically wound wire wade

L 7008-66

ACC NR: AP5028000

From a material with a high initial magnetic permeability, e.g. permalloy.

SUB CODE: EM,EC/ SUBM DATE: 26Jun64/ ORIG REF: 000/ OTH REF: 000

Card 2/2

KOTOVICH, O.Ye., kand. tekhn. nauk; TROFIMOV, G.S., kand. tekhn. nauk; MATVEYEV,
A.P., inzh.

Calculating frame rods of agricultural machinery for torsion. Trakt.
i sel'khoz mash. no.6:31-34 Je '65. (MIRA 18:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sel'skokhozyayst-
vennogo mashinostroyeniya (for Kotovich). 2. Bashsel'khozinstitut
(for Trofimov). 3. Kuybyshevskiy sel'skokhozyaystvennyy institut
(for Matveyev).

S/125/60/030/05/07/015

AUTHORS: Gurevich, S. M., Didkovskiy, V. P., Matveyev, A. P., and Os'mushkin, V. K.

TITLE: Experience with Electroslag Welding¹⁸ for Welding Rings²⁶ of "VT6" Titanium Alloy

PERIODICAL: Avtomaticheskaya svarka, 1960, No. 5, pp. 56-61

TEXT: Thick titanium alloy rings and flanges used in chemical and some other industries were welded up to now on resistance butt welding machines like the "MSG-300" (Ref. 1), and the quality of the joints was not always satisfactory. The article gives a detailed description of the electroslag process used for joining rings, 1,500 mm in diameter and 95x75 mm cross section, consisting of two forged halves, with forged plate electrodes of same "VT6" titanium alloy; work was done on an "A-500" welding machine designed by the Electric Welding Institute with a single phase "TShS-3000-1" transformer. The information includes details on the preparation of "AN-T2" flux for this purpose, on the chemical composition of the parent metal, on electrode and weld (Table 1); photographs of joints and microstructure of the weld, and detailed engineering recommen- ✓/c

Card 1/2

S/125/60/000/05/07,1960

Experience With Electroslag Welding for Welding Rings of "VT6" Titanium Alloy

dations as to how to eliminate weld defects in the process. The technique can easily be learned by operators. The process will be employed for series production of welded "VT6" alloy rings. There are 4 photographs, 2 tables, and 3 Soviet references.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye. O. Patona AN USSR (Led Banner of Labor Electric Welding Institute imeni Ye. J. Paton AS UkrSSR) (S. M. Gurevich and V. P. Didkovskiy); Kuybyshev (A. P. Matveyev and V. K. Os'kushkin)

SUBMITTED: January 12, 1960

/c

Card 2/2

S/239/62/048/001/002/002

1015/1215

AUTHORS: Naumenko, A. I. and Matveyev, A. P.

TITLE: Recording of the volume of inspired air in man in a barochamber

PERIODICAL: Fiziologicheskiy zhurnal SSSR im. I. M. Sechenova. ... 48, no. 1, 1962, 97-98

TEXT: In clinical practice, the spiograph is commonly used to determine the minute volume. These authors know of no studies in which this method was applied for investigational purposes on man. A device, consisting of a dry gasometer with electric transmission, was designed in order to record the minute volume in man in experimental conditions in a barochamber. Thus, it was found that at an "altitude" of 3000 m the respiration was 14 respiratory movements/min, instead of 16/min "at sea level". The vital capacity increased up to 6600 ml at the "altitude", decreased down to 5500 ml immediately after descending, regaining its normal value of 4600 ml 3 min. later. The method is also recommended for the recording of the minute volume in studies on the physiology of labor and sports. There are 2 figures.

ASSOCIATION: Otdel obshchey fiziologii TsNILa pri 1-m Meditsinskom institute im. acad I P Pavlova, Leningrad (Division of General Physiology, TsNIL, Institute of Medicine im. acad I. P. Pavlov, Leningrad)

SUBMITTED: March 9, 1961

Card 1/1



TSFAS, B.S., dotsent, kand.tekhn.nauk; MATVEYEV, A.P., assistant;
PROVATOROV, Yu.A., student; SHEVCHENKO, V.A., student;
GOLOVNYA, A.V., student, SURKIN, V.I., student

Results of static tension tests of steel cylindrical specimens
having circular single and group notches, and of smooth-roll
burnished specimens. Sbor.dokl.Stud.nauch.ob-va Fak.mekh.sel'.
Kuib.sel' khoz.inst. no. 1:72-78 '62. (MIRA 17:5)

1. Kuybyshevskiy sel'skokhozyaystvennyy institut.

Matveyev

POLAND/Acoustics.

