SERGIYENKO, S. Ya.: Master Med Sci (diss) -- "PASK in treating polyotomular dis-
eases of the eyes in connection with metabolic reactions". Tashkent, 1958.
17 pp (Tashkent State Med Inst), 220 copies (KL, No 13, 1959, 113)

SERGIYENKO, T.A.; KAZARNOVSKIY, L.S.

Phytochemical study of Acinos thymoides moench. Apt.delo 14
no.2:31-33 Mr-Ap '65.
(MIRA 19:1)

1. Khar'kovskiy farmatsevticheskiy institut. Submitted
February 14, 1964.

VIROZUB, I.D.;SERGIYENKO, T.M.

Method of progressive increase of intracranial pressure in continuous experiment in animals. Vopr. neirokhir. 16 no.6:50-52 Nov-Dec 1952.
(CLML 23:4)

1. Senior Scientific Associates. 2. Of the Scientific-Research Institute of Neurosurgery (Director -- Prof. A. I. Arutyunov) of the of the Ministry of Public Health Ukrainian SSR.

SERGIYENKO, T. M.

"Investigation of the Dynamics of the Cerebrospinal Fluid in the Diagnosis of Tumors of the Spinal Chord." Cand Med Sci, Sci-Res Inst of Neurosurgery, Ministry of Health Ukrainian SSR, Kiev, 1953. (RZhBiol, No 8, Dec 54)

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

SERGIYENKO, T.M.

Technic of pneumoencephalography. Vop. neirokhir. 18 no.3:57-59
My-Je '54.   (MLRA 7:8)

1. Iz Nauchno-issledovatel'skogo instituta neyrokhirurgii
Ministerstva zdravookhraneniya USSR.
      (BRAIN, radiography,
          *pneumoencephalography, technic)

SERGIYENKO, T.M.; MIKHAYLOVSKIY, V.S.

Dynamics of the cerebrospinal fluid in cerebrocranial injury.
Vop.neirokhir. 19 no.2:33-39 Mr-Ap '55.   (MLRA 8:7)

1. Iz Instituta neyrokhirurgii Ministerstva zdravookhraneniya.
   (CEREBROSPINAL FLUID, in various diseases,
       head inj.)
   (HEAD, wounds and injuries,
       CSF in)

SERGIYENKO, T.M.;MIKHAYLOVSKIY, V.S.

Technic of kymographic registration of fluctuations of the cere
brospinal fluid. Vop.neirokhir.19 no.4;18-20 Jl-Ag '55 (MLRA 8:10)

1. Iz Instituta neyrokhirurgii Ministersta zdravookhraneniya USSR.
(KYMOGRAPHY,
of CSF dynamics)
(CEREBROSPINAL FLUID,
dynamics, kymography)

SERGIYENKO, T.M., kandidat meditsinskikh nauk

Method of increasing intracranial pressure under chronic experimental
conditions. Vop.neirokhir. 20 no.6:53-54 N-D '56.   (MIRA 10:2)
        (CEREBROSPINAL FLUID,
            increase of intracranial pressure in animals (Rus))

USSR , Human and Animal Phys.— ...
Nervous System.

Abs Jour   : Rof Zhur - Biologiya, No 13, 1958, No. 60791

Author   : Sorgiyonko, T. M.; Zozulya, L. N.; Prikhodchonko, I. A.
Inst   : Not givon
Titlc   : Tho Blood Vessol State and Roactivity in the Dynamics
             of Intracranial Hopertcnsion Roflected in tho Fluid
             Prossure and Ophthalmoscopy

Orig Pub   : V sb.: Probl. noyrokhirurgii. T. Z. Kiov, Gosmodizdat
             USSR, 1957, 253-264

Abstract   : No abstract givon

Card 1/1

148

KVITNITSKIY-RYZHOV, Yu.N. [Kvitnyts'kyi-Ryzhov, IU.M.]; MESTECHKINA, A.Ya.
[Miestechkina, A.IA.]; SERGIYENKO, T.M. [Serhiienko, T.M.]

Liquor pressure and the edema and swelling of the brain in experi-
ments with increasing intracranial hypertension attended with
inflammatory complications. Fiziol. zhur. [Ukr.] 7 no.1:101-106
Ja-F '61.   (MIRA 14:1)

1. Ukrainian Research Institute of Neurosurgery, Kiev.
           (BRAIN—DISEASES)   (HYPERTENSION)
                      (EDEMA)

GOLUYA, Yu... SERGIYENKO, T.M.

Clinical and experimental study of cerebral circulation in the dynamics of intracranial hypertension. Zhur. eksp. i klin. med. 4 no.2:55-58 '64.   (MIRA 17:8)

1. Ukrainskiy nauchno-issledovatel'skiy institut neyrokhirurgii.

L 63529-65   EPF(n)-2/EПT(m)/EWP(b)/EWP(t)   Pu-4   IJP(c)   WW/JD/JG
ACCESSION NR: AP5016347   UR/0149/65/000/002/0096/0100
                                                          669.293

AUTHOR: Sorokin, I. P.; Kol'tsov, Yu. I.; Sergiyenko, T. V.; Petrik, L. S.

TITLE: Recovery of niobium from bulk zirconium-pyrochlore concentrates

SOURCE: IVUZ. Tsvetnaya metallurgiya, no. 2, 1965, 96-100

TOPIC TAGS: niobium, zirconium, pyrochlore, ore treatment

ABSTRACT: For the utilization of abundant zirconium-pyrochlore ores, four chemical separation processes were investigated, namely, sulfuric acid leaching of concentrates, sulfatization, leaching of concentrates with hydrofluoric acid, and low-temperature chlorination. The bulk concentrates used were obtained by flotation and contained 5-7% $Nb_2O_5 + Ta_2O_5$ and 12-40% ZrO_2. In sulfuric acid leaching, maximum recovery of niobium was 94.3%, achieved in one hour with a high concentration and high consumption of the acid. In the second process involving leaching of niobium sulfate from the cake produced by heating a mixture of concentrate and sulfuric acid, maximum niobium recovery was 93.5-93.9% at acid: concentrate ratios of 1.46-1.52. In the decomposition of rich pyrochlore concentrates with hydrofluoric acid, the

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L 63529-65
ACCESSION NR: AP5016347   /

acid concentration was varied from 5 to 40% and temperature from 20 to 70°C. Opti-
mum recovery of niobium--99%--was obtained by heating the comminuted concentrate
with a 15% hydrofluoric acid solution at 70°C for one hour. In the final process,
poor zirconium-pyrochlore concentrates were briquetted with 14-20% carbon and
chlorinated in a quartz tube at temperatures between 400 and 800°C. Maximum recovery
of niobium--98%--in chlorides was obtained at a temperature of 600°C. Process time
was 4 hours and chlorine consumption was 5 liters per hour. At the same time, zir-
conium recovery increased with the temperature. Chlorides obtained in this process
may be hydrolyzed to yield niobium concentrates or utilized for extrusion of metal
niobium after appropriate purification. Orig. art. has: 2 tables.

ASSOCIATION: Ukrgiprotsvetmet

SUBMITTED: 21Oct63   ENCL: 00   SUB CODE: MM,GC

NO REF SOV: 004   OTHER: 001

Card 2/2

SHEGIYENKO, V., yefreytor.

Benchboard adapter. Voen. aviaz. 16 no.1:   Ja '58.   (MIRA 11:2)
                    (Radio--Equipment and supplies)

SERGIYENKO, V. [Serhiienko, V.]

     Future is built today. Znan. ta pratsia no.4:20 Ap '60.

                                                (MIRA 14:12)

           (Bibliography—Science)

GOLYSHEV, Leonid Sergeyevich; SERGIYENKO, Vasiliǐ Anisimovich

    [Mechanized cultivation of cotton grown in checkrows] Mekhanizatsiia
obrabotki kvadratno-gnezdovykh posevov khlopchatnika. Tashkent, Gos.
izd-vo Uzbek SSR, 1955. 50 p.   (MLRA 10:1)
      (Cotton growing)

SERGIYENKO, V.A.

RUDAKOV, G.M., inzhener; SERGIYENKO, V.A., inzhener.

Dynamometric device for testing the operating parts of cultiva-
tors and drills. Sel'khozmashina no.1:21-23 Ja '55.   (MLRA 8:3)

1. Sredne-Aziatskiy n.-i. institut mekhanizatsii i elektrofikatsii
oroshayemogo zemledeliya (SAIME).
        (Dynamometer)(Agricultural machinery—Testing)

SERGIYENKO, V. A. Cand Tech Sci -- (diss) "Study of the ~~stirring-up~~ claws
of cotton cultivators." Tashkent, 1959. 22 pp (Uzbek Acad Agr Sci. Tashkent
Inst of Engineers of Irrigation and Mechanization of Agriculture TNIIMSKh),
150 copies (KL, 45-59, 147)

SERGIYENKO, Vasiliy Anisimovich; SAVIN, Petr Ivanovich;
    NURIDDINOV, M., red.

    [Mechanization of vegetable and potato growing] Sab-
    zavot va kartoshka etishtirish ishlarini mekhanizatsiialash.
    Toshkent, Uzdavnashr, 1963. 53 p. [In Uzbek]
                                        (MIRA 17:9)

KOSOV, A.P.; MAGAY, L.I.; NIKULEN, B.K.; PAK, M.S.; RUDAKOV, G.M.;
    SAYFI, E.Kh.; SERGIYENKO, V.A.; SOKOLOV, F.A.; SPIRIDONOV,
    P.V.; SHPOLYANSKIY, D.M.; TIKHONOVA, I., red.