J

Abs Jour: Referat Zhur-Fizika, 1957, No 4, 10204

Author : Gel'man, A.S., Kabanov, N.S., Matveyev, A.S.

Inst : Not given

Title : Ultrasonic Control of Joints Made by Spot Welding.

Orig Pub: Zavod. Laboratoriya, 1954, 20, x15, 562-567

Abstract: No abstract.

Card : 1/1

AVEASIN, Ya.D., kandidat tekhnicheskikh nauk; BERG, P.P., professor,
 doktor tekhnicheskikh nauk, BERTSHTEYN, M.L., kandidat tekhnicheskikh
 nauk; GEMERZOV, P.A., starshiy nauchnyy sotrudnik; GLINES, B.M.,
 inzhener; DAVIDOVSKAYA, Ye.A., kandidat tekhnicheskikh nauk; YELCHIN,
 P.M., inzhener; YAKHMIN, B.I., kandidat fiziko-matematicheskikh nauk;
 IVANOV, D.P., kandidat tekhnicheskikh nauk; TNOROZ, L.I., inzhener;
 KOBIN, M.M., kandidat tekhnicheskikh nauk; KORITSKIY, V.G., dotsent;
 KROTKOV, B.V., inzhener; KUDEYAVTSEV, I.V., professor, doktor tekhnicheskikh nauk;
 KULIKOV, I.V., kandidat tekhnicheskikh nauk; LEPETOV,
 V.A., kandidat tekhnicheskikh nauk; LIKINA, A.P., inzhener; ~~MATVEYEV~~,
 A.S., kandidat tekhnicheskikh nauk; MIL'MAN, B.S., kandidat tekhnicheskikh nauk;
 PAVLUSHKIN, N.M., kandidat tekhnicheskikh nauk; PITSYE, V.I., inzhener [deceased];
 RAKOVSKIY, V.S., kandidat tekhnicheskikh nauk; RYABCHENKOV, A.V., professor,
 doktor khimicheskikh nauk; SIGOLAYEV, S.Ya., kandidat tekhnicheskikh nauk;
 SMIRYAGIN, A.P., kandidat tekhnicheskikh nauk; SOL'KIN, A.G., inzhener;
 TUPOV, I.Ye., kandidat tekhnicheskikh nauk; KHROUSHCHOV, M.M., professor,
 doktor tekhnicheskikh nauk; TSYPIN, I.O., kandidat tekhnicheskikh nauk;
 SEAROV, M.Ya., inzhener; SHERMAN, Ya.I., dotsent; SHMELEV, B.A., kandidat tekhnicheskikh nauk;
 YUGANOVA, S.A., kandidat fiziko-matematicheskikh nauk; SATEL', B.A.,
 doktor tekhnicheskikh nauk, redaktor; SOKOLOVA, T.F., tekhnicheskiy redaktor

[Machine builder's reference book] Spravochnik mashinostroitel'ia; v
 shesti tomakh. izd-vo mashinostroit. lit-ry. Vol.6. (Glav. red.toma
 B.A.Satel'. Izd. 2-oe, ispr. i dop.) 1956. 500 p. (MLNA 9:8)
 (Machinery--Construction)

MATVEYEV, A.S.; YERMOLOV, I.N.; KRAKOVYAK, M.F.

Contactless radioactive relays. Priberostroenie No. 26-28 Ja '56.
(MLRA 9:8)

(Radioactive substances--Industrial applications)
(Electric relays)

25(2)

PHASE I BOOK EXPLOITATION

SOV/1289

Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya

Vibroizmeritel'naya apparatura TsNIITMASH (Vibration-measuring Instruments of the Central Scientific Research Institut of Technology and Machinery) Moscow, Mashgiz, 1958. 108 p. (Series: Its: Sbornik trudov, kn. 87) 3,000 copies printed.

Ed.: Matveyev, A.S., Candidate of Technical Sciences; Ed. of Publishing House: Akimova, A.G.; Tech. Eds: El'kind, V.D. and Uvarova, A.F.; Managing Ed. for Literature on Machine Building and Instrument Construction (Mashgiz): Pokrovskiy, N.V., Engineer.

PURPOSE: This book is intended for engineers and technicians at plants and scientific research institutes who are engaged in the development and use of modern equipment for investigation of vibrations by electrical methods.

COVERAGE: The present collection of articles of the Instrument-making Department of the TsNIITMASH (Tsentral'nyy nauchno-

Card 1/3

Vibration-measuring Instruments

SOV/1289

issledovatel'skiy institut tekhnologii i mashinostroyeniya-Central Scientific Research Institute of Technology and Machinery) covers work conducted during the period 1954-1956 on the development and modernization of new and existing vibration-measuring instruments designed for the investigation and measurement of vibrations of various machines, mechanisms and individual parts. In addition, the book contains articles on calibrating devices for checking vibration-measuring instruments, and on installations for determining moduli of elasticity of materials by the resonance method.

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Card 2/3

Vibration-measuring Instruments

SOV/1.289

Sheynman, Ye.M., Engineer. RC-cell for Correction of Phase Characteristics of Vibration-measuring Instruments 41

Vasil'yeva, R.V., K.R. Tsekhanskiy, and V.I. Fridlyano, Engineers. Horizontal and Vertical Vibration Stands for Calibration 45

Vasil'yeva, R.V., Engineer. Vibration Stands for Calibration of Vibra-meters and Accelerometers in a Wide Range of Frequencies 59

Yermolov, I.N., Engineer. Measurement of Moduli of Elasticity of Materials at High Temperatures by Resonance Method 97

AVAILABLE: Library of Congress

Card 3/3

GO/ar
3-23-59

MATVEYEV, A.S., kand. tekhn. nauk; YERMOLOV, I.N., inzh.; KRASOVYAK, M.F.

Ultrasonic instruments designed by the Central Scientific
Research Institute of Technology and Machinery. [Truly] TSHITMASH
88:5-29 '58. (MIRA 12:3)
(Ultrasonic wave--Industrial applications)
(Pulse techniques (Electronics))

S/032/60/026/011/010/035
B015/B056

1.9600 also 2209

AUTHORS: Yermolov, I. N., Krakovyak, M. F., and Matveyev A. S.

TITLE: Control of Small-diameter Tubings by Means of Ultrasound
Reflection and Thickness Gage

PERIODICAL: Zavodskaya laboratoriya. 1960, Vol. 26, No. 11.
pp. 1232-1235

TEXT: The thickness gages using ultrasound reflection are particularly suitable for testing thin parts (less than 5-10 mm) in all cases where the ultrasonic pulse generators are inadequate. In tube inspection the intensity of the echo signal may be increased by the use of radiation heads with concave contact surface. The authors already described (Ref. 1) a radiation head with two piezoelectric crystal plates forming an angle. The disadvantage of this design is that the thickness is measured in fact on two points. When using the easily deformable barium titanate, the disadvantage lies in the poor quality of the piezo element. In discussing the interference reduction of the device the authors describe in the

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Control of Small-diameter Tubings by Means of
Ultrasound Reflection and Thickness Gage

S/C32/60/025/011/010/035
B015/B066

present case the operation of a thickness gage which utilizes ultrasound reflection, and point out the following: one of the main causes of interference is the frequency modulator, i.e., its core which is made of magnetoelectric materials. To avoid resonant vibrations, the core was made of cermets (Ref. 2), as, for instance, in the frequency modulator of the VPT-6 (URT-6) device made of "oksifer 400". As the second cause of interference the authors mention the excitation of elastic vibrations in the piezoelectric crystal plate of the radiation head. The authors showed that this excitation can be reduced by the application of wedge-shaped plates. An attenuation of the surface waves may also be achieved by extending the radiation head, so that also thicknesses in tubes with a diameter of more than 10 mm may be controlled. By means of the URT-6 gage the interference level was lowered and it was thus made possible to measure thicknesses in the range of 0.35 - 50 mm with a maximum error of $\pm 2\%$. There are 5 figures and 4 references. 3 Soviet and 1 British.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya (Central Scientific Research Institute of Technology and Machine Building)

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1960 also 2209

S/032/60/026/011/011/035
B015/B065

AUTHORS: Matveyev, A. S. and Krakovskiy, M. F.