[Overall mechanization and cultivation practices for cotton
crops] Kompleksnaia mekhanizatsiia i agrotekhnika khlop-
chatnika. Tashkent, Gos.izd-vo Uzbekskoi SSR, 1964. 407 p.
                                         (MIRA 17:11)
1. Sredneaziatskiy institut mekhanizatsii i elektrifikatsii
sel'skogo khozyaystva. 2. Sredneaziatskiy institut mekhani-
zatsii i elektrifikatsii sel'skogo khozyaystva (for all
except Tikhonova).

PA76T20

SERGIYENKO, V. A.

USSR/Engineering   Apr 1948
    Machines, Milling
    Tools, Cutting

"Round Broaches for Progressive Milling," V. A.
Sergiyenko, 1 p

"Stanki i Instrument" No 4

Discusses methods employed at the UralMashZavod for
broaching holes up to 310 mm in diameter. This is
the largest diameter used in machine construction in
the USSR.

                                                    76T20

SERGIYENKO, VASILIY ALEKSANDROVICH

N/E
732.003
.S4

Protyagivaniye (Metal drawing, by) V. A. Sergiyenko   K. P. Nezabytovskiy.
Moskva, Mashgiz, 1952-

v. diagrs.

Lib. has: 1952
           1955 (2d ed)

SPRYGIN, V.V.

Broaching machines

Calibrating grooved broaches. Stan. i instr. 23, No. 1, 1952.

Monthly List of Russian Accessions, Library of Congress, May 1952. UNCLASSIFIED

_____, V.A.

Broaching Machines

Hollow shortened broach,Stan. i instr./ No. 2, 1952.
                              23

Monthly List of Russian Accessions, Library of Congress, June 1952. UNCLASSIFIED

1. I. A. SERGIENKO

2. USSR (600)

4. Broaching Machines

7. Use of broaching in heavy machine building. (From the experience of the Ural Machine Building Plant). Vest. mash. 32 no. 11. 1952.

9. Monthly List of Russian Accessions, Library of Congress, _____April_____ 1953, Uncl.

SERGIYENKO, V. A.

USSR/Miscellaneous - Machine parts

Card 1/1   Pub. 103 - 12/22

Authors   : Sergienko, V. A.

Title   : Mandrels for hole boring

Periodical : Stan. i instr. 12, page 27, Dec 1954

Abstract   : The introduction into industry of a universal boring bar (mandrel), for the
              boring of cylindrical holes with diameters ranging from 140 to 250 mm, and
              boring annular cavities in holes is announced. A simple boring bar for
              boring holes, with a micrometric cutter feeding, is shown. The economical
              advantages (higher productivity and reduced waste), are listed. Drawings.

Institution : ....

Submitted   : ....

SERGIYENKO, V. A.

USSR/Engineering - Machine tools

Card 1/1   Pub. 103 - 17/29

Authors   : Sergienko, V. A.

Title   : The assembly calibration broach

Periodical   : Stan. i instr. 25/10, 31-32, Oct 1954

Abstract   : A general description is given of a new type calibration broach produced
                by the "Ural Machine Construction Factory". Drawings.

Institution : ...

Submitted   : ...

SERGIYENKO, Vasiliy Aleksandrovich; NEZABYTOVSKIY, Konstantin Pavlovich;
SHAKHRAY, M.L., professor, retsenzent; SHABASHOV, S.P., kandidat
tekhnicheskikh nauk, redaktor; DUGINA, N.A., tekhnicheskiy re-
daktor.

[Metal drawing] Protiagivanie. Izd.2-oe, perer. i dop. lit-ry,
1955. 162 p.   (MIRA 9:2)
                        (Metal drawing)

SERGIYENKO, V.A.

Broaching large slot holes. Vest. mash. 36 no.9:44-47 S '56.
(MLRA 9:10)

(Broaching machines)

SERGIYENKO, V.A.

Using broaches in piece production. Sbor.st.UZTM no.7:128-148
'58.
            (Broaching machines)   (MIRA 12:6)

ARKHIPOVA, A.P.; IGON'KINA, G.S.; SERGIYENKO, V.A.

Road emulsions under arctic-region conditions. Avt.dor. 25
no.11:10-12 N '62.   (MIRA 15:12)
                    (Road materials)

MALEV, V. A.

Latyshev, G. D.; Barshuk, I. F.; Ioffe, Yu. K.; Malev, V. A.; Sergiyenko, V. A.; Mbr., G. D. Latyshev's Lab., Leningrad Physico-Technical Inst., Dept. Physico-Math. Sci., Acad. Sci., -c1949-. "Multiplet Nature of the Gamma-Lines of RaC'," Iz. Ak. Nauk SSR, Ser. Fiz., 13, No. 4, 1949; "Spectrum of Position of Internal Conversion Corresponding to the Transition 1414 keV in RaC'," ibid.; "Spectrum of the Electrons of Internal Conversion from an Ampoule Full of Radium Emanation (Radon)," ibid.; "The Fine Structure of the Gamma-Lines of RaC,'" ibid.

*Co-authors.

SERGIYENKO, V.A

USSR

Analysis of indophenols by titration with ascorbic acid. B. I. Stepanov and V. A. Sergienko. *Trudy Komissii Anal. Khim., Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 5(8), 274–8(1951).—Ascorbic acid (I) reduces indophenols slowly but air oxidizes them again. Most of the I is added rapidly to the sample, the soln. allowed to stand 10–15 min. with periodic shaking, and then the titration finished in 1–2 min. with energetic shaking of the sample. A preliminary titration is necessary to find how much I to add in the first addn. Inert gas atm. is not needed. I soln. is prepd. by dissolving a weighed amt. in 2% H_2SO_4 which has been prepd. from boiled H_2O. This soln. is standardized with KIO_3 and keeps 1–2 days. if pure I is used the standardization is omitted. One mole I reduces 1 mol. indophenol. E.g., 0.0458 g. of paste of the indophenol of isotoluidine and p-nitrosophenol is dissolved in alc. and dild. to 100 ml. A 2.5-ml. aliquot is dild. with 20 ml. alc. and titrated with 0.001M I. Most of the I (the amt. estd. from previous titration) is added and the sample allowed to stand 10–12 min. Titration is then continued dropwise with shaking to decolorization of soln. This last titration takes 1–1.5 min. This sample required 1.00 ml. I which calcd. to 35.2% indophenol. Plant samples of 7 indophenol pastes were analyzed by Mohr salt titration and by the above method. Typical results were 22.7, 22.1% by Mohr salt, 22.5, 22.3% by I titration.

Nurilla Mayerle

(1)

120-4-2/35

AUTHOR: Sergiyenko, V.A.

TITLE: Increase of the Aperture Power of a Lens Spectrometer by a Transverse Magnetic Field (Uvelicheniye svetosily linzovogo spektrometra poperechnym magnitnym polem)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1957, No.4, pp. 13-15 (USSR)

ABSTRACT: The results of experiments designed to increase the aperture power of a magnetic lens β-spectrometer by using an auxiliary toroidal magnetic field are described. By aperture power is meant the ratio of the mono-energy electrons registered by the counter to the total number of electrons emitted from the source when the counter window is equal to the image, assuming isotopical emission. The form of the auxiliary field is found experimentally. The aperture power is increased 3 times without worsening the resolution. The half-width of the line for an $8°$ divergence angle of the electron beam is 3.4%.
The basic characteristics of the spectrometer were nearly the same as in a previous work (Ref.1). The distance of the 5 mm source from the counter was 125 cm. A magnetic lens of length 30 cm was situated between the source and the counter. The maximum divergence angle was $8°$ (between angles of

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Increase of the Aperture Power of a Lens Spectrometer by a Trans-   120-4-2/35
verse Magnetic Field.

emission 13 to 5° with respect to the spectrometer axis).
Two diaphragms which restrict the beam were placed in the
trajectory of the electrons at distances of 48 and 80 cm. from
the source. The correcting action of the auxiliary cross
magnetic field on the focussing was studied for divergence
angles of 2, 4, 6 and 8° and with counter windows of 3 to
12 mm dia. The current strength in the correcting coil was
changed proportionally to the current in the lens. The
conversion FThB line was studied for each divergence and for
different windows. The half-width and shape of the conversion
line and also the number of counts per min. at its maximum for
different current strengths in the correcting coil were
investigated and are presented graphically.
The directional properties of correcting systems of trapezoidal
and triangular forms were studied. Best results were obtained
with a system consisting of 16 flat, triangular coils of
height 12 cm and 17 cm base, having 25 turns. The windings
were disposed with their vertices to the axis and placed
36 cm from the source. With a 17:1 ratio of the ampere-turns
Card2/3 of the lens to the ampere-turns of the correcting system, the

Increase of the Aperture Power of a Lens Spectrometer by a Trans-   120-4-2/35
verse Magnetic Field.

shape of the line was not distorted up to angles of divergence of $8°$. The aperture power for this angle of divergence was 2% of the total solid angle.

There are 4 figures and 2 references, 1 of which is Slavic.

ASSOCIATION: Leningrad State University im. A.A. Zhdanov
              (Leningradskiy gosudarstvennyy universitet
              im. A.A. Zhdanova)

SUBMITTED: December 7, 1956.

AVAILABLE: Library of Congress.
Card 3/3

SOV-120-58-1-18/43

An Amplifier with Compound Correction for the Recording of Coincidences.

50 Mc/s while the resolving power of the coincidence apparatus was equal to $2\tau = 6 \times 10^{-8}$ sec. The frequency characteristics of channels I and II of the amplifier are shown in Fig.2. They are almost identical and reasonably flat between about 6 Mc/s and 56 Mc/s. 6Zh4 valves were used throughout. The efficiency of the coincidence scheme for electrons with energy > 200 KeV was 90 to 95%. As an example, the partial spectrum of ThB and its Kurie plot is shown in Fig.4. The spectral characteristics of this substance obtained using this apparatus are found to be in good agreement with those quoted in Refs.5 and 6. There

Card 2/3

SOV-120-58-1-18/43

An Amplifier with Compound Correction for the Recording of
Coincidences.

　　　are 4 figures and 6 references, of which 4 are Soviet, 1 is
　　　Swedish and 1 is English.
ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad
　　　State University)
SUBMITTED: April 17, 1957.