TITLE: ¹⁴ Ultrasonic Quality Control of Thin-wall Tubings by Means of Free Waves

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 11,
pp. 1235-1238

TEXT: The authors describe a device for automatic control of thin-wall tubings by means of intermittent "free" waves. The theory of the occurrence of "free waves" in a thin lamina which is placed in a liquid or gaseous medium, was described in the monograph by L. M. Brakhovskikh (Ref. 2). It was shown that two wave types may develop, symmetric and asymmetric waves. If defects occur in the thin metallic layer through which the waves are passed the wave propagation is interrupted under the formation of a reflection. The ИДУ-2 (IDTs-2) unit for the quality control of tubes described in the present article operates with free waves in the form of short pulses, with the application of the immersion method.

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Ultrasonic Quality Control of Thin-wall
Tubings by Means of Free Waves

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B015/B066

Contrary to other methods of this kind (Refs. 3,4) only one vibrator is used in the present case which means an appreciable simplification of the device. It may be seen from the block scheme and the reproduction of the device that the tube is submerged in water, allowed to rotate about the axis with a velocity of 300 rpm, and short pulses of longitudinal waves are given with a frequency of 2.5 Mc/sec upon the tube surface. The maximal duration of a pulse is 2 microseconds. In the case of material defects, the free waves are reflected, part of the energy returns to the emitter which then receives the elastic vibrations in the transmission intermissions. The reflected pulses are amplified and recorded by means of a signalling device (bell or lamp). The device described was designed by I. I. Muzyrev and permits controls in tubes with a length of up to 1.5 m. There are 4 figures and 6 references: 2 Soviet, 3 German, and 1 US. X

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i mashinostroyeniya (Central Scientific Research Institute
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S/032/61/027/004/028/028
B103/B201

AUTHORS: Cubanova, M. R., Yeregin, N. I., Yermolov, I. N., and
Matveyev, A. S.

TITLE: New methods and instruments for the nondestructive
material control, developed at TRNITTMASH

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 4, 1961, 499-501

TEXT: This is a report on the results of the principal studies on
defectoscopy, conducted at the laboratoriya defektoskopii (Laboratory
for defectoscopy) of the authors' institute (see Association) in the
past 2-3 years. Immersion - ultrasonic method. Full immersion. It
opens ample possibilities for automation in defectoscopy. The following
methods and instruments belong here: A. Laboratory model of ИДУ-1
(IDTs-1) defectoscope for the detection of faults in turbine disks. The
device may be used also for other workpieces by allowing the tank, in
which they are to be dipped, to be modified conformingly. B. Apparatus
and methods of automatic control of thin-walled tubes by Lamb's waves.
The ИДУ-2 (IDTs-2) defectoscope used for this purpose is able to detect

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New methods and instruments for ...

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both the faults inside the metal and on the inner and outer tube surface. C. Immersion - ultrasonic thickness gauge ИТУ-3 (ИТТs-3). It operates without contact with the workpiece (tube) basing on the n-times reflected pulse. Partial immersion. D. The acoustic contact between radiator and workpiece is brought about by a jet of water. This method is suited for large-sized products (large-size sheets and tubes). Penetrating acoustic irradiation. E. Ultrasonic defectoscope УД-1 (ШД-1) for the automatic control of tires. The types under A - E are intended for control in series production, and thus have a closely specialized range of application. Ultrasonic pulse-contact method. F. Control of thick welded joints (up to 350 mm) (electric slag method) is performed by means of a УДУ-10 (UDTs-10) defectoscope operating with four frequencies. A neon lamp (12 kg weight) serves as an automatic signal lamp for it. Thicker welded joints caused the laboratory to examine the basic laws governing the propagation of ultrasonics. The result of these studies has been the УДУ-11 (UDTs-11) defectoscope which is able to control welded joints up to 500 mm thick, and detects defects of 3-5 mm. G. Original methods of controlling welded products by layers have been developed. H. A method of determining the magnitude of defects in

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New methods and instruments for ...