　　　1. Coincidence counting--Equipment   2. Amplifiers--Design
　　　3. Amplifiers--Performance　4. Beta ray spectrum analyzers--Performance
　　　5. Radioisotopes--Radioactivity

Card 3/3

AUTHOR: Sergiyenko, V. A.   54-1-16/17

TITLE: On Adjusting the Field of a Magnetic Lens Spectrometer by
             Means of a Longitudinal Magnetic Field (O korrektsii
             polya magnitno-linzovogo spektrometra prodol'nym
             magnitnym polem)

PERIODICAL: Vestnik Leningradskogo Universiteta Seriya Fiziki i
             Khimii (Nr 1), 1958, Nr 4,

ABSTRACT: Beta-spectrometer with a non-homogeneous longitudinal magnetic
             field are frequently used in nuclear spectroscopy. They have
             a good aperture ratio, but only a low resolving power. This
             is connected with a strong spherical aberration. As much
             interest is displayed in the adjustment of the field of
             lens spectrometers, and in accordance with the works
             mentioned (Refs. 4 and 5) the author subjected the magnetic
             field of the lens and its adjusting effect on the focusing
             of electrons in the lens spectrometer to a close investi -
             gation. He investigated the exterior field and its correlation
             effect by means of 2 coils, one having a rectangular and the
Card 1/3   other a cigar-shaped winding. The coils had a length of 30 cm

On Adjusting the Field of a Magnetic Lens Spectrometer by   54-1-16/17
Means of a Longitudinal Magnetic Field

and their average diameter was 8 cm. Investigation was
carried out on the spectrometer which is described by ref.2
(fig.1). When the present work was completed, the article
by Ya. H. Caziyev, K. P. Mitrofanov and V. S. Shpinel' (Ref.7)
was published. It describes further improvements of the
focusing properties of the two-lens spectrometer. The author
thanks professor B.S. Dzhelepov, A. A. Bashilov and I. H.
Rogachev for their valuable advice and N.K. Lyakhovich for
the production of adjustment coils. Electron trajectories
were calculated in the longitudinal fields of the lens and
coils; the overlapping of the longitudinal field of the
cigar-shaped coil decreases the aberration of the magnetic
lens by about three-fold. The experimental investigation of
the adjusting effect of the additional field, which has been
carried out, shows that the inside coils deteriorate the
focusing of the electrons on the axis of the spectrometer;
the half-breadth of the conversion line increases. The
defocusing effect is due to the action of the radial compo-
nent of the magnetic field of the coils. In the course of

Card 2/3   the further investigation of the effect of the coil field

On Adjusting the Field of a Magnetic Lens Spectrometer by   54-1-16/17
Means of a Longitudinal Magnetic Field

> on the focusing of the electrons in the lens spectrometer
> it is necessary to apply the diaphragms in the field of
> the ring focus. There are 4 figures and 7 references,
> 5 of which are Slavic.

SUBMITTED: June 1, 1957

AVAILABLE: Library of Congress

                  1. Nuclear spectroscopy

Card 3/3

48-22-2-13/17

AUTHOR: Sergiyenko, V. A.

TITLE: A Double Magnetic Lense Spectrometer With Improved Focalization
               for Coincidence Registration (Sdvoyennyy magnitnolinzovyy
               spektrometr s uluchshennoy fokusirovkoy dlya registratsii
               sovpadeniy)

PERIODICAL: Izvestiya Akademii Nauk SSSR,Seriya Fizicheskaya, 1958,
               Vol. 22, Nr 2, pp. 198 - 207 (USSR)

ABSTRACT: This spectrometer was designed according to the theory by
               T. R. Gerholm (Chair for Nuclear Spectroscopy, Leningrad
               University) and it is destined to investigate the coincidences
               (true or random) of the β-e and e-e radiation. In the chapter:
               General description of the spectrometer it is described as
               follows: Two symmetrically mounted spectrometers have a com-
               mon vacuum chamber with a length of 240 cm and a diameter of
               25 cm. A special appliance permits to insert the radiation
               source into the chamber without disturbing the vacuum. The
               distance between the counters and the source amounts to 124 cm.
               Each lens has a length of 30 cm and possesses 10^4 windings of
               a wire 1,8 mm in diameter. According to the given scheme the

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48-22-2-13/17

A Double Magnetic Lense Spectrometer With Improved Focalization for Coincidence Registration

spectrometer consists of the following parts: The source, two magnetic lenses, 2 correction windings, two compensation windings, two "ФЭУ ", two crystals and a shutter device. In the chapter: The scintillation counter, such an apparatus is described together with the photomultiplier of the type "ФЭУ-19". Stilben is here used as luminophor. "ФЭУ -19" together with the stilben crystal are here mounted in the vacuum. This construction of the scintillation counter permits to record low-energy electrons (from 5 keV up) with the spectrometer. In the chapter: The recording system, the apparatus is described which records the cases of coincidence in the spectrometer. In the chapter: The calibration of the spectrometer, it is stated that in the investigation of the β-e- and e-e coincidences from radioactive isotopes with the help of a double spectrometer the ratio between β-γ- and γ-γ transitions can be regarded as being determined, if the condition $N_{real}/N_{random} > 1$ is satisfied. Otherwise the ratio must be considered probable. For the double coincidences in a double spectrometer the limiting values of the relative intensity of the β-e- and e-e decay chains must be taken

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40-22-2-13/17

A Double Magnetic Lense Spectrometer With Improved Focalization for Coin-
cidence Registration

for computation these limiting values representing the limit, where the $\beta-\beta-$ and $\gamma-\gamma$ chains can still be investigated. In connection with this an investigation of the most intensive decay chains of the isotopes ThB, Au^{198} and Ce^{141} as well as of the coincidences between several γ-transmutation conversions in the decay of Yb^{169} was conducted. On the basis of these investigations it was concluded that with the help of the described spectrometer it is possible 1) to investigate the $\beta-e$ decay chains, the relative intensity of which is not below 10^{-3} at an energy limit of the β-spectrum of from 0.5+ + 1 MeV and 2) to investigate the e-e decay chains, the intensity of which is not below 10^{-5}. The spectrometer was designed by B. S. Dzherelov. Constructional computations were performed by P. A. Tishkin. G. S. Kvarter assisted in the starting of the apparatus. There are 11 figures and 35 references, 7 of which are Soviet.

ASSOCIATION: Fizicheskiy institut Leningradskogo gos. universiteta im. A. A. Zhdanova (Physics Institute, Leningrad State University imeni A. A. Zhdanov)

AVALLABLE: Library of Congress
Card 3/3

1. Spectrometer-Characteristics

SOV/48-22-7-5/26

AUTHORS: Dzhelepov, B. S., Preobrazhenskiy, B. K., Sergiyenko, V. A.

TITLE: Conversion Electron Coincidence in the Decay of $Tb^{155} \rightarrow Gd^{155}$
(Sovpadeniya konversionnykh elektronov pri raspade
$Tb^{155} \rightarrow Gd^{155}$)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958,
Vol. 22, Nr 7, pp. 791-794 (USSR)

ABSTRACT: Tb^{155} was obtained by the irradiation of a tantalum target
with protons of an energy of 660 MeV. The irradiation lasted
for several hours. The chromatographic separation was car-
ried out 20-30 hours after irradiation. The coincidence was
investigated with the magnetic double-lens β-spectrometer
of the State University Leningrad (Ref 1). The investigation
was performed as follows: One half of the spectrometer re-
corded the K- and L-electrons from a certain γ-transition,
whereas the other half recorded the K- and L-lines of the
other transition. The experimental results compiled in a
table show the following: 1) A coincidence of the L-63 and
K-262 electrons. The line, which, pending final decision

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Conversion Electron Coincidence in the Decay of $Tb^{155} \longrightarrow Gd^{155}$

SOV/48-22-7-5/26

was denoted as L-63 consists of L-60,00, K-101 and K-105,32.
It is possible, however, that also L-57 and L-63, which are
generated in transitions, are contained in it. The total
number of coincidences of (L-63) (K-262) amounted to 123
pulses per hour. 22 of those were random pulses and 101
were true ones. The existence of coincidences of L-63 and
K-262 electrons is beyond doubt. The authors are of the
opinion that these coincidences are essentially connected
with the cascade of the γ-transitions with hν ~60 and 262 keV
in the nucleus of Gd^{155}. 2) Coincidences of L-63 and
K-(160 + 161 + 163) electrons. The existence of these coinci-
dences cannot be doubted. The following combinations could
take part in coincidences of this type: (L-60,0)(K-160,4),
(L-60,00)(K-161,5), (K-101)(K-161,5), (K-105,32)(K-161,5)
and (K-105,32)(K-160,4). The existence of these cascades is
also substantiated by the complicated character of the spectrum
of the coincidence of K-electrons originating from the
(160 + 161 + 163)-transitions and from the electrons of the
respective line. 3) Coincidence of the K-149- and K-(160+161+
+163)-electrons. The transitions with an energy of hν = 148,8

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Conversion Electron Coincidence in the Decay of $Tb^{155} \longrightarrow Gd^{155}$ SOV/48-22-7-5/26

and 164,4 keV have hitherto not been inserted in the decay-scheme of $Tb^{155} \longrightarrow Gd^{155}$. The coincidences (K-149) [K-(160+161+163)] can be brought into connection with the cascade of the 148,4- and 162,4 keV transitions.
4) Coincidences of the K-(180+181,4)- and (L+M)-87, K-149, K-(160+161+163) electrons. The existence of coincidences of K-(180+181,4) and (L+M)-87 and of K-(180+181,4) and K-(160+161+163) is beyond doubt. That of K-(180+181,4) and K-149 can be assumed. There are 4 figures, 1 table, and 6 references, 4 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy fizicheskiy institut Leningradskogo gos. universiteta im. A. A. Zhdanova
(Scientific Research Institute of Physics at the Leningrad State University imeni A. A. Zhdanov)

Card 3/3

AUTHORS: Izmailov, F. ..., ..ebrannikov, A. ...., Sergeyenko, ...

TITLE: Coincidence of ... ...ion electrons in the ...cay of Lu^{173}
(Sovpadeniya ... Konversionnat elektronai pri raspade Lu^{173}
... determination of the ...-gamma ... Lu$^{173} \longrightarrow$ Yb^{173}
(Utochnenye ... ... Lu$^{173} \longrightarrow$ Yb^{173})

PERIODICAL: Izvestiya Akademii nauk ..., Seriya fizicheskaya, 1958,
Vol. 22, Nr 7, pp. 793-800 ...

ABSTRACT: Coincidences between some conversion transitions in Yb^{173}
were found by means of a double-lens spectrometer (Ref 1).
Yb^{173} is produced in the decay of Lu^{173} ($T \approx 170$ days). The
evidence obtained permits a precise determination of the de-
cay scheme of Lu$^{173} \longrightarrow$ Yb^{173}. In the first chapter the ex-
perimental results and a qualitative analysis are given. The
Lu^{173} preparation was received about one year after the lu-
tetium fraction had been chromatographically separated from
the tantalum target, which was irradiated with 660 MeV pro-
tons. Short-lived Lu-isotopes were lacking. Experimental re-
sults: 1) Coincidences (Yb,Yb ... ...) exist without doubt. In

Card 1/5

Coincidence of Conversion Electrons in the Decay of Lu^{177}. Precise De-
termination of the Decay-Scheme Lu^{177} ⟶ Hf^{177}

order to know this, the composition of the lines K-100,7 +
+ K - LL must be known. This problem is the subject of
chapter 2. The proportion of intensity taken by the K-LL
electrons is about twice as high as that of the K-LL line.
The proportion of K-100,7 is about 1/3 of the intensity of
the (L-100,7 + L-LL line. The small number of coincidences
of (L-78,7)(K-78,7) and (L-78,7)(L-78,7) indicate the degree
of admixed K-100,7 + K-LL to the line L-78,7 and of admixed
K-LL to the line L-78,7. 3) The coincidences (L-77,5)(K-78,7)
are also established to exist. The transition at 77,5 keV
is arranged in a cascade with the transition at 78,7 keV.
4) The coincidences (K-77,5)(K-LL) are clearly distinguishable.
5) The coincidences (K-78,7)(L-100,7) and (K-272,5)(L-100,7)
apparently do not exist. 6) The coincidences (K-171,4)(K-78,7)
exist. They are, however, not numerous. The number of co-
incidences (L-171,4)(L-100,7+L-LL), however, is higher by
five times. In the second quarter the precisely determined
scheme of the decay of Lu^{177} is given. In this new scheme the
transition at (272,5-78,7=)(351,? keV is introduced. The
Thus, a new level (?-272,5-78,7=)351,? keV

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SOV/48-22-7-6/26

Coincidence of Conversion Electrons in the Decay of Lu^{173}. Precise De-
termination of the Decay-Scheme Lu$^{173} \longrightarrow$ Yb^{173}

level of 351,2 keV is not in the rotation band of the ground
state and apparently is a one-particle level.(In this
range the vibration levels are higher). In the third chapter
the quantal characteristics of the excited states of Yb^{173}
are investigated. The type of the third level at $E = 351,2$ keV
was still open to question. Evidence is furnished showing
that it must be of a 7/2^{+}-type. Even if deviations from
theory of three orders of magnitude are assumed to exist,
the uniqueness of the conclusions is not diminished.
In chapter 4 the relative probabilities of the transitions
in the decay of Lu^{173} are precised.
The 5th section deals with an investigation of the relative
intensity of capture at the different levels of Yb^{173}. It
is shown that the quantal characteristics of the ground
state of Lu^{173} coincide with that of the excited state of
Yb^{173} at an energy of 351,2 keV. The transition between these
two levels must be a permitted one. From parity considerations
it appears that the transitions to all lower levels of Yb^{173}

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Coincidence of Conversion Electrons in the Decay of Lu^{173}. Precise De-
termination of the Decay-Scheme $Lu^{173} \longrightarrow Yb^{173}$

SOV/48-22-7-6/26

are forbidden. Among these, the transition to the $7/2^-$ level
is the most probable one.
The quantitative analysis of the $e^- - e^-$ coincidences in the
decay of $Lu^{173} \longrightarrow Yb^{173}$ is the subject of the 6th section. Based
upon a comparison of the experimental and the computed co-
incidence rate the following is stated: 1) The experimental
coincidence rate differs from the computed one by a factor
of 7 - 9, if the K-78,7 line comes in in the measurements.
This is probably due to the fact that the K-78,7 line, being
the weakest one in the spectrum of conversion electrons,
is not recorded by the coincidence counter. 2) For coincidences
not connected with the K-78,7 line the experimental and the
theoretical values agree within a limit of ± 25 % with each
other. The second-year students of the State University Lenin-
grad, V. Bunakov and A. Myakusheva assisted in the coincidence
measurements.
A. N. Murin, G. M. Gorodinskiy and V. N. Pokrovskiy communi-
cated the results of the investigation of the γ-spectrum of
Lu^{173} to the authors previous to the publication of their

Card 4/5

SOV/48-22-7-6/26

Coincidence of Conversion Electrons in the Decay of Lu^{173}. Precise Determination of the Decay-Scheme $Lu^{173} \longrightarrow Yb^{173}$

paper. There are 7 figures, 7 tables, and 19 references, 6 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy fizicheskiy institut Leningradskogo gos. universiteta im. A. A. Zhdanova
(Scientific Research Institute of Physics at the Leningrad State University imeni A. A. Zhdanov)

Card 5/5

AUTHORS: Dzhepelov, B. S., Preobrazhenskiy, B. K.,   SOV/48-22-8-8/20
            Sergiyenko, V. A.

TITLE: Conversion Electron Coincidences in the Decay $Eu^{147} \rightarrow Sm^{147}$
            (Sovpadeniya konversionnykh elektronov pri raspade
            $Eu^{147} \rightarrow Sm^{147}$)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958,
            Vol. 22, Nr 8, pp. 945 - 948 (USSR)

ABSTRACT: The authors employed a double lens β-spectrometer (Ref 1)
            in the investigation of the coincidences between the conversion
            electrons produced in the decay $Eu^{147} \rightarrow Sm^{147}(T_{1/2} \sim 25$
            days). $Eu^{147} \rightarrow Sm^{147} \gamma$-transitions with energies of 121,0
            and 197,6 keV (Refs 2 - 4) were found in the $Eu^{147} \rightarrow Sm^{147}$ - decay.
            The transition with an energy of 80 keV which was found in
            the paper given by reference 3 and in the experiments could
            not be observed in this investigation. However, conversion
            lines with 76,3 keV were found (Ref 2). The spectrum of
            conversion electrons up to an electron energy of 200 keV
            was taken with one half on the spectrometer. The source
            was directed with its active side towards the spectrometer.

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Conversion Electron Coincidences in the Decay

$Eu^{147} \rightarrow Sm^{147}$

SOV/48-22-8-8/20

(Fig 1). The number of conversion lines, their position within the spectrum and their relative intensities agreed with the data presented by Gorodinskiy et al.(Ref 3). Because of an insufficient resolving power of the spectrometers the K and the (L + M) lines of the transition 76,3 keV did not stand out clearly. The L-line could not be recorded separately from the K-LL line of the Auger (Azhe) electrons and the (L + M) line could not be distinguished from the K-121,0 line. Coincidences were observed between the K-121,0 and K-197,6, the (L + M)-197,6 and (L + M)-121,0 electrons with the K-Auger electrons as well as the coincidences of the K-121,0 electrons through the slit in order to determine the (L + M) lines of the 76,3 keV transition. Besides, coincidences between the K-121,0 and the K-Auger electrons were recorded. The number of true coincidences varied between 3,5 and 179 pulses per minute^{-1}. The ratio of true and random coincidences was 9 : 1. The experimental results are compiled in a table and described (Figs 2,3). The data collected agree with the decay scheme of Eu^{147} (Ref 5). The authors acknowledge the

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Conversion Electron Coincidences in the ^{D}ecay   SOV/48-22-8-8/20
$Eu^{147} \rightarrow Sm^{147}$

interest shown by A.A.Bashilov. V.Bunakov and Yu.Zvol'skiy
assisted in the measurements. There are 3 figures, 1 table, and 5
references, 5 of which are Soviet.

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gos.universiteta im.A.A.Zhdanova (Scientific Research Institute
of Physics at the Leningrad State University imeni A.A.Zhdanov)

Card 3/3

AUTHORS: Dzhelepov, B. S., Preobrazhenskiy, B. K.,   SOV/48-22-8-9/2o
             Sergiyenko, V. A.