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forgings on the basis of the amplitude of the reflected signal has been worked out. I. Resonance - ultrasonic method. The respective control systems have been improved. The resonance-defectoscope thickness gauges YPT-5 (URT-5) and YPT-6 (URT-6) permit thickness to be read off a scale without diagrams nor computation devices. This is achieved by an additional measuring circuit with a straight-line frequency adjustable condenser. J. Various disturbances have been eliminated. K. Radioscopy with X- and gamma rays. Optimum conditions have been worked out for this process, and models of scintillation recorders of radiation have been developed. L. Both advantages and drawbacks of the gamma scintillation method have been examined. M. A special magnetic defectoscope (DKN-1) has been developed for the control of drive shafts and other large workpieces with the greatest possible mechanization of the process. Test models are used for controlling the cold-rolling process and pipes at the Novo-Kramatorskiy mashinostroitel'nyy zavod (Novo-Kramatorskiy Machine-building Works), and axles at the Novocherkasskiy elektrovoznyy zavod (Novocherkassk Electric Locomotive Works). N. A special magnetic transportable defectoscope ДМР-2 (DMP-2) which operates with magnetic powder defectoscope and serves for layer examination of defects deep

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New methods and instruments for ...

inside welded joints, has been developed. The device is produced in series at the Kishinevskiy zavod "Elektrotokoprivor" (Kishinev Works "Elektrotokoprivor"). O. A demagnetization apparatus has been developed, which removes the remanence of magnetism better than all systems used hitherto. P. A device has been worked out on the basis of the resonance method, which determines the tendency to intercrystallite corrosion in austenite steels using electromagnetic high-frequency methods ("vortex" methods). Q. Studies have been conducted concerning the use of high-frequency defectoscopy in the automatic quality control of non-ferromagnetic products, especially of tubes. R. The physical and technological bases of capillary methods of defectoscopy have been examined, and a capillary ultrasonic control method has been devised. It bases upon the action of intensive ultrasonic waves on a product dipped into a wetting liquid.

ASSOCIATION: (TsNIITMASH) Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya (Central Scientific Research Institute of Technology and Machine Building)

Card 4/4

1 10010-66 DT(a)/DT(c)/DT(v)/T/DT(x)/DT(z)/DT(3)/DTG(m) WW

ACC NO: AP300005 SOURCE CODE: UR/0026/65/000/000/0022/0002

AUTHORS: Rezhovsk, N. P.; Mavroy, A. V.; Korolev, I. N. 70
B

ORIG. NO.: 44 55 44 55 44 55

TITLE: Multichannel ultrasonic pulse flaw detector. (Class 42, No. 175701
Invented by Central Scientific Research Institute of Technology and Machine Build-
ing (Vsesoyuznyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya)

ORIG. JOURNAL: Svvesten' izobreteniy i tovarnykh znakov, no. 20, 1965, 82

TOPIC TAGS: flaw detection, ultrasonic flaw detector, pulse generator, magnetic core

ABSTRACT: This Author Certificate presents a multichannel ultrasonic pulse flaw detector. The device contains a generator and a receiver of ultrasonic oscillations and a number of search attachments switched alternately to the generator and receiver (see Fig. 1). In order to increase the accuracy of flaw detection by eliminating noise signals created by mechanical switching of the attachments, the switch is made in the form of a rotating T-shaped magnetic core, mounted on a shaft. The middle part of the core has fixed windings which are connected to the receiver and generator. The switch also has a number of five linear cores with windings connected to the search attachments. The fixed cores are on the path of motion of the moving core and serve for alternate connection of the corresponding attachment to the generator

Doc: 620.179.16.05

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ACC NO: AP5028505

and receiver. To synchronize the delivery of the pulses with the operation of the switch, the shaft of the switch has a pinion that triggers the generator at the instant that the maximum magnetic coupling of the search attachment with the generator and receiver is reached.

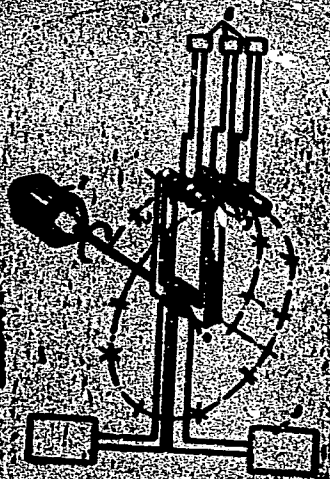


Fig. 1. 1 - Core; 2 - generator;
 3 - receiver; 4 - windings;
 5 - core, with windings;
 6 - Search attachments.