TITLE: Conversion Electron Coincidences in the Decay $Tu^{167} \rightarrow Er^{167}$
             (Sovpadeniya konversionnykh elektronov pri raspade
             $Tu^{167} \rightarrow Er^{167}$)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958,
             Vol. 22 , Nr 8, pp, 949 - 951 (USSR)

ABSTRACT: The authors investigated the conversion electron coincidences
             between the conversion transitions of the decay $Tu^{167} \rightarrow Er^{167}$
             ($T_{1/2} \sim$ 9,6 days) with a β-double spectrometer (Ref 1). Tu^{167}
             was obtained by bombarding a tantalum target with 600 keV
             protons. The neutron deficient Tu-isotopes were separated
             from the rare earth fractions in a chromatographic column.
             In the decay $Tu^{167} \rightarrow Er^{167}$ transitions with the following
             energies take place (Ref 2-4): 56,9 and 208,1 keV (average
             values according to references 2 and 4). The spectrum of
             the conversion electrons of Tu^{167} in the range to about 200
             keV was taken by one half of the spectrometer (Fig 1). The
             position of the lines and their relative intensities agree

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Conversion Electron Coincidences in the Decay   SOV/48-22-8-9/20

$Tu^{167} \longrightarrow Er^{167}$

with the spectrum given in reference 2. The coincidences between the conversion electrons of the transitions with $h\nu = 56,9$ and 208,1 keV and between those electrons and the Auger electrons from the K-series were examined by the authors. The results are compiled in the table and explained (Fig 2). The decay scheme $Tu^{167} \longrightarrow Er^{167}$ which was advocated in the references 2 and 3 (Fig 1) is substantiated by the experimental results. The authors express their gratitude to K.Ya.Gromov and to the students of the Leningrad State University, V.Bunakov and L.Popenko. There are 2 figures, 1 table, and 12 references, 6 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy fizicheskiy institut Leningradskogo gos.universiteta im.A.A.Zhdanova (Scientific Research Institute of Physics of the Leningrad State University imeni A.A.Zhdanov)

Card 2/3

Conversion Electron Coincidences in the Decay
$Tu^{167} \rightarrow Er^{167}$

SOV/48-22-8-9/2o

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PHASE I BOOK EXPLOITATION   SOV/2601

International Conference on the Peaceful Uses of Atomic Energy, 2d., Geneva, 1958

Trudy; Doklady sovetskikh uchenykh; Yadernaya fizika (Reports of Soviet Scientists; Nuclear Physics) Moscow, Atomizdat, 1959. 552 p. (Series: Its: Trudy, Vol. 1) 8,000 copies printed.

Eds. (Title page): A.I. Alikhanov, Academician; V.I. Veksler, Academician and I.A. Vinnikov, Candidate of Physical and Mathematical Sciences; Ed. of this volume: N.I. Bender; and D.F. Zaretskiy, Candidate of Physical and Mathematical Sciences; Ed. (Inside book): O.I. Emelyanj Tech. Ed.: Ya.S. Macel.

PURPOSE: This collection of articles is intended for scientific research workers and other persons interested in nuclear physics. The volume contains 43 papers presented by Soviet scientists at the Second Conference on Peaceful Uses of Atomic Energy, held in Geneva in September 1958.

COVERAGE: It is divided into two parts. Part I contains 17 papers dealing with plasma physics and controlled thermonuclear reactions, and Part II contains 26 papers on nuclear physics, including problems of particle acceleration and of cosmic ray physics. The first paper by I.A. Artsimovich presents a review of Soviet work on controlled thermonuclear reactions. The remaining papers in Part I deal with particular problems in this field.

...papers in Part II deal in detail with various problems in nuclear physics, such as the fission of heavy atoms and their isotopes, and with the study of nuclear radiation by means of artificial earth satellites and rockets, described in a paper by S.N. Vernov. The Russian-language edition of the proceedings of the conference is published in 16 volumes. The first 6 volumes contain all the papers presented by Soviet scientists as follows: Volume (1), Reactors; Volume (2), Reactors (Nuclear Physics); Volume (3), Reactors; Volume (4), Reactors geochemistry radio-chemistry (Nuclear Reactor and Reactor Metals), Volume (5), Reactor radiochemistry; radiochemistry (Chemistry of Radioelements and of Radiation Transformations)] Volume 5, Radiobiology; radiation medicine (Radiobiology Dosimetry)] Volume (6) Radioactivity; primarily isotope (Pro-duction and Use of Isotopes). The other 10 volumes contain selected papers presented at the Conference by non-Soviet scientists. In the present volume corresponding between the English and Russian language edition of the proceed-ings have been noted in "High Energy Pulsed Discharge"; Akhiezer, et al. "Non Trapping Plasma Oscillation", and Bogolyubov "Investigations of the Many-Body Problem". The serial numbers of reports 2300 and 2556 are renumbered 2556 in the English edition.

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Measurements of Cross Sections for Fast Neutrons (Report 2219)

21 (7), 21 (8)
AUTHOR: Rudakov, V. P.

TITLE: IX All-Union Conference on Nuclear Spectroscopy
(IX Vsesoyuznoye soveshchaniye po yadernoy spektroskopii)

PERIODICAL: Atomnaya energiya, 1959, Vol 7, Nr , pp 76-79 (USSR)

ABSTRACT: The IX All-Union Conference was held from January 26 to
February 2, 1959 at Khar'kov. More than 300 participants heard
100 lectures; the most important of which with the
following fields. Nuclear Theory. General problems of β-decay.
A. S. Davydov (MGU) Theoretical classification of low-energy
excited nuclear states. L. K. Peker reported on
oscillations of deformed nuclei. ...

Card 1/3

Card 3/3

.21(7)
                                       SOV/48-23-2-9/20

AUTHORS: Dzhelepov, B. S., Sergiyenko. V. A.

TITLE: Coincidences Between Conversion Electrons in the Gd^{146} and Gd^{151} Decay (Sovpadeniya mezhdu konversionnymi elektronami pri raspade Gd^{146} i Gd^{151})

ABSTRACT: The authors investigated the $Gd^{146} \rightarrow Eu^{146}$ and $Gd^{151} \rightarrow Eu^{151}$ decay, that is to say, they measured the intensity of coincidence between conversion electrons of the most intense lines. The results are listed in table 1 and illustrated in figures (Figs 2, 3). The coincidence of transitions 114.8 and 115.5 kev (coincidence AA) was found. It is unambiguous and is regarded as a "self-coincidence" of the electrons of line K(114.8+115.5). If both lines were separated, there would be only half the intensity. The authors proved the coincidence of the lines (K-114.8+K-115.5) and (LM-155+LM149.8Gd^{146}) on the basis of the coincidence of transition 155 kev with the transitions 114.8 and 115.5 (coincidence AC). Furthermore, the authors determined
Card 1/2   the coincidence of the lines LM(114.8+115.5)+K-115 and the

Coincidences Between Conversion Electrons in the Gd^{146} and Gd^{151} Decay   SOV/48-23-2-9/20

Auger electrons (K series) (coincidence BA). The components of
the A, B and C lines are given (Fig 1). The determination of
intensities of the individual components is only outlined.
The scheme of decay from Gd^{146} to Eu^{146} is given. All transi-
tions belong to the type M1. The sequences are 1^-, 2^-, 3^-, 4^-.
In the $Gd^{151} \longrightarrow Eu^{151}$ decay coincidence (L-21.7)(K-175) may
be regarded as proved. The authors thank A. A. Bashilov and B.K.
Preobrazhenskiy for the source, A. A. Bashilov also for
communication of his results. A. Andriyanova, Kh. Nasyrova,
Students of Alma Atinskiy gos. universitet (Alma Ata State
University) assisted in the coincidence measurements of
Gd^{146}, and A. V. Kudryavtseva in that of Gd^{151}. There are
6 figures, 2 tables and 9 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy fizicheskiy institut Leningradskogo
             gos. universiteta im. A. A. Zhdanova
             (Scientific Research Institute of Physics of Leningrad State
             University imeni A. A. Zhdanov)

Card 2/2

21(7)   SOV/48-23-2-1o/2o

AUTHORS: Dzhelepov, V. S., Preobrazhenskiy, B. K., Sergiyenko, V. A.

TITLE: Coincidences of Conversion Electrons in the Decay of Gd^{147}
            and Gd^{149} (Sovpadeniya mezhdu konversionnymi elektronami pri
            raspade Gd^{147} i Gd^{149})

ABSTRACT: The spectra of conversion electrons of a Gd fraction were
            recorded by means of a two-lens spectrometer up to electron
            energies of 350 kev (Fig 1). The results of investigation of
            the coincidence of conversion electrons produced in the decay
            of Gd^{147} and Gd^{149} are contained in a table and shown in fig-
            ures 2 and 3. The scheme of $Gd^{147} \longrightarrow Eu^{147}$ decay was determined
            from the coincidences of the lines K(396+370) and LM(396+370)
            with the K line (229 kev) and the scheme of
            $Gd^{149} \longrightarrow Eu^{149}$ decay in Gd^{149} from the coincidences
            (K-149.8)(K-346) and (K-149.8)(LM-346) (Fig 1). The authors
Card 1/2   thank N. M. Anton'yeva and A. A. Bashilov for interest in the

SOV/48-23-2-1o/2o

Coincidences of Conversion Electrons in the Decay of
Gd^{147} and Gd^{149}

paper. A. Andriyanova and Kh. Nasyrova, Students of the Alma-
Ata University, and V. Bunakov and I. Myznikov, Students of
the LGU, assisted in the measurements. There are 3 figures,
1 table, and 5 references, 4 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy fizicheskiy institut Leningradskogo
gos. universiteta im. A. A. Zhdanova
(Scientific Research Institute of Physics of Leningrad State
University imeni A. A. Zhdanov)

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21(7)

SOV/48-23-7-16/31

AUTHORS: Bunakov, V. Ye., Dzhelepov, B. S., Zvol'skiy, I., Sergiyenko, V.A.

TITLE: The Coincidences of the Conversion Electrons in the Decay $Se^{75} \longrightarrow As^{75}$ (Sovpadeniya konversionnykh elektronov pri raspade $Se^{75} \longrightarrow As^{75}$)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 7, pp 859-863 (USSR)

ABSTRACT: The authors investigated, by means of a lens-β-spectrometer, the coincidences of the conversion electrons of the above-mentioned decay, the isotope S^{75} being obtained by a (n, γ)-reaction in the irradiation of the enriched isotope Se^{74}. The decay of Se^{75} was investigated in a number of papers; the lines of the γ-spectrum and the coincidences are indicated. The spectrum, recorded by the spectrometer, of the conversion electrons of this decay is shown in figure 1, and is supplemented by the level scheme. The observed coincidences of conversion electrons are indicated, and it is ascertained that their relative number lies between 0.5 and 3. The coincidences of various lines recorded by the spectrometer are shown in

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The Coincidences of the Conversion Electrons   SOV/48-23-7-16/31

in the Decay $Se^{75} \longrightarrow As^{75}$

several diagrams, and the results are discussed in detail.
Finally, it is stated that the results obtained improve the
data of previous papers (Refs 3-5). The authors thank
A. V. Zolotavin for placing at their disposal the isotope Se^{75},
and mention L. Gorzhak, student of the LGU, who participated
in the measurements. There are 5 figures, 1 table, and
6 references, 3 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy fizicheskiy institut Leningradskogo
gos. universiteta im. A. A. Zhdanova (Scientific Research
Institute of Physics of the Leningrad State University imeni
A. A. Zhdanov)

Card 2/2

DZHELEPOV, B.S.; ZVOL'SKIY, I.; SERGIYENKO, V.A.

Coincidences between conversion electrons produced in the decay
of Ho^{160} $\rightarrow$ Dy^{160}. Izv.AN SSSR.Ser.fiz. 25 no.10:1228-1245 0
'61.
(MIRA 14:10)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova,
Ob"yedinennyy institut yadernykh issledovaniy.
(Holmium—Decay)   (Dysprosium—Decay)

DZHELEPOV, B.S.; ZVOL'SKIY, I.; NIKITIN, M.K.; SERGIYENKO, V.A.

Coincidences between conversion electrons of the dysprosium fraction.
Izv.AN SSSR.Ser.fiz. 25 no.10:1246-1255 O '61.   (MIRA 14:10)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova i
Ob"yedinennyy institut yadernykh issledovaniy.
       (Electrons--Spectra)   (Dysprosium--Decay)

S/048/62/026/002/005/032
B101/B102

AUTHORS: Dzhelepov, B. S., Zvol'skiy, I., Nikitin, M. K., and
             Sergiyenko, V. A.

TITLE: Coincidences between conversion electrons resulting from the
             Dy^{153} — Tb^{153} decay

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya,
             v. 26, no. 2, 1962, 202-204

TEXT: The coincidences between conversion electrons of the transitions of
80.84 + 82.48; 99.7, and 147.5 + 149.0 kev with Dy^{153} electrons of
170-230 and 173.6 kev were studied (Figs. 1, 2). The Dy fraction was
chromatographically separated from a tantalum target bombarded with
660-Mev protons. The sources contained Dy^{153} ($T_{1/2}$ = 6.4 hrs); Dy^{155}
(10 hrs); Dy^{157} (8 hrs); Dy^{159} (144 days); Tb^{153} (2.3 days); and Tb^{155}
(5 days). As the measurements with a double-lens beta-ray spectrometer
began 18 hrs after the irradiation of the Ta target and took about 15 hrs,
the short-lived Dy isotopes with A < 153 had already decayed. The Dy

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S/048/62/026/002/005/032
B101/B102

Coincidences between conversion...

preparation was precipitated onto a slightly aluminized collodion film. It is concluded from the experimental data that the 80.8-, 163.3-, and 253.3-kev levels excited in the Dy^{153} decay do exist in Tb^{153}. Ye. N. Rozhin, K. Ya. Gromov, and V. A. Khalkin are thanked for assistance. There are 3 figures, 1 table, and 5 Soviet references.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research). Leningradskiy gos. universitet im. A. A. Zhdanova (Leningrad State University imeni A. A. Zhdanov)

Fig. 1. Coincidences of $L80.84\ Dy^{153} + L82.48\ Dy^{153} + L83.01\ Dy^{157}$ electrons. Broken line: spectrum of conversion electrons, recorded by one half of the spectrometer. Continuous line: count rate of coincidences.

Legend: abscissa: $H\varrho$, oe cm. Ordinate: left: $N_{single} \cdot 10^{-3} \cdot min^{-1}$; right: $N_{coinc}\ 10^{-2}\ hr^{-1}$.

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Coincidences between conversion...

Fig. 2a. $N_{\text{sinice}} \cdot 10^{-4}$ min^{-1} as a function of Hg.

Fig. 2b. spectrum of conversion electrons. Diagram (a): coincidences of K99.7 electrons of Dy^{153}; diagram (b): coincidences of L80.84 + L82.48 electrons of Dy^{153} + L83.01 electrons of Dy^{157}; diagram (c): coincidences of K147.5 + K149.0 + L99.7 electrons of Dy^{153}.

Legend: abscissa: HQ, oe·cm; ordinate of diagrams (a), (b), and (c): $N_{\text{coinc}} \cdot hr^{-1}$.

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DZHELEPOV, B.S.; EVOL'SKIY, I.; NIKITIN, M.K.; SERGIYENKO, V.A.

Coincidences between conversion electrons arising in the decay of $Dy^{153} \to Tb^{153}$. Izv. AN SSSR. Ser. fiz. 26 no.2:202-204 F '62. (MIRA 15:2)

1. Ob"yedinennyy institut yadernykh issledovaniy i Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova.
                    (Electrons)
                    (Dysprosium—Isotopes)
                    (Terbium—Isotopes)

DZHELEPOV, B.S.; ROZHIN, Ye.N.; SERGIYENKO, V.A.

Coincidences of conversion electrons emitted in the decay of
Lu^{174}. Izv. AN SSSR. Ser. fiz. 26 no.9:1154-1158 S '62.

(MIRA 15:9)

(Lutetium—Decay)
(Internal conversion(Nuclear physics))

SERGIYENKO, V.B.

Comparative evaluation of methods for the detection of Trichomonas.
Lab. delo 6 no.4:44-45 Jl-Ag '60.   (MIRA 13:12)

1. Poliklinika No.3 (glavnyy vrach V.P.Slavgorodskaya), Moskva.
                    (TRICHOMONAS)

SERGIYENKO, V.D.; STOROZHIK, D.A.; USACHEV, V.P.

Using electromagnetic vibrating screens for the sieving of coke breeze.
Metallurg 10 no.9:3-5 S '65.   (MIRA 18:9)

KRIVENKO, V.I.; RABINOVICH, G.B.; SERGIYENKO, V.D.; STOROZHIK, D.A.

Operation of the mechanical equipment of blast furnaces with
a 2,000 capacity. Stal' 24 no.10:871-874 O '64.

(MIRA 17:12)

SOV/120-59-4-26/50

AUTHORS: Gubkin, A.N., Mitronina, V. S., Sergiyenko, V. F.,
Subbotin, M. I.

TITLE: Methods of Measuring the Electret Charge

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 4, pp 113-118
(USSR)

ABSTRACT: The authors review methods and equipment used in measure-
ment of the surface charge of electrets. The review begins
with a description of the electric field of an electret be-
tween two metal electrodes at the same potential (the "short-
circuited electret", Fig 1). Gubkin (Ref 6) showed that the
electric fields between the electret surfaces and the metal
electrodes and the field inside an electret are given by
Eqs (1) and (2) where E_{mA}^e is the electric field between
the m-th electret surface and the electrode A ; E_i is
the electric field inside the electret; d_1 and d_2 are the
gaps between the electrodes A and B and the electret
surfaces; σ_1^0 and σ_2^0 are the absolute densities of
charge on the first and second electret surfaces respective-
ly; L is the electret thickness; ε is the permittivity
of the electret material; σ_m^A is the surface density of a

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SOV/120-59-4-26/50

Methods of Measuring the Electret Charge

charge induced on the electrode A by the charge on the
m-th surface of the electret. Three methods of measuring
the electret surface charge are discussed in the present
review. One of these methods is the electrostatic induct-
ion method (Fig 2). The electrode A is lowered until it
is in contact with the upper electret surface with the switch

K closed. It follows then from Eq (1) that if

$\varepsilon(d_1 + d_2)/L \ll 1$, and $\sigma_1^o \approx \sigma_2^o$, then a charge equal and

opposite in sign to the charge on the electret surface is
induced on the electrode A . The switch K is then
opened and the electrode A is raised. If $\varepsilon d_1/L \gg 1$,

then the induced charge on the electrode A is almost com-
pletely free and it distributes itself between the capacitances
C_1 and $C = C_v + C_o$, connected in parallel (C_1 is the

capacitance of the electrode A , C_v is the capacitance

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SOV/120-59-4-26/50

Methods of Measuring the Electret Charge

of a voltmeter used in measurements and C_o is the capacitance which shunts the voltmeter). If $C \gg C_1$ the induced charge on the electrode A is given by $\sigma^o = q/S$, where S is the electret surface area. If the inequality $\varepsilon(d_1 + d_2)/L \ll 1$ is not satisfied (this happens in the case of electrets with high permittivity), the σ^o is calculated using Eq (1). The authors discuss two variants of the electrostatic induction method which use the relationship between the electret surface charge and the displacement current generated in an alternating electret field. In the first variant the electret field is varied by vibrating the electrode A above the electret surface. In the second variant the electret field is varied by rotation of a metal vane ("biscuit") between the electrode A and the electret surface. The authors derive equations (Eqs 4-7) which give the electret surface charge for both variants;