Scale: 1:1
 Date: 07/19/66
 No. 040464

AUTHOR: Abdeyev, M.A., Miller, O.G., Kubyshev, N.N. and
Matveyev, A.T. SCV/136-59-3-6/21

TITLE: Conversion of Lead Matte at the Ust'-Kamenogorsk Lead
Works (Konvertirovaniye vysokosvintsovistykh shteynov
na Ust'-Kamenogorskom svintsovom zavode)

PERIODICAL: Tsvetnyye Metally, 1959, Nr 3, pp 23 - 25 (USSR)

ABSTRACT: A method of obtaining copper is given from matte containing 18-24% Cu, 12-18% Pb, 24-30% Fe, 7-8% Zn, C.5-2.5% As, 0.5-0.8% Sb and 15-18% S. The main difficulty is the presence of lead in the matte. This is removed by an after-blow. During the afterblow, copper is also oxidised and passes into the slag. This is decreased by addition of coke which reduces the copper oxide and copper passes back from the slag. The lead sublimes. It is necessary to submerge the blast deeply for several minutes. Three operations are given. The first is used for small quantities of matte. 40 kg coke are used in the afterblow. Intensive removal of sulphur only begins when the blast is deeply submerged in the metal. 1.5 tons Cu is obtained with analysis:

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Conversion of Lead Matte at the Ust'-Kamenogorsk Lead Works

99.07% Cu, 0.2% Pb, 0.2% Zn and 0.2% Fe. The second and third operations yield 3-4.5 tons copper using a full 8-ton converter, the full reaction taking twelve hours. 50 kg coke is used and copper with an analysis of 98.18% Cu, 1.0% Pb, 0.2% Fe and traces of S is obtained. The slag from this reaction contains 18.8% Cu, 15.93% Pb, 24.3% Fe and 15% SiO₂.

There is 1 table.

ASSOCIATIONS: Altayskiy gorno-metallurgicheskiy institut (Altay Mining-metallurgical Institute) (Abdeyev, Miller)
Ust'-Kamenogorskiy svintsovo-tsinkovyy kombinat (Ust'-Kamenogorsk Lead-zinc Combine) (Kuzbyshev)
Irtyshtskiy medeplavil'nyy zavod (Irtysht Copper-smelting Works) (Matveyev)

Card2/2

ARTAMONOV, K.I.; LEBEDEV, N.I.; YERGALIXEV, E.Ye.; LEBECHKO, A.K.;
YAKUSHIN, M.V.; KAZAKOV, V.N.; BRYUKHANOV, N.G.; NIKITINA, L.I.;
KHVESYUK, F.I.; Prinsipal'nyye uchastnye: MATVEYEV, A.T.; KOVALEV, S.I.;
ROMANOV, V.S.; MARCHENKO, B.P.; ZUDOVA, T.I.; OMAROV, M.N.;
PECHENKIN, S.N.; LUKIN, Ye.G.; KHLUDKOV, V.I.

Shaft-furnace copper smelting with an oxygen-enriched blow.
TSvet. met. 34 no.3:32-39 Mr '61.

(MIRA 14:3)

1. Irtyshskiy polimetallicheskiy kombinat (for Artamonov, Lebedev,
Yergaliyev, Lesechko, Matveyev, Kovalev, Romanov, Marchenko, Zudova,
Omarov). 2. Vsesoyuznyy nauchnoissledovatel'skiy institut tsvetnykh
metallov (for Yakushin, Kazakov, Bryukhanov, Nikitina, Khvesyuk,
Pechenkin, Lukin, Khludkov).
(Copper—Metallurgy) (Oxygen—Industrial applications)

YAKUSHIN, M.V.; BRYUKHANOV, N.G.; KAZAKOV, V.N.; NIKITINA, L.I.;
KHVESYUK, P.I.; PECHENKIN, S.N.; ARTAMONOV, K.I.; LEBEDEV, N.I.;
MATVEYEV, A.T.; KOVALEV, S.I.

Converter treatment of complex metal mattes with an oxygen
enriched blow. TSvet.met. 34 no.10:34-39 0 '51. (MIRA 14:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tsvetnykh metallov
(for Yakushin, Bryukhanov, Kazakov, Nikitina, Khvesyuk, Pechenkin).
2. Irtyshskiy polimetallicheskiy kombinat (for Artamonov, Lebedev,
Matveyev, Kovalev).
(Nonferrous metals—Metallurgy) (Converters)