Eqs (5) and (7) apply in the special case when $\sigma_1^o = -\sigma_2^o = \sigma^o$

i.e. when the charge densities on two opposite electret surfaces are equal in magnitude but opposite in sign. Fig 3

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SOV/120-59-4-26/50

Methods of Measuring the Electret Charge

shows schematically one of the vibrators used in measure-
ments, following the first variant of the electrostatic
induction method. The moving system, which includes the
electret (8 in Fig 3) vibrates due to interaction of an
alternating magnetic field of a coil 7 with a field of
a permanent magnet 2 . This vibrator can be used in
conjunction with a selective amplifier shown in Fig 4.
Fig 5 shows another vibrator (only the upper electrode is
moved, the electret is kept fixed). The vibrations are
produced by interaction of a steel core 13 with an
alternating magnetic field of a solenoid 9 . Fig 6
shows a device for measuring the electret surface charge
using the second (rotating vane) variant of the electro-
static induction method. Thevane 10 is rotated at 100-
200 c/s. The second method of measuring the electret sur-
face charge uses depolarization of electrets which occurs
spontaneously during storage. The depolarization consists
of a slow decrease of the amount of bound (hetero-charge

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SOV/120-59-4-26/50

Methods of Measuring the Electret Charge

σ_f^O) and free (homo-charge σ_r^O) charges of an electret.
This may be due to disorientation of the "dipoles" by thermal motion (producing a displacement current of density j_1), due to mutual neutralization of free charge in the internal field of the electret E_i (producing current of density j_2) and due to transfer of free charge from the electret surface to an external electrode (producing a displacement current of density j_3). The current density in the external circuit joining the two electrodes A and B (Fig 7) is given by:

$$I = K \left(- \frac{d\sigma^O}{dt} + j_3 \right)$$

where
$$K = \left[\varepsilon \, (d_1 + d_2)/L + 1 \right]^{-1} .$$

By measuring the variation of I with time, which is large when electrets are depolarized artificially by heating or illumination, the value of σ^O can be found if j_3

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Methods of Measuring the Electret Charge

is known. Since in practice it is not possible to measure the current density j_3, the charge density on the electret can be found only in the special cases $j_2 = 0$ and $j_3 = 0$. For ceramic electrets the depolarization method yielded values of $\sigma \approx 10^{-9} - 10^{-8}$ coulomb/cm^2. The third method of measuring the surface charges on electrets uses interactions in the electret field. Two variations of this method are employed: 1) displacement of a movable electrode in the field of an electret and 2) deviation of an electron beam in the electret field. Both these variants yield the charge density induced on the electrode A (Eqs 13 and 14), and Eq (1) has to be used to obtain the surface charge density on the electret. Acknowledgments are made to

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SOV/120-59-4-26/50

Methods of Measuring the Electret Charge

G. I. Skanavi for his advice and to V. S. Mashtakov and
V. D. Kopanev for their help in carrying out this work.
There are 7 figures and 7 references, 3 of which are Soviet
and 4 English.

ASSOCIATION: Fizicheskiy institut AN SSSR (Physics Institute,
Academy of Sciences USSR)

SUBMITTED: July 3, 1958.

Card 7/7

2I419

S/120/61/000/002/032/042
E210/E594

9,2/80 (1144,1137,2303)

AUTHORS: Gubkin, A. N., Sergiyenko, V. F. and Trofimenko, N.M.

TITLE: On the Theory of Vibroprobes with Electrets

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No.2, pp.166-169

TEXT: Electrets are sources of a constant electric field and
can be used in instruments, the operation of which is based on
inducing an a.c. current in the field of the electret. Several
designs of electret vibroprobes are described in literature but,
according to the author, the theory of their operation has not been
evolved. Fig.1 shows a diagrammatic representation of an electret
between two metallic electrodes A and Б which are connected
through an external resistance R ("short-circuited" electret). On
the basis of electrostatic formulae, the following relation is
valid

$$\sigma = \sigma_0/(\varepsilon \ell/L + 1) \tag{1}$$

where σ is the density of the charge induced on the electrodes,
σ_0 - electret surface charge density, L - "electret thickness",
ℓ - the gap between the electrode A and the surface of the
electret. In the case that the electrode A vibrates relative to
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21429

On the Theory of Vibroprobes...   S/120/61/000/002/032/042
E210/E594

the electret, an alternating current, $I = S\,d\sigma/dt$, will flow in
the external circuit, S being the area of the electret surface.
The potential difference can be expressed by the following equation:

$$U = \frac{\varepsilon S}{L} \frac{\sigma_o}{(\varepsilon\ell/L + 1)^2} \frac{d\ell}{dt} \frac{R_o}{(1 + R_o/R)} \qquad (2)$$

where R is the external resistance of the circuit, R_o - internal
capacitive reactance of the short-circuited electret. Eq.(2) is
the basic equation characterizing the operation of various electret
instruments (microphones, telephones, vibration probes etc.).
Accordingly, the voltage on the input resistance is proportional to
the relative speed of displacement of the electrode A. In order
that the output signal is proportional to the relative electrode
displacement and not to the speed, it is necessary to integrate
Eq.(2) with time. By differentiating Eq.(2) with time we obtain
an output signal that is proportional to the relative acceleration
of the mobile electrode. The sensitivity of the vibroprobe as
regards acceleration can be expressed by

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On the Theory of Vibroprobes...

$$N_y = \frac{U_o}{d_o \omega^2} = A\,\sigma_o \frac{z}{\omega_o(1 - z^2)} \frac{R_o}{(1 + R_o/R)} \tag{6}$$

and, as regards displacement, by

$$N_c = \frac{U_o}{d_o} = A\,\sigma_o \frac{z^2 \omega}{(1 - z^2)} \frac{R_o}{(1 + R_o/R)} \tag{7}$$

The two extreme cases are considered: 1) A rigid membrane, $z = \omega/\omega_o \ll 1$ (ω_o - natural frequency of the mobile electrode). At low frequencies the sensitivity of acceleration probes will be directly proportional to the vibration frequency ω or will not be dependent on the frequency ω if the output signal is integrated with time; 2) a soft membrane, $z = \omega/\omega_o \gg 1$. In this case it is better to use an electret vibroprobe for measuring displacement. Verification of the results was carried out by means of an experimental electret vibroprobe made of a calcium titanate electret B ($\epsilon = 150$, 2.5 cm diameter, 0.15 cm thick) fixed into a special insulator base C. The membrane E is above

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On the Theory of Vibroprobes...   S/120/61/000/002/032/042
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the electret surface, the air gap between the membrane and the
electret surface was 0.015 cm.   A thin brass foil was used as a
second electrode.   The membrane was connected to the metallic
body A which was grounded; from the second electrode a lead D
to the external circuit was provided. The surface density of the
electret charge equalled 2×10^{-9} Coulomb/cm^2. The signal was fed
to the input resistance of a tube voltmeter with R = 2 megohm.
The experimentally determined resonance frequency of the mobile
electrode f_q equalled 1650 c.p.s. Good agreement between
calculated and experimental results were obtained. Fig.3 shows
the sensitivity of the vibroprobe with respect to acceleration W_y
(mV/g) as a function of the vibration frequency (c.p.s.). It is
pointed out that electret vibroprobes operate without external
supply sources and, in contrast to electromagnetic probes, the
alternating current is induced by the electric field and not by the
magnetic field. If the system, electret system-mobile electrode,
is considered as a plane condenser, a certain analogy can be
arrived at between electrets and capacitance probes, the main
difference being that capacitance probes require an external field.

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On the Theory of Vibroprobes ...   S/120/61/000/002/032/042
                                      E210/E594 .

Acknowledgments are expressed to V. A. Shmelev for evaluating the
results and to G. A. Rodionova for her assistance in the
experimental work. There are 3 figures and 5 references: all
Soviet.

ASSOCIATION: Fizicheskiy institut AN SSSR (Physics Institute
                AS USSR)

SUBMITTED: April 27, 1960

Fig.1

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SOURCE CODE: UR/0181/66/008/005/1522/1527
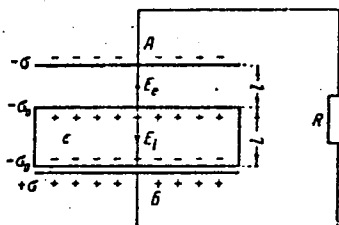
AUTHOR: Vavilov, V. S.; Golubev, G. P.; Konorova, Ye. A.; Nolle, E. L.; Sergiyenko, V. F.

ORG: Physics Institute im. T. N. Lebedev AN SSSR, Moscow (Fizicheskiy institut AN SSSR)

TITLE: Recombination radiation of diamonds during excitation by electrons

SOURCE: Fizika tverdogo tela, v. 8, no. 5, 1966, 1522-1527

TOPIC TAGS: recombination radiation, diamond, excitation spectrum, electron beam

ABSTRACT: The authors study the recombination radiation spectrum of a diamond near the fundamental absorption edge and in the visibl region. A pulsed beam of 150 kev electrons was used for excitation. The pulse duration was variable from 1.3 to 12 µsec with a prr of 10 cps. The current density in the beam could be raised to 2 a/cm^2. The recombination radiation spectrum extended in the visible region from 580 to 320 mµ. Some specimens showed a narrow band with a maximum at 389 mµ. The radiation spectrum in the ultraviolet region consists of three bands with maxima at 235, 242.3, and 250 mµ. The integral intensity of the fundamental radiation band (maximum 235 mµ) is only 0.5-1% of the integral radiation intensity in the visible region. It is assumed that the bands at 242.3 and 250 mµ are phonon repetitions of the band at 235 mµ.

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L 32042-66

ACC NR: AP6015473

When the curve for this band is extended along the axis for phonon energy it appears asymmetric with a form approaching Maxwell distribution, which indicates that the radiation is due to recombination of free particles. The shape and position of the ultraviolet radiation bands, and the effect of excitation level and temperature on luminescence intensity show that luminescence is caused by annihilation of excitons with simultaneous radiation of phonons. Orig. art. has: 5 figures, 3 tables.

[14]

SUB CODE: 20/   SUBM DATE: 21Oct65/   OTH REF: 006/   ATD PRESS: 5025

Card 2/2

L 29932-66   EWT(1)/EWT(m)/T/EWP(e)/EWP(t)/ETI   IJP(c)   AT/WH/JD

ACC NR: AP6018580   SOURCE CODE: UR/0181/66/008/06/1964/1965

AUTHOR: Vavilov, V. S.; Guseva, M. I.; Konorova, Ye. A.; Krasnopevtsev, V. V.;
Sergiyenko, V. F.; Titov, V. V.

ORG: Physics Institute im. P. N. Lebedev, AN SSSR, Moscow (Fizicheskiy institut
AN SSSR)

TITLE: Semiconductor diamonds obtained by ion bombardment

SOURCE: Fizika tverdogo tela, v. 8, no. 6, 1966, 1964-1965

TOPIC TAGS: semiconductor alloy, semiconductor crystal, semiconductor conductivity,
diamond

ABSTRACT: An investigation was made of the dependence of electric conductivity on
the temperature and concentration of the impurities introduced into a layer of diamond
doped with lithium and boron by ion bombardment. Diamond doping was carried out in an
ion-ray installation with a magnetic separation at a focusing angle of 180°. Lithium
and boron ions with an energy of 40 kev were introduced into the natural face of the
crystal or into the cleavage plane perpendicularly to the crystallographic directions
[111] and [100]. The activation energy for lithium was (0.29 ± 0.01) ev and for boron
(0.25 ± 0.01) ev. Lithium-doped diamond has an electron-type conductivity, while in
boron-alloyed diamond the holes are the major charge carriers. Annealing of specimens
at 600C for three hours in an argon atmosphere had virtually no effect on the activa-

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L 29932-66

ACC NR: AP6018580 5

tion energy of electric conductivity; the general resistance of the doped layer in-
creased somewhat only in the case of boron. The acceptor and donor levels appearing
in the forbidden band as the result of radiative defects are deep and have only a
slight effect on the activation energy. With an increasing concentration of lithium,
the activation energy decreases in the range of high temperatures as well as in the
range of lower temperatures. These rules apply to the impurity band, in which the
concentration of lithium is about 10^{20} cm^{-3}. Ion bombardment makes it possible to
obtain semiconducting layers of diamond whose electric conductivity can change by
5 to 10 orders, depending on the extent of doping. The energy level corresponding to
the lithium admixture is separated by 0.29 ev from the bottom of the conductivity
band, while the energy level of boron is 0.25 ev from the top of the valence band.
The authors thank V. M. Gusev for collaboration in the work, V. A. Mizonova and
N. A. Shuvalova for the preparation of specimens, Yu. Ye. Andreyev for participation
in the measurements, and S. A. Shevchenko for supplying a device for determining the
sign for the Hall coefficient. Orig. art. has: 2 figures and 1 table.   [JA]

SUB CODE: 20/ SUBM DATE: 08Jan66/ OTH REF: 004/ ATD PRESS: $50/1$

Card   2/2   r.c.

L 00740-66   EWT(m)/EPT(c)/T   BW/DJ

ACCESSION NR: AP5021990   UR/0236/65/000/014/0065/0065
                                           665.4/.5

AUTHOR: Garzanov, G. Ye.; Vinner, G. G.; Maloletkov, Ye. K.; Bogdanov, Sh. K.;
Sergiyenko, V. G.; Petyakina, Ye. I.; Selivanchik, Ya. V.; Vertlib, Ya. Ye.;
Gusman, M. Ye.; Shames, F. Ya.; Smirnov, M. I.; Granat, A. M.; Bulantseva, T. P.;
Krylova, T. A.

TITLE: A method for producing hydraulic fluid. Class 23, No. 172947

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 14, 1965, 65

TOPIC TAGS: hydraulic fluid, petroleum product

ABSTRACT: This Author's Certificate introduces a method for producing hydraulic
fluid based on petroleum products. The efficiency of the fluid at low tempera-
tures is improved by using a velosite distillate with a flash point of 115-120°C
and a viscosity of less than 2200 centistokes at -40°C.

ASSOCIATION: Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii i
tekhnicheskoy pomoshchi (Scientific Research Institute for Organization, Mechani-
zation and Technical Assistance)

Card 1/2

L 00740-66

ACCESSION NR: AP5021990

SUBMITTED: 14Aug64   ENCL: 00   SUB CODE: FP

NO REF SOV: 000   OTHER: 000

Card 2/2

SERGIYENKO, V.I.

π-separability of the product of pair permuted π-expansion
groups. Dokl. AN BSSR 5 no. 2:49-51 F '61.   (MIRA 14:2)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR.
Predstavleno akademikom AN BSSR N.P. Yeruginym.
                (Groups, Theory of)

SERGIYENKO, V.I.

Classes and complete sets of subgroups of finite groups. Dokl.
AN SSSR 146 no.6:1279-1281 O '62.   (MIRA 15:10)

1. Gomel'skoye otdeleniye Instituta matematiki i vychislitel'noy
tekhniki AN Belorusskoy SSR. Predstavleno akademikom A.I.
Mal'tsevym.
              (Groups, Theory of)

L 18215-63   EWT(d)/FCC(w)/BDS   ASD/ESD-3/APGC/IJP(C)   Pg-4/Pk-4/Po-4/
Pq-4   GG
ACCESSION NR: AT3001879   S/2906/62/000/000/0106/0113

AUTHORS: Barun, B.V.; Zelinskiy, E.M.; Sergiyenko, V.I.

TITLE: Integrating block of a digital integrating machine

SOURCE: Kombinirovannyye vychislitel'nyye mashiny; trudy II Vsesoyuznoy
konferentsii-seminara po teorii i metodam matematicheskogo modelirovaniya.
Moscow, Izd-vo AN SSSR, 1962, 106-113

TOPIC TAGS: computer, integrator, integrating block, block, integrating,
digital, memory, logic, circuitry, increment, counter, summator, adder

ABSTRACT: This theoretical paper discusses the integration operation entailed
by the trapezoidal-quadrature formula developed by F.V. Mayorov (elsewhere in
the same sbornik) for the digital differential analyzer (DDA) developed at the
Institut avtomatiki i telemekhaniki AN SSSR (Institute of Automation and Tele-
mechanics, AS USSR). The integration operation described is broken down into
6 specified steps, including: (1) The algebraic summation of the increments
appearing at the integrator input; (2) the accumulation of the running function in a
register Y as the sum of its antecedent value and an increment (with retention of
the running value of the function until the next step); (3) the formation of the mean

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ACCESSION NR: AT3001879 $\vec{O}$

value of the integrand function as a sum of its running value plus 1/2 the increment;
(4) the multiplication of the mean value of the integrand function by the increment
of the independent variable; (5) the summation of the values of said products with
the number collected in a register S, which has the same number of digits as the
register Y, to obtain the value of the integral S_i^* for the given step. The code of
that number is then remembered until the next step; (6) the overflow signal of the
register S is attributed .. the sense of increments of the integral S. The DDA
described operates in the binary system of counting with fixed decimal point. The
machine employs a ternary method of increment coding, that is, each increment
may have the 3 values −1, 0, and +1. Transmission of the increments is performed
by two separate channels. Two memory units are employed to store the increments.
A simplified functional scheme is described and depicted graphically. The scheme
provides for: (a) integration; (b) introduction of continuous quantities (voltages);
(c) introduction of digital quantities (codes); (d) formation and introduction of
functions; (e) logic operations; (f) output of the data to the operating organs.
The capacitive memory system, the increment counter, and the series-type
single-digit summator are described and depicted schematically. The results of
the solution of a problem analyzed have confirmed the validity of the construction
of the logic schemes of the integrating block and have proved the fundamental
possibility of its dependable operation under real conditions. Orig. art. has

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L 18215-63
ACCESSION NR: AT3001879

9 figs. and 5 numbered equations.

ASSOCIATION: none

SUBMITTED: 00   DATE ACQ: 11Apr63   ENCL: 00

SUB CODE: CP, MM   NO REF SOV: 001   OTHER: 000

Card 3/3

ACC NR: AP6025658   SOURCE CODE: UR/0413/66/000/013/0110/0111

INVENTOR: Bleyvas, I. M.; Belinskiy, N. A.; Zelinskiy, E. M.; Dubrovina, S. A.;
Sergiyenko, V. I.

ORG: None

TITLE: A device for simultaneously solving equations of motion of charged particles
and electric field equations. Class 42, No. 183494

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 13, 1966,
110-111

TOPIC TAGS: motion equation, computer component, charged particle, electric field

ABSTRACT: This Author's Certificate introduces: 1. A device for simultaneously sol-
ving equations of motion of charged particles and electric field equations. The unit
contains an electrolytic bath with conductive elements, a probe head, a digital com-
puter which solves the motion equation of a charged particle and servosystems which
move the probe head with respect to two coordinates. Computational speed and ac-
curacy are increased by using a magnetic operational memory with one input connected
to the digital computer through a summation unit and a diode which is controlled by
pulses from the address formation unit. The second input of the magnetic operational
memory is connected to the output of the address formation unit, and the memory out-

Card   1/3   UDC: 681.142.001.572